



The COVID-19 Pandemic Influence on Doctor's Service Performance Using Workload as a Mediation Variable

Fida Rahmayanti*, Noermijati Noermijati, Armanu Armanu, Fatchur Rohman

Economy and Business Faculty, Brawijaya University, Malang, Indonesia

Abstract

BACKGROUND: The COVID-19 pandemic greatly affected doctors' increasing workload, especially in Primary Health Care Facilities. If this is not addressed immediately, it will affect the performance or quality of a doctor's service.

AIM: This research objective is to identify the role of Primary Healthcare Facility doctors' workload in moderating the impact of the COVID-19 Pandemic on their performance.

METHODS: The explanatory-descriptive research was conducted using a quantitative approach. The research respondents were 103 general practitioners who worked at a Primary Healthcare Facility in Malang City (35.0% male and 65.0% female, the most extensive age range was 26–35 years (74.8%), with a working period of 1–5 years. 57 (55.3%) The research instrument was a questionnaire declared valid and reliable, distributed online, and analyzed using Partial Least Square.

RESULTS: The findings demonstrated that the COVID-19 pandemic significantly positively affected the performance of Primary Healthcare Facility doctors ($\beta = 0.455$, $t \text{ stat} = 11.390$). The pandemic also significantly impacted workload ($\beta = 0.283$, $t \text{ stat} = 4.347$). Workload impacted performance significantly and positively ($\beta = 0.224$, $t \text{ stat} = 4.157$). Workload mediates the COVID-19 Pandemic influence on doctors' performance ($\beta = 0.063$, $t \text{ stat} = 3.005$).

CONCLUSIONS: Doctors at Primary Health Care have not all experienced a decline in performance despite the increased workload due to the COVID-19 Pandemic. It forces doctors to juggle between completing their tasks, fighting against disease, and improving their performance.

Edited by: Sasho Stoleski
Citation: Rahmayanti F, Noermijati N, Armanu A, Rohman F. The Covid-19 Pandemic Influence on Doctor's Service Performance Using Workload as a Mediation Variable. Open Access Maced J Med Sci. 2023 Jan 19; 11(E):219-228. <https://doi.org/10.3889/oamjms.2023.11374>
Keywords: Covid-19 pandemic; Doctor's service performance; Workload; Primary healthcare
***Correspondence:** Fida Rahmayanti, Economy and Business Faculty, Brawijaya University, Malang, Indonesia.
E-mail: dr.fida@ub.ac.id
Received: 08-Dec-2022
Revised: 06-Jan-2023
Accepted: 09-Jan-2023
Copyright: © 2023 Fida Rahmayanti, Noermijati Noermijati, Armanu Armanu, Fatchur Rohman
Funding: This research did not receive any financial support
Competing Interests: The authors have declared that no competing interests exist
Open Access: This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

Introduction

Doctors' performance must be thoroughly researched to preserve and advance healthcare development. This performance study clarifies the variables affecting medical professionals' and healthcare organizations' performance [1]. Work performance or achievement is a term used to describe how well an individual or group of people within an organization implements a program of organizational strategic planning and operational activities [2]. Based on Gibson in Yanti *et al.*, the theory is that three main aspects affect workers' lives in behavior and performance. These aspects are (1) individual aspects, (2) psychological aspects, and (3) organizational aspects that maintain human resources so that they can be better coordinated [3]. Doctors' performance determines health service success, especially in Primary Healthcare Facilities. Doctors' performance also directly impacts providing quality standardized health services and focusing on patient safety. Doctors are considered to perform well when they work responsively, reasonably, and efficiently to achieve the best results in the health sector [4]. As the best human resources, doctors need to evaluate their performance because it is a vital variable for the survival of health organizations [5], [6].

However, in practice, doctors often experience problems that cause their performance to not be optimal, especially during the COVID-19 Pandemic era as it is today. The severe physical and psychological effects that the COVID-19 Pandemic had on doctors will surely impact how well they do their duties in providing care for patients. The high need for health workers also exacerbates this during the COVID-19 Pandemic, especially doctors, because they are among the health workers at the forefront of health services [7]. Challenges for health workers throughout the archipelago that had to be faced during the COVID-19 Pandemic included: (1) Direct contact with infected patients; (2) working with a higher level of vigilance than before and with stricter health protocols; (3) the risk of contracting various diseases, especially the COVID-19 infection itself; and (4) high workload as a result of the growing patient population and the imbalance with the capability of the human resource pool.

Doctors' workload includes both internal and external factors. Workload due to internal factors is a burden that comes from within itself, which is the body's reaction. Factors causing internal workload consist of several factors, including gender, health conditions, motivation, perceptions, and beliefs. While, the workload due to external factors is a workload that comes

from outside the worker or what is called a stressor. Workload due to external factors consists of several factors, namely, the workplace/environment, tools, and facilities, working conditions, length of working time, wage system, and the presence of a virus outbreak such as today, namely, the coronavirus [8]. A doctor with a high workload will impact his performance, which affects the results of the work provided by the company. Every job can have a mental, physical and social impact, creating a burden for someone who does it. In every company or organization, each individual can react differently to the workload they get. Some doctors can cope much better, while others can suffer and ruin their concentration at work. A previous study on this matter explained that a workload that is too high could negatively affect performance due to the pressure received by doctors in carrying out their duties [9]. Doctors are vital in health services, often requiring face-to-face contact with patients. The Primary Healthcare Facility sets jobs and responsibilities for each doctor, a doctor has a heavy workload that needs to be done. This workload will eventually put pressure on them and potentially reduce their performance.

Some of the results of previous research show that the fear and anxiety experienced by workers (psychological burden) is the COVID-19 pandemic's effects on employees. This impact can also be felt by every institution, namely by decreasing employee performance. The findings of research by Erer, which claim that the COVID-19 epidemic has a significant (negative) link to employee performance, provide evidence to support this assertion [10]. This means that if there is an increase in anxiety about the COVID-19 pandemic, it can reduce performance. This is consistent with studies by Que *et al.*, which found that interacting with patients during the COVID-19 Pandemic resulted in work fatigue for nurses, doctors, and other healthcare professionals [11]. In addition, health workers also experience fear of the risk of infection, feel they have lost their ability to provide care to patients, and need great support to minimize the stress they experience. The severe physical and psychological toll that the COVID-19 outbreak took on nurses will undoubtedly affect how well they perform their duties. In contrast to Bateman and Scott, his research about healthcare workers during the COVID-19 pandemic tended to feel optimistic about doing their jobs so that their performance improved and they were motivated to work hard [12]. Windarwati *et al.* put forward the same thing. They stated that a sense of optimism for health workers grew from handling COVID-19 was the responsibility of health workers based on professional ethics, there were rewards for COVID-19 fighters, there was support from family, and most importantly, health workers are committed together to fighting as the frontline [13]. Optimism is a coping mechanism that affects doctors' performance improvement [14]. Furthermore, Yuniswara revealed that optimism could trigger germ aversion behavior (letting go of the fear

of being infected). Germ aversion is a behavior carried out by oneself to get out of a threat (infected by covid-19). In line with this, health workers who have germ aversion behavior will raise the mind that the COVID-19 virus is everywhere. This can have a positive impact when doctors try to prevent themselves from getting COVID-19 and curing their patients of the virus [15].

The disparity between the findings of this empirical study suggests that the findings of the research that has been conducted need to be more consistent and identify a research gap to serve as a guide for further research. It can be done by placing a new variable to cover this research gap. In this study, the researchers included workload as a mediating variable. It can be said that the novelty of this research is workload mediation on the COVID-19 pandemic effects on the Primary Healthcare Facility doctors' performance.

Literature Review

Doctor's service performance

Performance is defined as the result of a person or group's work at a particular time that reflects how well a person or group achieves job qualifications in the mission of achieving organizational goals [16]. Performance includes behavior controlled by workers but is still within the limits of work behavior (excluding behavior outside work) that is still relevant to behavior in carrying out work. In carrying out work, performance is one of the individual outcomes of each worker. Individual outcomes can be influenced by several factors from within each individual, referred to as individual mechanisms, both positively and negatively affecting [17].

The performance of health workers, one of which is the performance of doctors as medical personnel in a health service, is very important because it can directly impact providing adequate health services [4]. Performance appraisal is one way to measure the contribution of someone who works in an organization. Performance appraisal is a system that is carried out to determine how productive a worker is in carrying out his work and how workers work together in a group to be more effective so that the results obtained can benefit the organization, society, and the workers themselves [18].

Doctors' performance can be determined in 4 (four) indicators: Availability, competence, responsiveness, and productivity [19]. Availability is the readiness of doctors in terms of space and time, including the distribution and presence of existing doctors. Competence includes a combination of technical knowledge, skills, and behavior. Responsiveness is

the best health service provided by health workers regardless of improving the patient's recovery or who the patient is. Productivity, resulting in effective health services and maximum health outcomes, considering the availability of existing doctors, reducing the wastage of staff time or skills. If the doctor meets the criteria of the four indicators above, it can be said that the doctors perform well [19].

The COVID-19 pandemic

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is the source of Coronavirus Disease 2019, a respiratory condition. This virus is a new type of coronavirus that has never been previously identified in humans. At least two different coronavirus types have been linked to illnesses with severe symptoms, including Middle East Respiratory Syndrome and SARS [20].

One example of the effects of environmental dynamics is the COVID-19 pandemic. Rapid and unpredictable environmental changes at the moment increase uncertainty, which can impact people and organizations, particularly in the health-care sector. When making decisions. Environmental dynamics are defined by Dess and Beard in 1984 in Liem and Hien as fast and unpredictable changes that increase uncertainty for individuals and organizations operating in a changing environment [21]. Liem and Hien (2020) argue that environmental dynamics are volatility (speed of change and innovation) as well as uncertainty or unpredictable action of competition and customer demand Research by Liem and Hien (2020) shows that uncertainty is the main contextual factor influencing individuals and organizations in decision-making. These impacts can be experienced by health workers both physically and psychologically [21].

For health professionals, working in the COVID-19 Pandemic environment might lead to sentiments of stigma. The WHO also revealed that some health workers may have experienced being avoided by their families or communities because of stigma or fear [22]. Various conditions during the COVID-19 Pandemic psychologically affected society, including health workers [23]. Transmission of the SARS-CoV-2 virus with a medium in the form of droplets with easily transmitted characteristics makes health workers who interact directly with patients with indications of COVID-19 have to be more careful in handling and caring for patients.

The continuous increase in COVID-19 cases has greatly affected the increase in workload and the psychological condition of the forefront, namely, doctors [24]. The increasing number of patients, but not matched by the readiness of the facilities and the number of medical personnel, will make the medical staff exhausted and add a heavy burden to doctors, who are the people most at high risk of exposure

to the virus [25]. Doctors' duties increased because the level of expertise required was too high, the speed, and dexterity of work were high, and the work volume was too much during this pandemic, causing doctors to be vulnerable to fatigue, anxiety, and even depression [26].

Workload

According to Munandar (2014 p. 383), the workload is a requirement of the work being performed that includes a breakdown of the tasks that must be done within a set deadline or predetermined time [27]. According to Irzal (2016 p. 25), the workload is also an effort that must be spent by someone to fulfill the request of the employer [28]. The limited size or portion of an operator's capacity required to perform a particular job. According to Sunyoto, overworked individuals may get tense and experience stress [29]. The possible reasons might be the high level of expertise required, the fast work speed, and the high volume of work. The workload is the body's ability to perform a task. From an ergonomics perspective, employees' workload must be suitable for and balanced with their physical and psychological capacities. Physical and psychological strains are two different ways that the workload may manifest. A physical workload can take the shape of strenuous activities, including pushing, lifting, and caring for objects. Meanwhile, individuals' level of knowledge and productivity at work determines a worker's psychological workload compared to others [30].

Workload depends on the amount of work to be done, time, and certain aspects that need attention, and the psychological experience of each individual. During the COVID-19 Pandemic, longer working hours, pressure from various parties, increased stress, and fears of contracting the virus caused doctors' workloads to be larger than usual [31]. Several previous studies have stated that workload significantly affects burnout [32]. Feelings of emotional exhaustion and depersonalization can lead to a loss of meaning in work. Then the feeling of not being confident in their abilities also affects the quality of the services provided.

The following hypotheses can be developed and tested based on the background information and literature review.

- H_1 : The COVID-19 pandemic significantly affected doctors' performance
- H_2 : The COVID-19 pandemic significantly affected workload
- H_3 : Workload significantly affected the doctors' performance
- H_4 : Workload mediated the COVID-19 Pandemic influence on doctors' performance.

Methods

Research design and respondents

The study was conducted in 2021 at a time of high new cases and the number of deaths due to the COVID-19 Pandemic. This study uses a quantitative technique and is classified as descriptive-explanatory research. The data collection method incorporated a Google form for an online questionnaire that had previously undergone validity and reliability tests using online surveys and been analyzed using Partial Least Squares. This study involved 103 general practitioners registered with the Malang City Health Office and worked at First Level Health Facilities in Malang City. Four variables are to be measured in this study: The COVID-19 pandemic as the independent variable, the doctor's performance as the dependent variable, and workload as the mediating variable.

Measurement and data collection

Measurement of the instrument using a Likert scale written in words strongly disagree to strongly agree or vice versa. Each variable has an indicator which will later be used as a reference in compiling research items in the form of a statement. The COVID-19 Pandemic variable consists of two indicators, referring to the Theory of Environmental dynamics, which includes the impact of the COVID-19 Pandemic, namely from doctors' physical and psychological aspects [21]. Doctor's performance variable refers to the WHO and Indonesian Doctor's Competency Standards consisting of three indicators: competence, responsiveness, and productivity [4]. The workload variable consists of four indicators: Work task, time pressure, time-binding, and work hour [33].

Validity and reliability testing

Validity testing

Using the Pearson Correlation method (Product Moment), each item or item score is compared to the total score to determine the instrument's validity. The test criteria specify that if the correlation coefficient value (r_{iT}) is greater than or equal to (\geq) the table correlation (0.361), it means that the item is valid or able to measure the variable. It can be used as a data collection tool. The summary of the results of validity testing is shown in Table 1.

All items have a correlation coefficient greater than the table correlation (0.361), as shown by the summary of the results of the validity test of the research instrument. As a result, these items are acknowledged as valid or capable of measuring these variables,

allowing for their use as data collection techniques in this study.

Reliability testing

The purpose of reliability testing is to ascertain the consistency and dependability of the research instrument as a tool for measuring the variables it measures. Cronbach's Alpha was used to perform the reliability testing. The test criteria specify that when Cronbach's Alpha coefficient is greater than or equal to 0.6, the item is deemed reliable or consistent in measuring the variable. The reliability test results summary is shown in Table 2:

According to the summary of the study instrument reliability testing findings, all variables result in Cronbach's alpha values are >0.6 . As a result, the indicator item is confirmed as being reliable or consistent for use in this study's data collection.

Data analysis

Data analysis is through 2 stages, namely, descriptive and statistical analysis. The descriptive analysis describes the perceptions of respondents collected from each statement item, indicator, and variable using an average value without comparing or connecting with other variables using five categories: 1 = Very low; 2 = Low; 3 = High Enough; 4 = High; and 5 = Very High. While statistical data analysis was carried out by testing the direct and indirect effects, it was measured using the SmartPLS software. The direct effect test is performed to identify whether the exogenous variables directly impact the endogenous variables. The indirect effect test also aims to test whether the exogenous variables indirectly affect the endogenous variables through intervening variables. The test criteria define that if the t statistic is larger than the t table (1.96), then it is claimed that exogenous variables have a significant impact on endogenous variables. The path coefficient's or indirect coefficient's value shows the relationship direction between variables. If the value is positive, it indicates a significant positive effect. If the value is negative, it indicates a significant negative effect [34], [35].

Results

Research instrument testing

The research instrument first tests the questionnaire used as a data collection tool. A validity and reliability test are performed to measure the accuracy and dependability of the questionnaire as the data collection tool. Based on the validity test results

Table 1: Validity test

Variable	Indicator	Item	Correlation coefficient	Remarks
Performance	Competence	Doctor's competence certificate	0.521	Valid
		Communication skill	0.738	Valid
		Accuracy in treatment	0.770	Valid
	Responsiveness	Empathy toward patients	0.684	Valid
		Sympathy toward patients	0.631	Valid
		Speed of determining patient diagnosis	0.774	Valid
		Presence on shift	0.642	Valid
	Productivity	Completing all task	0.706	Valid
Pandemic	Psychology aspects	Fear at work	0.730	Valid
		Forced to work	0.567	Valid
		Feeling stress	0.645	Valid
	Physical aspects	Fatigue	0.710	Valid
		Infected COVID-19	0.566	Valid
		The high amount of work assigned	0.679	Valid
Workload	Work tasks	High workload	0.836	Valid
		Work demand	0.724	Valid
		Working speed	0.767	Valid
	Time pressure	Job deadlines	0.839	Valid
		Overtime works	0.917	Valid
	Time binding	Working time deficiency	0.914	Valid
		Excessive working hours	0.800	Valid
	Work hour	Extra time outside working hours	0.844	Valid

summary on the research instrument, it showcased that all items have a correlation coefficient larger than the correlation table (0.361). Hence the research items are declared valid or able to measure these variables. In addition, based on the findings of the instrument reliability test, it is evident that every variable results in Cronbach's alpha value >0.6. Furthermore, these indicators are declared reliable or consistent as the data collection tools in this study.

Table 2 : Reliability test

Variable	Cronbach's alpha	Remarks
Performance	0.834	Reliable
Pandemic	0.640	Reliable
Workload	0.936	Reliable

Respondents characteristics

This study involved total respondents of 103 Primary Healthcare Facility doctors in Malang City. Based on the total number of respondents who filled out the questionnaire, it is known that most Primary Healthcare Facility doctors are in the age range of 26–35 years (74.8%). There were 67 (65.0%) female doctors, 36 (35.0%) male doctors, with a working period of 1–5 years are 57 (55.3%).

Table 3: Description of respondents on performance variables, the COVID-19 pandemic, and workload

Variable	Indicator	Indicator averages	Variable averages
Performance	Competence	4.35	4.31
	Responsiveness	4.16	
	Productivity	4.41	
COVID-19 pandemic	Phycology aspect	3.58	3.67
	Physical aspect	3.77	
Workload	Work tasks	3.58	3.40
	Time pressure	3.77	
	Time binding	3.19	
	Work hours	3.07	

Descriptive analysis

In the performance variable, productivity is an indicator with the highest average value of 4.41 (Table 3). This average value indicates that doctors' productivity at a Primary Healthcare Facility in Malang City is very good. While overall, the average

performance variable is 4.31. In other words, the performance of Primary Healthcare Facility doctors in Malang City is very good. The COVID-19 Pandemic variable has two indicators, namely, the psychological impact and the physical impact. The overall average for the COVID-19 Pandemic variable is 3.67. In conclusion, the COVID-19 Pandemic possesses a major influence, whereas the physical impact has the highest average of 3.77. Therefore, it can be concluded that the COVID-19 Pandemic has had the most effect on the physical aspect. In the workload variable, the time pressure indicator has the highest average of 3.77. Hence, it can be said that the workload felt by doctors is best illustrated by time pressure in the high category. While the average workload variable as a whole is 3.40, so it can be said that the current workload experienced by doctors is in the high category.

Testing the direct effect hypothesis

The direct effect hypothesis is tested to determine if exogenous variables have a direct impact on endogenous variables. The test criteria state that if T statistics are greater than the T table (1.96), it is acknowledged that exogenous variables have a significant influence on endogenous variables. The results of hypothesis testing are showcased in below Table 4.

Table 4: Testing the direct effect hypothesis

Exogen	Endogen	Path coefficient	t-statistic	Remarks
Pandemic	Performance	0.455	11.390	(+) significant
Pandemic	Workload	0.283	4.347	(+) significant
Workload	Performance	0.224	4.157	(+) significant

The influence of the COVID pandemic on doctors' performance resulted in a t statistic of 11.390. The test findings demonstrate that t statistics are greater than the t table (1.96). Confirming that there is a significant influence of the COVID pandemic on doctors' performance. The influence of the COVID pandemic on workloads resulted in a t statistic of 4.347. The test results show that t statistics are greater than the

t table (1.96). This means that the Covid-19 pandemic significantly influenced workload. The workload on doctors' performance produces a t statistic of 4.157. The test results show that t statistics are greater than the t table (1.96). Hence, there is a significant effect of workload on doctors' performance.

Indirect influence hypothesis testing

To determine whether exogenous variables indirectly impact endogenous variables through intermediary variables, indirect effect hypothesis testing is used. If the t statistics value is greater than the t table (1.96), it indicates a significant influence of exogenous variables on endogenous variables through intervening variables. A summary of the findings from testing the indirect influence hypothesis is provided in Table 5.

Table 5: Indirect influence hypothesis testing

Exogen	Mediator	Endogen	Indirect coefficient	SE indirect	t-statistic	Remarks
COVID-19 pandemic	Workload	Performance	0.063	0.021	3.005	(+) significant

SE: Standard error.

The test results in Table 5 indicate the influence of the Covid-19 Pandemic on doctors' performance through workloads, where it produces a t statistic value of 3.005. The test results demonstrated that the t statistic value is larger than the t table (1.96). This indicates that the COVID-19 epidemic significantly impacts doctors' workloads and performance. The direct effect of the COVID pandemic on workload is also significant, and the workload impact on performance is stated to be significant. Therefore, the workload is a partial mediation for the influence of the COVID pandemic on doctors' performance. This means that with or without the support of the COVID pandemic workload, it still significantly affects doctors' performance (Figure 1).

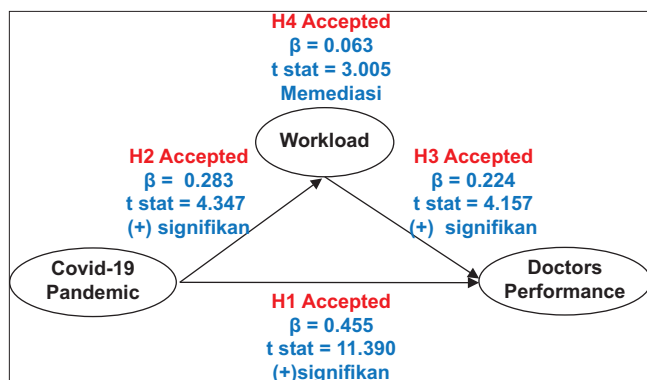


Figure 1: Hypothesis testing results

Discussion

The COVID-19 pandemic has significantly affected doctors' performance

In the battle against the COVID-19 epidemic, physicians are at the forefront. They are more

likely to become infected than other community members [36]. Doctors' ability to do their jobs in treating COVID-19 patients will undoubtedly be impacted by the severe physical and psychological effects they endured during the COVID-19 pandemic. During a pandemic like this, doctors often have anxiety, so work stress increases. Seen by the symptoms of decreased employee performance, work stress, and high workload will lead to low-quality work. Factors that trigger work stress cause certain conditions in which a person becomes depressed both physically and non-physically [37]. The increasing need for health workers also exacerbates this during the COVID-19 Pandemic, especially doctors who are one of the frontline health workers in handling and preventing transmission of Covid-19 [7].

Erer states that the COVID-19 pandemic has a significant (negative) relationship to employee performance [10]. This means that if there is an increase in anxiety about the COVID-19 pandemic, it can reduce performance. Environmental changes as a result of the COVID-19 pandemic have a direct impact on individuals in the workplace. As one of the consequences, the workplace is likely to experience several impacts as a result of the COVID-19 Pandemic [38], among others, worker absences, changes in service patterns, and disruptions to the supply and delivery of medicines and medical devices. The impact of the COVID-19 pandemic on doctors can be assessed through psychological and physical aspects. COVID-19 also affects performance as measured by behavior at work, how to communicate, and also in carrying out daily activities. The fear and anxiety experienced by workers (psychological burden) are one of the impacts of the COVID-19 pandemic on workers. This impact can also be felt by every institution, namely, by decreasing employee performance.

However, this study's findings are intriguing. The Covid-19 epidemic greatly impacts doctors' performance (t statistic 11.390 greater than the t table 1.96). Hence, hypothesis 1 is accepted. With the COVID-19 Pandemic, the performance of Primary Healthcare Facility doctors has also increased. The more cases of covid, the more enthusiastic we are to fight and overcome Covid-19 jointly. This is in line with research by Arslan, Yildirim, Tanhan, Bulus, Kelly (2020), Agustina and Aswin (2021) showing that several things can support the emergence of optimism for health workers in carrying out their work during the Covid-19 pandemic, namely by finding a Covid-19 vaccine and reduced mortality and morbidity due to the Covid-19 pandemic [12], [39], [40]. Healthcare employees during the Covid-19 pandemic tended to feel optimistic in carrying out their work (handling the Covid-19 pandemic) and were motivated to work hard. Windarwati *et al.* stated the same thing and stated that a sense of optimism for health workers grew because handling Covid-19 is the responsibility of health workers based on professional ethics, there is a

reward for Covid-19 pandemic fighters, there is support from the family, and most importantly, health workers are committed together to fight as the frontline [13]. Optimism is a coping mechanism that can reduce stress levels and provide motivation for health workers so that doctors will be even more motivated to improve their performance by trying to heal and break the chain of transmission of COVID-19.

The COVID-19 pandemic has significantly affected workload

The findings show that the COVID-19 Pandemic significantly positively affects workload (t statistic 4.347 > t table 1.96), thus stating hypothesis 2 is accepted. The higher the level of the Covid-19 Pandemic, the higher the workload of Primary Healthcare Facility doctors. Over time, the number of COVID-19 cases has increased and spread widely. Finally, in March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. This pandemic has caused uncertainty, drastic changes, and circumstances that are out of control, creating new challenges for healthcare employees in treating patients infected with COVID-19. Various threats lurk for health workers at the forefront during this pandemic. The risk factors that health professionals encounter when addressing COVID-19 may increase workload and ultimately work exhaustion. A high workload can be an important factor in decreasing performance, productivity, and patient satisfaction [41].

Supporting the previous studies, workload depends on the amount of work to be done, time, and certain aspects that need attention, and the psychological experience of individuals. During the COVID-19 pandemic, longer working hours, pressure from various parties, increased stress, and fears of contracting the virus caused the workload of health workers to be larger than usual [31]. The previous studies have also stated that workload significantly affects emotional exhaustion [32], [42], [43], [44]. Feelings of emotional exhaustion and depersonalization can lead to a loss of meaning in work. Then the feeling of not being confident with their abilities also affects the performance and quality of the services provided. Health workers who force themselves to complete their work will feel extremely tired, affecting the performance of health workers in providing services to patients [42]. This was reiterated in a similar study which said that excessive workload can cause reduced physical strength to continue the work and reduce doctors' motivation and performance.

Workload significantly influenced doctors' performance

The COVID-19 pandemic has greatly affected people seeking treatment at health services such as hospitals. Many think that if they seek treatment or check

themselves into a hospital, they will be more vulnerable to contracting COVID-19. Thus, patients prefer to go to Primary Healthcare Facility, which is considered safer. This led to an increase in the number of patient visits at the Primary Healthcare Facility, which in turn caused the doctor's workload to increase. In addition to the increased workload, health protocols have also emerged requiring personal protective equipment while working. This protocol also increases the burden on the work of doctors. Doctors carrying out their work have enormous duties and responsibilities to patients, so a doctor must be professional in serving patients. High patient demands can unconsciously cause a workload for doctors when carrying out their duties and affect their performance.

However, in this research, it was the other way around, Workload had a significant positive effect on physician performance (t statistic 4.157 > t table 1.96). The unique meaning of this study indicates that the higher the workload level, the higher the performance of Primary Healthcare Facility doctors. The professionalism of a doctor is very visible here, doctors are health heroes who have an unyielding spirit and care more about their patients than their own lives. When patients come together, a doctor is usually more challenged to complete the patients' examinations one by one quickly. In other words, the faster the work, the shorter the patient line will be. This research is in line with Difa *et al.*, the workload positively and significantly affects doctors' performance. This indicates a direct relationship between workload and a doctor's performance, in the sense that if the ability to cope with workload increases, the doctor's performance will also increase [45].

However, Primary Healthcare Facility leaders must be able to analyze the excess workload of their doctors. Because gradually, if the workload is too high and exceeds the ability of the doctors, it might even reduce the quality of service and violate patient safety. The workload given to doctors must be analyzed and calculated using certain methods or techniques to match the availability of doctors, types of services, and the organization's or institution's needs. According to Sutarto in Zulmaidarleni *et al.*, the workload of the organizational unit or the workload of each official or employee should be evenly distributed. There should be no Primary Healthcare Facilities that are too busy and Primary Healthcare Facilities with too little work. The same goes for doctors who are overwhelmed with heaps of work and have less workload. Hence, it seems that there are too many unemployed. So that during the COVID-19 Pandemic, there were many mutations of health workers and even doctors who became COVID-19 volunteers who were ready to be sent anywhere where emergency handling of COVID-19 was needed. That is the soul of a doctor, never giving up and being willing to stand at the forefront to fight and prevent the spread of COVID-19 [46].

Workload mediating the effect of the covid-19 pandemic on doctor's performance

The WHO established the pandemic in March 2020 and was identified as an event of the massive spread of disease transmission at the global level. Doctors have the highest risk of contracting COVID-19. During the COVID-19 Pandemic, the number of medical personnel who contracted the infection increased, causing a decrease in the number of medical personnel on duty. The shortage of medical personnel in healthcare facilities causes much work to pile up and must be done by other medical personnel. Ultimately causing the workload of each medical personnel to increase [47]. If this problem is allowed to drag on, it will affect the performance of the medical personnel. Doctors carrying out their duties during a pandemic were identified to work more stringently in line with increasing working hours and employee workload. Job demands always provide the best service for patients, sometimes, employees, especially doctors, are a little stressed because of dividing their time. It is marked by the division of work shifts, including the night shift, which impacts decreasing performance.

The higher the workload received by healthcare professionals, the higher the level of burnout experienced. Health workers who force themselves to complete their work will feel extremely exhausted, affecting their performance in providing services to patients [42]. This was again emphasized in the research of Schultz & Schultz, 2020 which said fatigue due to excessive workload can cause reduced physical strength to continue the work and can reduce work motivation and productivity. Doctors with excessive workloads can decrease the level of health, work motivation, and quality of service and fail to take action to help patients, allowing for negligence or even death. In addition, a negative consequence of increasing workload is the possibility of doctors' emotions arising that are not meeting patients' expectations and affecting the quality of service [48].

These statements support this study's findings where workload mediates the effect of the COVID-19 pandemic on doctor performance (t statistic $3.005 > t$ table 1.96), so hypothesis 4 is accepted. This research proves that the COVID-19 pandemic affects doctors' performance indirectly and is mediated by an increased workload that will improve doctors' performance. This is also in line with a study conducted by Kusumaningsih *et al.* (2020), which found a correlation between physical workload and implementing patient safety and increasing doctors' performance during a pandemic [49]. Other studies have identified various factors that have led to an increased workload on health workers, spurring them more motivated to tackle COVID-19 [50] immediately.

Saptarani *et al.* (2022) also share the same opinion that even though the workload is quite high, it does not necessarily reduce the work productivity

of doctors and instead increases performance [51]. It is aligned with the theory which states that work productivity is not solely to get as much work as possible but the quality of work that is important to pay attention to, in other words, individual work productivity is how a person carries out his work, not based on workload. It can also be said that an excessive workload does not directly cause a decrease in work productivity. It is also supported by the work ethic of doctors who have sworn their professional oath always to help patients regardless of their conditions. The doctor has adhered to the basic principles of medicine to advance the quality of health services for the community [51].

Conclusion

This Primary Healthcare Facility doctors study shows that workload plays a role as a mediating variable in the relationship between the influence of the COVID-19 pandemic on doctor performance. This means that apart from directly affecting doctors' performance, the COVID-19 Pandemic can also indirectly affect doctors' performance the higher the workload, the higher the performance of Primary Healthcare Facility doctors. Marked by good competence, responsiveness in service, and productivity of its doctors. Primary Healthcare Facility doctors have good communication skills and the ability to diagnose correctly so that even with an increased workload, they can still complete their duties with the best results.

The COVID-19 pandemic has had an extraordinary impact on all fields, including the health sector. Doctors often feel anxious or afraid to go to work for fear of contracting a disease and even experiencing work stress. Besides that, work fatigue due to increased workload also triggers doctors to be lazy to work. However, efforts to prevent and control COVID-19, such as implementing health protocols, vaccination efforts, improving health facilities, psychological, and financial support, will encourage doctors to continue fighting against the COVID-19 pandemic. Supported by instinct as a health warrior, able to make doctors continue never to give up. Therefore, the WHO needs to pay attention to things that can increase doctors' enthusiasm to improve their performance further and create the best system for distributing health resources to minimize the possibility of increasing the workload of medical personnel, especially Primary Healthcare Facility doctors.

Implication

Supporting the previous theory, this study found that the COVID-19 pandemic caused physical and psychological environmental dynamics. Even

though the perceived impact does not reduce the performance of doctors, and this research shows that the higher the impact of the Pandemic and the higher the workload it increases the performance of doctors, health institutions still need to improve the health service system in all aspects, namely man, method, material, machine, and its funding. This study also describes a relationship model that can affect doctors' performance directly with the COVID-19 pandemic variable and the workload variable as a mediating variable. Therefore, further research is necessary to determine other factors that can affect the workload to prevent a decrease in doctors' performance.

Limitation

A notable limitation of this research is in terms of respondents. These respondents are Primary Healthcare Facility doctors who served as frontline services during the COVID-19 Pandemic. Sometimes, they filled out the questionnaires in a hurry when they could have been more focused. Some may have incorrectly filled in the questionnaire because they were busy doing their jobs. Therefore, they are likely to provide answers that do not show their genuine opinion. This can also happen because of each respondent's different thoughts, assumptions, and understandings. In addition, the instrument was distributed in the form of a questionnaire through closed questions so that they did not have to dig up more detailed information.

References

- Ilyas Y. *Kinerja-Teori. Penilaian dan Penelitian*. Depok: Fakultas Kesehatan Masyarakat Universitas Indonesia; 2012.
- Nursalam M. *Manajemen Keperawatan*. Jakarta: Salemba Medika; 2014.
- Yanti Y, Samino S, Sari N. Factors that influence the performance of doctors at the outpatient polyclinic at The Asy-Syifaa Islamic Hospital, Bandar Jaya, Central Lampung in 2020. *Public Health World J*. 2021;10(2):195-204.
- World Health Organization. *Making the Most of Existing Health Workers, The World Health Report*. Geneva: World Health Organization; 2006.
- Rejeki S. *Faktor-Faktor Yang Mempengaruhi Kinerja Dokter di Poliklinik Rawat Jalan Rumah Sakit Angkatan Laut Dr. Mintohardjo Jakarta Tahun 2012*. Depok: Universitas Indonesia; 2012.
- Handayani L. *Pengaruh Faktor Individu, Psikologis dan Organisasi Terhadap Kinerja Dokter di Rumah Sakit Umum Mitra Medika Medan*. Indonesia: Repositori Institusi Universitas Sumatera Utara; 2016.
- Hakman H, Suhadi SK, Yuniar N. Effect of workload, work stress, work motivation on the performance of nurses in Covid-19 Patients. *Nursing Care Health Technol J*. 2021;1(2):47-54. <https://doi.org/10.56742/nchat.v1i2.17>
- Ulfa L, Muchlis N, Sundari N. The influence of dentist workload on the level of job satisfaction and performance during the covid pandemic at The Kimia Farma Clinic, Makassar City. *J Muslim Community Health*. 2021;3(2):126-39. <https://doi.org/10.52103/jmch.v2i3.548>
- Bashir U, Ramay MI. Impact of stress on employees job performance a study on banking sector of Pakistan. *Int J Mark Stud*. 2010;2(1):122-6.
- Erer B. Impact of Covid-19 fear on employee performance. *J Curr Res Soc Sci*. 2020;10(4):845-52. <https://doi.org/10.26579/jocress.412>
- Que J, Shi L, Deng J, Liu J, Zhang L, Wu S, et al. Psychological impact of the covid-19 pandemic on healthcare workers: A cross-sectional study in China. *Gen Psychiatry*. 2020;33(3):e100259.
- Bateman TS, Scott AS. *Management, Leading and Collaborating in a Competitive World*. New York: McGraw-Hill; 2015.
- Windarwati HD, Ati NA, Paraswati MD, Ilmy SK, Supianto AA, Rizzal AF, et al. Stressor, coping mechanism, and motivation among health care workers in dealing with stress due to the COVID-19 pandemic in Indonesia. *Asian J Psychiatr*. 2021;56:102470. <https://doi.org/10.1016/j.ajp.2020.102470> PMID:33160866
- Stavroula L, Amanda G, dan Tom C. Work organization and stress, systematic problem approaches for employers, managers and Trade union representative. *Health Series*. 2021;3:6-7.
- Yuniswara EO. Systematic review: An overview of the mental health of nurses working with Covid-19 patients. *J An Nafs*. 2020;6(1):93-109. <https://doi.org/10.33367/psi.v6i1.1373>
- Al-Omari K, Okasheh H. The influence of work environment on job performance: A case study of engineering company in Jordan. *Int Appl Eng Res*. 2017;12(24):15544-50.
- Colquitt JA, Lepine JA, dan Wesson MJ. *Organizational Behavior: Improving Performance and Commitment in the Workplace*. 4th ed. New York: McGraw Hill; 2015.
- Riniwati H. *Manajemen Sumber Daya Manusia (Aktivitas Utama dan Pengembangan Sumber Daya Manusia)*. Malang: UB Press; 2016.
- Musyoka FN, Adoyo MA, Ongombe MO. Influence of job description on performance of health workers in public hospitals: A case of Mbagathi hospital, Nairobi city country. *Sci J Public Health*. 2016;4(2):88-93. <https://doi.org/10.11648/j.sjph.20160402.12>
- Kemenkes RI. *Pedoman Pencegahan dan Pengendalian Coronavirus Disease (Covid-19)*. 5th ed. Aziza L, Aqmarina A, Ihsan M, editors. Jakarta: Kementerian Kesehatan RI; 2020.
- Liem VT, Hien NN. Exploring the impact of dynamic environment and CEO's psychology characteristics on using management accounting system. *Cogent Bus Manag*. 2020;7:1-20.
- Andriana RB. *Kinerja Tenaga Kesehatan di era Pandemi Covid-19 Ditinjau Dari Perceived Stigma dan Pengetahuan Tentang Corona Virus Dengan Kecemasan Sebagai Variabel Intervening*. Masters Thesis, Surabaya Universitas; 2020.
- World Health Organization. *Catatan Tentang Aspek Kesehatan Jiwa dan Psikososial Wabah Covid-19*. Switzerland: World Health Organization; 2020
- Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, et al. Mental health care for medical staff in china during the Covid-19 outbreak. *Lancet Psychiatry*. 2020;7(4):e15-6. [https://doi.org/10.1016/S2215-0366\(20\)30078-X](https://doi.org/10.1016/S2215-0366(20)30078-X) PMID:32085839
- Artiningsih RA, Chisan FK. *Burnout dan Komitmen Terhadap Tugas: Tantangan Tenaga Medis Dalam Menghadapi Pandemi Covid-19*. Prosiding Seminar Nasional Lp3m; 2020.
- Hu D, Kong Y, Li W, Han Q, Zhang X, Zhu LX, et al. Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A big-scale cross sectional study. *EClinicalMedicine*.

- 2020;24:100424.
PMid:32766539
27. Munandar AS. Psikologi Industri dan Organisasi. Jakarta: Universitas Indonesia; 2014.
 28. Irzal M. Dasar-Dasar Kesehatan Dan Keselamatan Kerja. Jakarta: Kencana; 2016.
 29. Sunyoto D. Manajemen Sumber Daya Manusia. Jakarta: PT Buku Seru; 2012.
 30. Hariyanto D, Sunaryo H, Priyono AA. Pengaruh beban kerja, stres kerja dan iklim organisasi terhadap kinerja karyawan CV. Kampoeng sejahtera. *J Ilmiah Riset Manajemen*. 2019;8(6):287.
 31. Rosyanti L, Hadi I. Psychological impact in providing care and health services for Covid-19 patients to health professionals. *Health Inf J Peneliti*. 2020;12(1):107-30. <https://doi.org/10.36990/HIJP.VI.191>
 32. Hamzah W. Effect of workload and social support on work fatigue. *Psikoborneo. J Ilmiah Psikol*. 2019;7(2):336-43.
 33. Permatasari ED, Damayanti NA. Analisis beban kerja tenaga kesehatan di puskesmas pacarkeling Surabaya. *J Manajemen Kesehatan Indones*. 2017;5(3):65-73.
 34. Solimun MS, Fernandes AA, Nurjanah N. Metode Statistika Multivariat, Pemodelan Persamaan Struktural (SEM)-Pendekatan WarPLS. Malang: UB Press; 2017.
 35. Kuncoro A, Riduwan E. Cara Menggunakan dan Memaknai Analisis Jalur (Path Analysis). Bandung: Alfabeta; 2008.
 36. Asrul A, Tosepu R, Kusnan A. Analysis of the performance of health workers during the Covid-19 pandemic at the Bombana District Hospital BLUD. *J Ilmiah Obsgin*. 2021;13(4):1-10. <https://doi.org/10.36089/job.v13i4.499>
 37. Thamrin. Perencanaan Manajemen Sumber Daya Manusia. Yogyakarta: Budi Utama; 2019.
 38. Occupational Safety and Health Administration. Guidance on Preparing Workplaces for Covid-19. San Francisco: U.S Department of Labor; 2020.
 39. Arslan G, Yıldırım M, Tanhan A, Buluş M, Allen KA. Coronavirus stress, optimism-pessimism, psychological inflexibility, and psychological health: Psychometric properties of the coronavirus stress measure. *Int J Ment Health Addict*. 2021;19(6):2423-39. <https://doi.org/10.1007/s11469-020-00337-6>
PMid:32837425
 40. Agustina VF, Aswin IM. Optimism as a mediator between social isolation and depression during the Covid-19 pandemic. *J Pschol Sci Prof*. 2021;5(1):30-9. <https://doi.org/10.24198/jpsp.v5i1.29593>
 41. Ornell F, Halpern SC, Kessler FH, Narvaez JC. The impact of the covid-19 on the mental health of healthcare professionals. *Cad Saude Publica*. 2020;36(4):e00063520. <https://doi.org/10.1590/0102-311x00063520>
 42. Indra IP. Pengaruh Beban Kerja Dan Dukungan Sosial Terhadap Burnout Pada Perawat Rsd Dr. Achmad Darwis Kecamatan Suliki Kabupaten Lima Puluh Kota. Padang: Universitas Negeri Padang; 2018.
 43. Prijayanti I. Pengaruh Beban Kerja Dan Dukungan Sosial Terhadap Burnout Pada Karyawan PT. X. Jakarta: Universitas Islam Negeri Syarif Hidayatullah; 2015.
 44. Xiaoming Y, Ma BJ, Chang CL, Shieh CJ. Effects of workload on burnout and turnover intention of medical staff: A study. *Stud Ethno Med*. 2014;8(3):229-37. <https://doi.org/10.31901/24566772.2014/08.03.04>
 45. Difa TD, Samsualam S, Arman A. The effect of workload on work motivation and work productivity of dentists at private clinics in Makassar city. *J Muslim Community Health*. 2022;3(2):126-39. <https://doi.org/10.52103/jmch.v3i2.774>
 46. Zulmaidarleni Z, Sarianti R, Fitria Y. The effect of workload and physical work environment on work stress in office employees in the Padang Timur Sub-District. *J Ecogen*. 2019;2(1):61-68. <https://doi.org/10.24036/jmpe.v2i1.6133>
 47. Siagian S. Manajemen Sumber Daya Manusia. Jakarta: Bumi Aksara; 2018.
 48. Schultz D, Schultz SE. *Psychology and Work Today*. 9th ed. New Jersey: Pearson Education; 2020.
 49. Kusumaningsih D, Gunawan MR, Zainara MA, Widiyanti T. The Relationship Between the Physical and Mental Workload of Nurses and The Application of Safe Patients During the Covid-19 Pandemic at The Pesawaran District Inpatient Health Care UPT. *Indones J Health Dev*. 2020;2(2):108-18. <https://doi.org/10.52021/ijhd.v2i2.93>
 50. Jembarwati O. Stress and Social Support for Nurses, Doctors and Health Workers During the Covid-19 Pandemic. *Prosidi Berkala Psikol*. 2020;2:292-7.
 51. Saptarani YD, Saptaningsih AB, Hutapea RF. Burnout and work productivity of nursing staff during the Covid-19 pandemic at BSD Medika Hospital. *J Healthsains*. 2022;3(1):2723-4339. <https://doi.org/10.46799/jhs.v3i1.400>