



The Impact of Work Stress on Doctor's Performance through Employee Engagement and Moderation of the COVID-19 Pandemic (Study on Primary Health Care)

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

Faculty of Economics and Business, Brawijaya University, Malang, Indonesia

Abstract

BACKGROUND: Doctors at primary health care are prone to have work stress and it can affect their performance. Employee engagement may have close relationship with the doctor's performance during the COVID-19 pandemic.

AIM: This study aims to determine the relationship between work stress and the doctor's performance at primary health care using employee engagement mediation and COVID-19 pandemic moderation.

METHODS: This research is a descriptive study using a quantitative approach which was conducted on 354 doctors at Malang primary health care. The questionnaire was analyzed using partial least square.

RESULTS: The work stress had a significant positive effect on the doctor's performances ($\beta = 0.257$, $t\text{-stat} = 3.324$). Work stress has a significant positive effect on employee engagement ($\beta = 0.726$, $t\text{-stat} = 22.967$). Employee engagement does not significantly affect the doctor's performance ($\beta = 0.044$, $t\text{-stat} = 0.105$). Employee engagement does not mediate the work stress effect on doctor's performance ($\beta = 0.032$, $t\text{-stat} = 0.105$). The COVID-19 pandemic did not moderate the work stress effect on doctors' performance ($\beta = -0.222$, $t\text{-stat} = 0.981$).

CONCLUSION: Primary health care leaders still need to pay attention to factors that can reduce the doctor's performance and employee engagement, include factors that can increase the work stress during the COVID-19 Pandemic.

Edited by: Sasho Stoleski

Citation: Rahmayanti F, Noermijati N, Armanu A, Rohman F. The Impact of Work Stress on Doctor's Performance through Employee Engagement and Moderation of the COVID-19 Pandemic (Study on Primary Health Care). Open-Access Maced J Med Sci. 2023 Jan 03; 10(E):203-212. <https://doi.org/10.3889/oamjms.2023.10785>

Keywords: Doctors' work stress; Employee engagement; COVID-19; Work performance; Primary health care

***Correspondence:** Fida Rahmayanti, Faculty of Economics and Business, Brawijaya University, Indonesia.

E-mail: dr.fida@ub.ac.id

Received: 07-Aug-2022

Revised: 03-Nov-2022

Accepted: 07-Nov-2022

Copyright: © 2023 Fida Rahmayanti, Noermijati Noermijati, Armanu Armanu, Fatchur Rohman

Funding: Private financial support.

Competing Interest: The authors have declared that no competing interest exists

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

Primary health care is one of the places that provide promotive, preventive, curative, and rehabilitative health services. Primary care is a health service organization that acts as the gatekeeper or the vanguard of health services, and it is often the patient's main goal to obtain health services. In delivering service performance, primary care is required to meet quality standards and focus on patient safety to achieve the best public health degree. In realizing this goal, primary health care certainly requires qualified human resources, including doctors.

Doctors have an important role in determining the success of patient treatment, which will have an impact on the quality and success of the organizations. An important element in determining the success of the organization is performing, especially in this case, the performance of primary health-care physicians, which will have a direct impact on the provision of quality standardized health services and patient safety [1].

Doctors are health workers who have a very important role in making diagnoses and clinical decisions [2]. Doctors are considered to show good performance if they work responsively, fairly, and

efficiently to achieve the best results in the health sector [3]. The performance of a doctor can be determined by four indicators, such as availability, competence, responsiveness, and productivity [4]. However, in the implementation of performance, doctors often face various obstacles. One of the factors that affect performance is work stress [5]. Work stress often occurs in doctors because in providing health services, doctors are required to always act quickly and precisely in healing patients. Doctors also have a relatively long number of working hours compared to other jobs. The work of a doctor also has a high level of responsibility because it is related to life and has the risk of contracting the disease. Some of these things make it very possible for a doctor to experience mental pressure and burden in carrying out his work [6].

Work stress is not the only factor that can affect the doctor's performance. Employee participation is now a hot topic because it can affect performance by increasing worker productivity and welfare [1], [7], [8], [9]. Employee engagement is also one of the important things to achieve the success of a health organization [7]. Employee involvement or engagement is a condition where employees have high morale in the organization and feel involved in it so they are willing to invest their best time and efforts in

achieving organizational goals. Employee engagement makes employees attach their ego, thoughts, emotions, energy, and physical as members of the organization, and always fulfill their role in the organization [10]. Employee engagement of doctors, especially in primary health care, is also very necessary because of the many policy changes in the health world that can hinder the implementation of doctors' performance, for example, policy changes due to the COVID-19 Pandemic.

We are currently facing the COVID-19 pandemic, which has taken the world by storm. In a pandemic condition, all health workers, especially primary care doctors, are still required to provide services despite the high risk of transmitting this disease. When most of humanity is required to stay at home to break the chain of spread, health workers are required to be on the front line to fight against COVID-19. These demands can cause doctors to experience work stress [11]. This is because apart from the risk of disease transmission, it is also due to an increased workload, as well as changes in services following the COVID-19 protocol [2], [12]. Continuous work stress can affect doctor performance [13], [14], [15].

Various studies were conducted to provide an overview of the effect of work stress on performance. Some researchers state that work stress has a positive effect on doctor performance and some state that work stress negatively affects performance. There are even those who say the opposite, a doctor's work stress does not affect the doctor's performance [5], [16], [17]. The differences in the results of these empirical studies indicate that the results of the research that have been carried out have not been consistent and indicate a research gap or gap so that it becomes a reference for further research. Covering the research gap can be done by placing new variables. In this study, using employee engagement as a mediating variable and the COVID-19 pandemic as a moderating variable, it can be said that the novelty of this study is the effect of the COVID-19 pandemic on the performance of primary health-care physicians and the COVID-19 pandemic on the employee engagement of primary health-care physicians performance.

Literature Review

Performance

Performance is the result of the work of a person or group at a certain time which reflects how well the job qualifications are [18]. Performance is also a form of worker behavior that contributes, both positively and negatively, which has an influence on individuals and is of value to the organization, and is carried out within a certain period [1], [7], [19]. The performance of

each worker is different, these differences are certainly caused by several factors, performance is influenced by individual mechanisms consisting of job satisfaction, stress, motivation, learning, and decision-making [19]. In a study conducted at universities in Africa, it was stated that several things that affect the performance of hospital medical personnel are work stress, leadership style, workload, and work environment [16], [20].

Several studies have been conducted on the performance of medical personnel. Research on the performance of medical personnel conducted in African General Hospitals uses indicators of work attendance, quality of work, service to patients, workload, and leadership [21]. The doctor's performance according to the WHO (2006) is generally determined by several indicators consisting of availability, competence, responsiveness, and productivity. This is also stated in the SKDI (Indonesian Doctor Competency Standards) 2012 [3].

Work stress

Work stress is described as an unpleasant psychological process from the emotional and physiological side that occurs in response to environmental pressures. This happens when the demands on someone are considered to exceed the ability or capacity of a person [5], [6], [19], [22]. Work stress is divided into two types, namely, hindrance stressors and challenge stressors. Hindrance stressors are demands or conditions related to work that tends to hinder and interfere with individual work performance. Although challenge stressors are demands or circumstances that, although potentially stressful, have the potential to provide benefits for individuals, namely, as opportunities to learn, develop, and achieve. In addition to classifying two types of stressors, stress is also described based on the place or environment, that is, stress that comes from the workplace (work stressors) and stress that comes from outside the workplace (non-work stressors) [19].

The transactional Theory of Stress explains how stress is perceived and assessed, and how individuals respond to these perceptions and judgments. Primary evaluation occurs when people evaluate the importance and meaning of the stress they face. Individuals first consider whether a request causes feelings of stress and if so, consider the implications of the stressor. Then, in the secondary assessment, the individual will start figuring out what to do.

Stress at work is measured based on several factors, consisting of workload, role conflict, family factors, and working environment. Performance is also measured based on efficiency and potential factors, as well as work quality. Work stress was found to have a positive effect on performance and turnover intention, while work stress also negatively affects worker satisfaction [23].

Employee engagement

Employee participation is a state of self-use of each member of the organization to perform a role in a job, including how to involve yourself in a job, work, and express yourself physically, cognitively, and emotionally [7]. The factor that can encourage greater employee engagement is the alignment between individual values and organizational values. In addition, leadership behavior that inspires employees to produce a higher missionary spirit can also increase employee engagement. Employee engagement is influenced because workers have good managers, who provide comfort for workers and workers who feel that they get appreciation from their superiors in carrying out their work [22].

Employee engagement is the attachment of workers both to their work and organization, which is considered very important because it becomes the backbone of the work environment. Within the organization, employee engagement becomes a participatory process that uses employee input to increase employee commitment to achieve organizational success. These benefits do not only apply to the workers themselves but to a work team, if given more control over a job, morale and performance will increase. The existence of a sense of attachment to work makes a form of investment in the physical, cognitive, and emotional energy of workers into performance [22], [24].

The COVID-19 pandemic

Coronavirus disease 2019 is a respiratory disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is a new type of coronavirus that has never been previously identified in humans [25]. The COVID-19 pandemic has had an impact on the workplace, including on the physical, psychological, and productivity aspects. On the physical aspect, for example, the risk of contracting COVID-19 disease, stomach disorders, etc. In terms of productivity, it has an impact on performance and high turnover rates [26].

According to the previous research, the COVID-19 pandemic had an impact on worker psychology [27]. The existence of the COVID-19 pandemic makes it difficult for doctors to maintain physical and mental health conditions because doctors are the most vulnerable subjects to feeling anxiety, the emergence of stress-related reactions, including changes in concentration, irritability, anxiety, insomnia, reduced productivity, interpersonal conflicts, and in other cases, subsequently may experience more severe psychiatric conditions such as excessive avoidance of family in abnormal conditions, increased exposure, and fear of COVID-19 transmission [28].

The impact of the COVID-19 pandemic is one example of the consequences of environmental dynamics. At present, the rapid and unpredictable

changes in the environment increase a lot of uncertainty, which can affect individuals and organizations, especially in the health-care sector in decision making. During the COVID-19 pandemic, individuals are vulnerable to being depressed and experiencing difficulties or anxiety at work. Work stress during the COVID-19 pandemic affect psychologically that doctors may experience, such as, feeling pressured because they work in stressful situations, feeling insecure to complete work, feeling afraid of contracting COVID-19 at work, and feeling dissatisfied with work.

Based on the literature review, a hypothesis can be formed that will be tested as follows.

H1: Work stress has a significant effect on a doctor's performance.

H2: Work stress has a significant effect on employee engagement.

H3: Employee engagement has a significant effect on a doctor's performance.

H4: Employee engagement mediates the effect of work stress on doctors' performance.

H5: The COVID-19 pandemic moderates the effect of work stress on doctors' performance.

Methods

Research design and respondents

This study is descriptive explanatory research with a quantitative approach which was conducted through an online survey and analyzed using partial least square. This study uses an online questionnaire instrument in the form of a Google Forms which has been tested for validity and reliability testing. Sampling was carried out using a total sampling technique with a total of 354 general practitioners registered with the Malang City Health Office and working at Malang primary health care.

Four variables will be measured in this study, such as doctor's work stress as an independent variable, doctor's performance as a dependent variable, employee engagement as a mediating variable, and the COVID-19 pandemic as a moderating variable.

Measurement and data collection

The research instrument was in the form of a questionnaire that was distributed online to primary health-care doctors in Malang City using a Google Forms. The instrument has previously been tested for validity and reliability. Measurement of the instrument using a Likert scale written in the words strongly disagrees with strongly agreeing or vice versa.

Each variable has an indicator that will be used as a reference in compiling research items in the form of statements. The work stress variable refers to National Institute Occupational Safety and Health. Generic work stress questionnaire consists of four indicators, namely, role overload, role ambiguity, the physical environment, and social support. The doctor's performance variable refers to the WHO and Indonesian Doctor Competency Standards consisting of three indicators, namely, competence, responsiveness, and productivity [3]. The employee engagement variable refers to the Utrecht Work Engagement Scale consisting of three indicators, namely, vigor, dedication, and absorption [29]. The COVID-19 pandemic variable consists of two indicators, namely, the worker aspect and the work aspect [30], [31], [32].

Validity and reliability testing

Before conducting research, it is necessary to test the research instrument through validity and reliability tests. Validity testing is intended for the validity of the measurements of the specified scale of the items and indicators of the variables used. Testing the validity of the instrument is done by correlating each item or indicator score with the total score using the Pearson correlation technique. If the Pearson correlation coefficient is 0.361, it means that the indicator is declared valid or able to measure the variables it measures, so that it can be used as a data collection tool. While the reliability test aims to determine the reliability and consistency of research instruments carried out using the calculation of composite reliability with the criteria for testing the coefficient, Cronbach's alpha 0.6 will be declared reliable [33], [34].

Based on the summary of the results of the testing of the validity and reliability of the research instrument, it is known that all items and indicators on the variables of doctor's work stress, doctor's performance, employee engagement, and the COVID-19 pandemic are valid and reliable, so they can be used as a data collection tool in this study (Tables 1 and 2).

Descriptive analysis

Descriptive analysis can describe respondents' perceptions collected from each statement item, indicator, and variable using the average value without comparing or connecting with other variables with the following categories [35]:

- 1 = Very low
- 2 = Low
- 3 = Moderately high
- 4 = High
- 5 = Very high

Statistical analysis

Statistical data analysis was measured using Smart PLS software, starting with the analysis of direct influence testing, indirect effect testing, and moderation testing. Direct effect testing aims to test whether there is a direct effect of exogenous variables on endogenous variables. The indirect effect test aims to test whether there is an indirect effect of exogenous variables on endogenous variables through intervening variables. The test criteria state that if t statistics $>t$ -table (1.96) then it is stated that there is a significant effect of exogenous variables on endogenous variables. The value of the path coefficient or indirect coefficient shows the direction of the relationship between variables. If the value is positive, it shows a significant positive effect. If the value is negative, it shows a significant negative effect. The moderation test was conducted to examine the effect of the moderating variable on the direct effect of exogenous variables on endogenous variables. The test criteria state that t statistics $>t$ -table (1.96) then the moderating variable can moderate the effect of exogenous variables on endogenous variables [34], [36].

Results

Respondent characteristics

A total of 493 questionnaires were distributed and 354 respondents filled them out. Based on the total respondents who filled it out, it is known that the female gender is 224 (63.3%) while the male is 130 (36.7%). Most primary health-care doctors in Malang are in the age range of 26–35 years (76.3%), with the longest working period of 1–5 years, 194 (54.8%).

Respondent description

The doctor's performance variable shows an average value of 4.17, so it is in the high category (Table 3). This shows that performing Malang primary health-care doctors is classified as good. The average value for the doctor's work stress variable is 1.88, which means that the doctor's stress level is very low. The COVID-19 pandemic variable has an average value of 3.40, which means that it is in a fairly high category. This implies that the COVID-19 pandemic does not negatively affect doctors. The employee engagement variable has an average of 3.95, so it is in a fairly high category. This illustrates that the Malang primary health-care doctors have good employee engagement, meaning that doctors have a fairly high attachment to their profession.

Direct influence analysis

The test results show that there is a significant positive effect between work stresses on performance

and there is a significant positive effect between work stresses on employee engagement (Table 4). Meanwhile, the results of the test on the effect of employee engagement on performance show that there is no significant effect.

Indirect influence analysis

The effect of work stress on performance through employee participation produces a t-statistic value (0.105) < t-table (1.96), which means that there is an insignificant effect between work stress and performance through employee participation (Table 5). Employee engagement does not mediate the effect of work stress on the doctor's performance.

Moderation variable test

The t-statistic value shows that the COVID-19 pandemic does not have a significant effect as a moderating variable (Table 6).

Based on the results of all testing tests, explaining that the hypotheses in this study are not all accepted can be summarized in the following Figure 1:

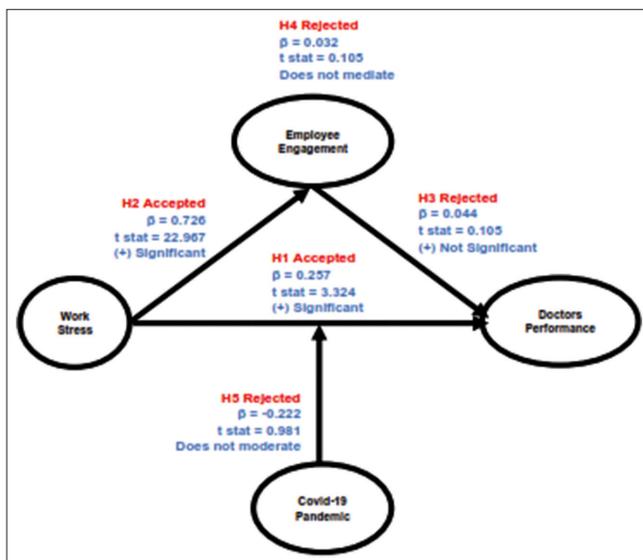


Figure 1: Hypothesis testing results

Discussion

The effect of work stress on doctor's performance

Based on the results of the study showed in Table 1, it was shown that the work stress of doctors had a significant positive effect on the doctor's performances (t-statistics 3.324 > t-table 1.96) thus giving a decision that Hypothesis 1 was accepted. This result means that the higher the work stress, the higher the doctor's

performance will be. This can be explained by seeing the important role of doctors who have great responsibility for their work because doctors are directly related to the lives of patients. The demands of this role make doctors have to work professionally and according to health quality standards. Work stress creates a feeling of being challenged to provide good performance. In addition, doctors have a sense of responsibility to be able to provide the best health services under the doctor's oath. This statement is supported by research conducted by Fajrillah and Nurfitriani which shows that the higher the work stress, the higher the performance, and health workers with high work stress levels carry out the highest number of health services [37].

Doctors in primary health care sometimes experience stress but in the low category, work stress at primary health-care doctors tends to be due to role overload, namely, a lot of workloads and the completion of tasks that are not on time. However, stress on doctors can be tolerated because the doctor feels safe and comfortable when working, and the physical environment in which he works is comfortable so that the doctor does not experience stress. This condition is in line with transactional stress theory where there is a challenge stressor or a situation that, although potentially stressful, has the potential to provide benefits for individuals. Hence, when there is a stressor, the doctor will begin to recognize the stressor and then look for solutions to overcome the stressor. Finally, these stressors do not interfere with their performance and doctors will be increasingly motivated to commit to improving the quality of health services [19].

In the theory of general adaptation syndrome by Hans Selye which was popular in 1946, it was stated that the higher the stress, the higher the performance of the doctor to a certain point. At this time, the Malang primary health-care physician does not consider himself to be in a state of stress, but in a state of excitement, enthusiasm, or full of energy. However, if you pass that point and fall to the point of fatigue, the added stress will make the doctor's performance decrease and reduce the ability to cope. However, most of the doctors who were respondents in this study had an optimal stress range that made them feel comfortable and function well.

The performance variable shows an average value in the high category (4.17), this suggests that primary health-care doctors have good professional qualifications to achieve the vision, mission, and goals of health organizations. Based on the Indonesian Medical Council Regulation Number 11 of 2012 concerning Competency Standards for Indonesian Doctors, doctors in Indonesia are required to have basic competencies which are also required by the WHO. Malang's primary care doctor is proven to be capable of applying these competency standards, including being able to communicate and give good anamnesis, having the ability to diagnose quickly and accurately, and being

Table 1: Validity testing

Variable	Indicator	Item	Correlation coefficient	Result	
Work stress	Role overload	Precious time	0.887	Valid	
		Amount of task	0.895	Valid	
	Role ambiguity	Clear job roles	0.947	Valid	
		Clear job purposes	0.956	Valid	
	Physical environment	working environment	0.870	Valid	
		Job security	0.920	Valid	
		Workplace comfort	0.902	Valid	
	Social support	Supervisor support	0.727	Valid	
		Teammates support	0.815	Valid	
		Family support	0.809	Valid	
Primary health-care doctors' performance	Competence	Effective communication	0.554	Valid	
		Diagnostic ability	0.885	Valid	
	Responsiveness	Treatment ability	0.911	Valid	
		Patient handling speed	0.922	Valid	
		Clinical decision	0.944	Valid	
	Productivity	Problem-solving in medical services	0.878	Valid	
		Have a training	0.866	Valid	
	Employee engagement	Vigor	Service according to SOP	0.886	Valid
			Full of energy at work	0.890	Valid
		Dedication	Strong and energetic at work	0.877	Valid
Enthusiastic at work			0.868	Valid	
Self-inspiring work			0.769	Valid	
Absorption		Excited to go to work	0.899	Valid	
		Happy to work intensively	0.818	Valid	
		Proud with the job	0.796	Valid	
COVID-19 pandemic		Worker aspect	Suitability of work with interests	0.801	Valid
			Dissolved in work	0.882	Valid
	Job aspect	Anxiety at work	0.828	Valid	
		Decreasing income	0.859	Valid	
		Activity limitation	0.715	Valid	
		Service limitation	0.900	Valid	
		Patient limitation	0.900	Valid	

SOP: Standard operational procedure.

able to determine treatment according to the needs of the patient. In addition, he has also carried out medical services according to standard operational procedure and diligently participated in training in the development of medical science.

Table 2: Reliability testing

Variable	Indicator	Cronbach alpha	Result
Work stress	Role overload	0.739	Reliable
	Role ambiguity	0.670	Reliable
	Physical environment	0.876	Reliable
Kinerja	Social support	0.663	Reliable
	Competence	0.702	Reliable
	Responsiveness	0.902	Reliable
Employee engagement	Productivity	0.696	Reliable
	Vigor	0.851	Reliable
	Dedication	0.772	Reliable
Pandemic	Absorption	0.768	Reliable
	Worker aspect	0.721	Reliable
	Job aspect	0.765	Reliable

The effect of work stress on employee engagement

The test results show that hypothesis 2 is accepted (t statistics 22,967 >t-table 1.96). This means that work stress has a significant positive effect on employee engagement, which means that the higher the work stress, the more employee engagement will

Table 3: Description of respondents on the variables of doctor's work stress, doctor's performance, employee engagement, and the COVID-19 pandemic

Variable	Indicator	Average indicator	Average variable
Work stress	Role overload	2.12	1.88
	Role ambiguity	1.69	
	Physical environment	2.03	
	Social support	1.68	
Performance	Competence	4.34	4.17
	Responsiveness	4.13	
	Productivity	4.41	
Employee engagement	Vigor	3.95	3.95
	Dedication	3.84	
	Absorption	4.06	
COVID-19 pandemic	Worker aspect	3.31	3.40
	Job aspect	3.49	

increase. Stressors in the work environment cause job dissatisfaction and can ultimately reduce employee engagement. However, highly engaged doctors will always put extra effort into their work, are highly engaged in work, use effort and thought, be active or busy, and invest time in work. Meanwhile, doctors with low engagement tend to think about working time, not doing work optimally, being apathetic, and only doing the minimum of work. It does not agree with a study by Nadira and Bunga that revealed that work stress has no significant effect on employee engagement. Hence, to create high employee engagement, organizations need to pay attention to important things that can interfere with employee engagement, such as the level of work stress of their employees [38].

The factor driving the increase in doctor employee engagement is the match between individual values and organizational values, in this case, primary health care. In addition, leadership behavior that inspires doctors, resulting in higher morale can also increase engagement with their work. Increasing employee engagement can also be done through compensation in the form of performance incentives, allowances, or remuneration. Doctors who have the best competency standards and during their education are always educated to uphold a good attitude, empathy, and commitment so that when they are doctors, they will be highly dedicated to their work, feel proud of their work, feel full of energy, enthusiastic, and feel dissolved with his job. It is also proven in this study, that in carrying out their duties, doctors receive social support, both from superiors and coworkers. Social support plays a dominant role and provides positive energy for physicians, so physicians in primary health care have positive stress coping mechanisms and make doctors

more attached to their work and primary health care where they work.

Table 4: Direct influence analysis

Exogen	Endogen	Path coefficient	t-statistic	Remarks
Work stress	Employee engagement	0.726	22.967	(+) Significant
Work stress	Employee Performance	0.257	3.324	(+) Significant
Employee engagement	Performance	0.044	0.105	(+) Not significant

The effect of employee engagement on doctor's performance

Based on the results of the study, it was shown that employee engagement had no significant effect on the doctor's performances (t-statistics 0.105 < t-table 1.96) thus giving the decision that Hypothesis 3 was rejected. This means that the level of employee engagement does not have a significant effect on the doctor's performance because a doctor already has an attachment and involvement with his work. Before pursuing medical education, of course, he already had lofty ideals in the health sector and when he succeeded in becoming a doctor, he certainly had his pride and would struggle to carry out this noble task according to his professional oath. The involvement of doctors in the organization makes doctors more responsible and increases their sense of belonging, besides that it can also trigger creativity so that doctors' performance can increase, especially during the current COVID-19 pandemic. The need for creativity in employees is increasing to avoid being run over by the global competition. High employee engagement can make a good contribution to a company, create success for the organization, and increase productivity, work safety, attendance, retention, and loyalty.

Table 5: Indirect influence analysis

Exogen	Intervening	Endogen	Indirect coefficient	t-statistic
Work stress	Employee engagement	Performance	0.032	0.105

The results of this study are in line with Kusumawati's research which states that employee engagement has no significant effect on employee performance. According to the research done by Insan (2017); Lubis and Wulandari (2018); and Rahmadalena (2020) who stated that employee participation does not have a significant effect on employee performance [39].

Table 6: Moderation variable test

Exogen	Endogen	Path coefficient	t-statistic	Remarks
Work stress*COVID-19 pandemic	Doctor's performance	-0.222	0.981	Not Significant

Employee engagement in the health-care industry can create an ideal environment through caring, compassion, and respect for all staff, patients, and society. The creation of an ideal dining environment will foster a sense of enthusiasm in carrying out duties and responsibilities in providing excellent service to patients. A good work environment will increase the commitment of doctors to produce outcomes in the form of optimal work quality. This is

a strategic goal for health organizations, employees who are committed to the organization and satisfied with their work will be willing to provide extra services to achieve organizational goals. In this case, the primary health-care leadership role is needed, where the leadership should not only make policies, procedures, and various efforts to make decisions related to staffing but also develop the potential of physicians through various activities, such as linear training with their work.

The mediation role of employee engagement on the effect of work stress on doctor's performance

The test results showed that Hypothesis 4 was rejected (t-statistics 0.105 < t-table 1.96). The results of this test explain that the mediating role of employee participation is not significant in the effect of work stress on doctor performance. This is contrary to previous research. As the research results of Nugroho et al. revealed that employee engagement as a mediating variable is stress coping for employees that can have a positive influence on employee performance. Employee participation is psychological capital that can have a positive influence on doctor performance. In this case, employee engagement also has a direct impact on the creation of high doctor performance. The performance of each doctor can increase if doctors are actively involved in policymaking, in this way, doctors will be trained to be independent and better able to control their work life so that doctors become more motivated, more committed to the organization, have more satisfaction in work, and become more productive. Doctors have a sense of enthusiasm in carrying out their work, work with pleasure and inspiration, and are enthusiastic in doing their work as medical workers. This proves that a doctor is educated to have an attachment to his profession.

Based on the results of the previous studies, the effect of work stress on performance is presented in an inverted U-diagram which shows the level of influence of stress on performance. If there is no stress, then there is no work challenge and performance tends to decrease. Too little stimulation, too little demand, and challenge can lead to boredom, frustration, and the feeling that we are not using our abilities to the fullest.

Therefore, it can be concluded that the relationship between stress and performance is a direct influence. Hence, the role of the primary health-care leadership becomes important in providing support to all doctors so they don't experience stress, are enthusiastic, and try to do their best in their work. In addition, social support is also needed because doctors who have good working relationships with leaders or colleagues will increase their contribution to the primary health care where they work.

The moderating role of the COVID-19 pandemic on the effect of work stress on doctors' performance

Today, the whole world is shocked by the COVID-19 pandemic. The COVID pandemic has had various negative impacts in all fields, especially in the health sector. Indonesia is a country that ranks seventh in Asia with a cumulative total of 6,078,725 cases. East Java Province is a densely populated province with a total number of COVID-19 cases as of June 25, 2022, amounting to 577,578. Malang city is one of the most densely populated cities in East Java and has a high risk of transmission, with the cumulative number of cases in Malang City on May 16, 2022, amounting to 27,163.

Indonesia is one of the countries included in the category of high-level community transmission. A very important initial action to prevent community transmission is early detection of COVID-19 infection. Based on this, the management and prevention of transmission of COVID-19 need to be carried out by all components of the health sector. Primary care plays an important role in the implementation of its duties and responsibilities, namely, preventing, detecting, and responding. This also means that primary care doctors have a role as the front line in efforts to deal with COVID-19 cases, with demands for high-performance services [2]. Psychological burdens such as fear and anxiety experienced by doctors are one of the impacts of the COVID-19 pandemic. This impact can also be felt by every institution, namely, by decreasing employee performance. This statement is supported by the results of research conducted by Erer (2020) which states that the Covid-19 pandemic has a significant negative relationship with employee performance. This means that if there is increased anxiety about the COVID-19 pandemic, it can reduce performance.

Based on the study results, showed that the COVID-19 pandemic did not moderate the effect of work stress on the performance of physicians (t -statistics 0.981 < t -table 1.96) thus giving the decision that Hypothesis 5 was rejected. This means that the occurrence of the COVID-19 pandemic does not affect the interaction between work stress and the doctor's performance. The COVID-19 pandemic has neither strengthened nor weakened the relationship between work stress and physician performance.

Environmental changes as a result of the COVID-19 pandemic often have a direct impact on people on the job. At present, several doctors are experiencing work stress due to the COVID-19 pandemic, one of which is due to the implementation of the work-from-home (WFH) policy. The implementation of WFH can have positive and negative impacts, the positive impact is preventing the spread of the COVID-19 virus, and the negative impact is that it can cause boredom and saturation that trigger stress, especially for doctors on the frontline. The state of stress in

physicians is shown through the level of depression, anxiety, and insomnia. However, in this study, the level of stress of doctors was in a low category and did not affect the work of doctors even though the COVID-19 pandemic also caused changes in behavior at work, communication ways, and also in daily activities.

The COVID-19 pandemic did not moderate the relationship between work stress and physician performance. This study proves that other variables can strengthen and weaken the interaction between work stress and performance, namely, the optimism of doctors as the frontline tackling the COVID-19 pandemic. A sense of optimism can reduce anxiety levels and foster a sense of enthusiasm. There is an interesting fact in this study, namely, that doctors did not experience a decrease in performance, especially during the COVID-19 pandemic. Doctors are even more motivated to improve their performance by trying to cure and break the chain of the spread of COVID-19. Meanwhile, if viewed in theory, when stress levels are high, performance is low, and many doctors experience work stress during a pandemic.

In addition to being optimistic, primary health-care physicians also have a connection to their work and continue to perform health services by mobilizing all their abilities and competencies. Doctors with high employee engagement will try to solve problems and not give up when faced with difficulties at work, including during the COVID-19 pandemic. On the other hand, individuals with low employee engagement are not diligent in their work, the physical, cognitive, and emotional strength used at work is also low so when they face problems in their work, individuals with low employee engagement will avoid and give up to deal with them.

In addition, doctors who have taken their doctor's oath will always keep the oath to carry out their duties and responsibilities as a doctor under any circumstances, including the COVID-19 pandemic. Doctors will be more enthusiastic about being committed to being at the forefront of tackling COVID-19 whatever the risks. Hence, based on this, health institutions are expected to pay attention to various things that can increase optimism and various things that can motivate doctors to improve their performance on the frontline during the COVID-19 pandemic.

Conclusion

Work stress has a direct effect on the performance of primary care physicians in Malang City. This proves that role overload, role ambiguity, the influence of the physical environment, and the influence of social support as indicators of work stress can affect the doctor's performance. In other words, if work stress

increases, it can improve doctor performance. Doctors are expected to always improve their ability to provide rapid, accurate, and responsive services to the patient's needs. Full motivation and support that inspired the health workers to fight on the frontline against the COVID-19 pandemic also need to be given by the primary health-care leadership.

Work stress has a significant positive effect on employee engagement. This proves that increasing work stress can increase employee engagement. Doctors are expected to always increase their morale and work effectively so that they can face challenges in their work. Primary health-care leaders should also pay attention to various factors that can increase work stress and reduce employee engagement and the performance of health workers, especially during the COVID-19 pandemic.

Employee engagement does not have a direct influence on the doctor's performance during the COVID pandemic. This shows that increased and decreased employee participation does not have a major influence on the performance of the Malang primary health care doctor. Individuals with high employee participation will try to solve problems and not give up when faced with any difficulties at work, including the COVID-19 pandemic. Health workers, especially doctors, must be able to maintain efforts to implement health protocols to minimize the risk of being exposed to COVID-19. In addition, primary health-care leaders as policymakers must provide infrastructure and implement policies in the implementation of health services according to health protocols. Creating comfort for doctors so that they are more enthusiastic can reduce stress levels.

The COVID-19 pandemic does not play a role in moderating the relationship between work stress and the performance of Malang primary health-care physicians during the pandemic. This happens because the work stress experienced by health workers (doctors) can arouse enthusiasm to complete the work with the best performance following quality standards and focusing on patient safety. Hence, the doctors feel enthusiastic and optimistic to be at the forefront of tackling the COVID-19 pandemic.

Implication

The results of this study indicate that work stress has a direct effect on doctors' performances according to the transactional theory of stress [19] and a direct effect on employee engagement. Although this study shows that the higher the stress level, the doctor's performance is also increasing. Health institutions still need to pay more attention to doctors' mental health so that they do not fall into stressful conditions. This study also describes a relationship model that can affect

doctor performance not only with work stress variables but also with employee engagement and the COVID-19 pandemic variables. This study places employee participation as a mediating variable and the COVID-19 pandemic as a modulating variable on the effect of work stress on doctors' performance. The COVID-19 pandemic variable is a new variable that is used to moderate work stress with performance. The COVID-19 pandemic variable is a development of environmental dynamics theory that includes the impact of the COVID-19 pandemic from both physical, psychological, and worker productivity aspects.

Research limitation

There are limitations experienced by researchers, namely, the research instrument in the form of a questionnaire with closed questions without open questions so that more detailed information cannot be revealed. In the process of data collection, the information provided by respondents through questionnaires sometimes does not show the respondent's actual opinion, this can occur due to differences in thoughts, assumptions, and different understandings of each respondent. In this study, the respondents were general practitioners as the vanguard who had a high level of activity, so they might not be focused or be in a hurry to complete the questionnaire. Furthermore, the study was conducted during the COVID-19 pandemic, so the questionnaire was sent online and could not meet face to face with the respondent, so the return rate for the questionnaire was only 71.8%.

References

1. Ma'arof RA, dan Mat N. The effect of employee engagement on the job performance of nurses. *J Stud Manag Plan*. 2019;5(8):16-20.
2. Johnson SB, Butcher F. Doctors during the Covid-19 pandemic: What are their duties and what is owed to them? *J Med Ethics*. 2021;47(1):12-5. <https://doi.org/10.1136/medethics-2020-106266>. PMID:33060186
3. World Health Organization. Making the Most of Existing Health Workers, the World Health Report. Geneva: World Health Organization; 2006.
4. Musyoka FN, Adoyo MA, Ongombe MO. 2016. 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.
5. Jehangir M, Kareem N, Khan A, Jan MT. Effects of work stress on job performance and job satisfaction. *Interdiscip J Contemp Res Bus*. 2011;3(7):453-6.
6. Eltarhuni A. Work stress sources among doctors and nurses working in emergency departments in public hospitals. *J Nurs Health Sci*. 2016;5(6):84-8. <https://doi.org/10.9790/1959-0506068488>

7. El Zein A, Aridi S. The impact of employee engagement on job performance: A case study for banks in Lebanon. *Int J Curr Res.* 2018;10(5):69591-3.
8. Saks AM. Antecedents and consequences of employee engagement revisited. *J Organ Eff People Perform.* 2019;6(1):19-38. <https://doi.org/10.1108/JOEPP-06-2018-0034>
9. Motyka B. Employee engagement and performance: A systematic literature review. *Int J Manag Econ.* 2018;53(3):227-44. <https://doi.org/10.2478/ijme-2018-0018>
10. Noermijati N. The influence of emotional intelligence on employee performance mediated by cooperative conflict management style of integrating and compromising. *Manage Appl J.*, 2021;17(1):37-47.
11. National Center for PTSD. *Managing Healthcare Workers' Stress Associated with the Covid-19 Virus Outbreak.* United States: U.S. Department of Veterans Affairs; 2020.
12. Rossi R, Socci V, Pacitti F, Di Lorenzo G, Di Marco A, Siracusano A, *et al.* Mental health outcomes among frontline and second-line health care workers during the Coronavirus disease 2019 (Covid-19) pandemic in Italy. *JAMA Netw Open.* 2020;3(5):e2010185. <https://doi.org/10.1001/jamanetworkopen.2020.10185>
PMid:32463467
13. Chatterjee SS, Chakrabarty M, Dan U. Mental health of healthcare workers during the early phase of COVID19: Variable performance on different factors of stress. 2020. <https://doi.org/10.1101/2020.09.22.20199323>
14. Deng J, Guo Y, Ma T, Yang T, Tian X. How work stress influences job performance among Chinese healthcare workers: A cross-sectional study. 2019;24(1):2. <https://doi.org/10.1186/s12199-018-0758-4>
PMid:30611191
15. Lia J, Ma S, Wang Y, Cai Z, Hu J, Wei N, *et al.* Factors associated with mental health outcomes among health care workers exposed to Coronavirus disease 2019. *JAMA Netw Open.* 2020;3(3):e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>
PMid:32202646
16. Abuanja MJ, Ahmed HM. Impact of stress on nurse's performance in El Mek Nimer university hospital. *J Multidiscip Discov.* 2016;3(3):10-05.
17. Ismail A, Saudin N, Ismail Y, Samah AJ, Bakar RA, Aminudin NN. Effect of workplace stress on job performance. *J Econ Bus.* 2015;13(1):45-57.
18. Al-Omari K, Okasheh H. The influence of work environment on job performance: A case study of engineering company in Jordan. *Int J Appl Eng Res.* 2017;12(24):15544-50.
19. Colquitt JA, Lepine JA, dan Wesson MJ. *Organizational Behavior: Improving Performance and Commitment in the Workplace.* 4th ed. New York: McGraw Hill; 2015.
20. Sharmilee, Basit A, Hassan Z. Impact of work stress on employee performance. *Int J Account Bus Manag.* 2017;5(2):13-33.
21. El-Ghabbour GM, Afify FA, Kamal MT, Fahmy ED, El-Sayed NM. The relationship between work stress and head nurses job performance. *Port Said Sci J Nurs.* 2015;2(2):156-73.
22. Robbins P, Judge A. *Perilaku Organisasi.* Jakarta: Salemba Empat; 2008.
23. Chao MC, Jou RC, Liao CC, Kuo CW. Workplace stress, job satisfaction, job performance, and turnover intention of health care workers in rural Taiwan. *Asia Pac J Public Health.* 2015;27(2):NP1827-36. <https://doi.org/10.1177/1010539513506604>
PMid:24174390
24. Tripathi JP, Sharma S. The key to improve performance: Employee engagement. *IOSR J Bus Manag.* 2016;18(10):19-25. <https://doi.org/10.9790/487X-1810041925>
25. Kemenkes RI. In: Aziza L, Aqmarina A, Ihsan M, editors. *Pedoman Pencegahan dan Pengendalian Coronavirus Disease (Covid-19).* 5th ed. Jakarta: Kementerian Kesehatan RI; 2020.
26. Occupational Safety and Health Administration. *Guidance on Preparing Workplaces for Covid-19.* San Francisco: U.S. Department of Labor; 2020.
27. Sasaki N, Kuroda R, Tsuno K, Norito K. Workplace responses to Covid-19 associated with mental health and work performance of employees in Japan. *J Occup Health.* 2020;62(1):e12134. <https://doi.org/10.1002/1348-9585.12134>
PMid:32529654
28. Riastrri AB. *Kinerja Tenaga Kesehatan di Era Pandemi Covid-19 Ditinjau dari Perceived Stigma dan Pengetahuan Tentang Corona Virus Dengan Kecemasan Sebagai Variabel Intervening.* Masters Thesis, Universitas 17 Agustus 1945 Surabaya; 2020.
29. Schaufeli WB, Bakker AB. *Utrecht Work Engagement Scale Preliminary Manual Version 1.1.* Version 1. Occupational Health Psychology Unit Utrecht University. Utrecht: Utrecht University; 2004.
30. 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):1-20. <https://doi.org/10.1080/23311975.2020.1712768>
31. Prochazka J, Scheel T, Pirozek P, Kratochvil T, Civilotti C, Bollo M, *et al.* Data on work-related consequences of Covid-19 pandemic for employees across Europe. *Data Brief.* 2020;32:106174. <https://doi.org/10.1016/j.dib.2020.106174>
PMid:32837975
32. Hamid M, Wahab SA, Hosna AU, Hasanat MW, Kamruzzaman M. Impact of Coronavirus (Covid-19) and employees' reaction to changes on employee performance of Bangladesh. *Int J Bus Manag.* 2020;8(8):38-43. <https://doi.org/10.24940/theijbm/2020/v8/i8/BM2008-013>
33. Ferdinand A. *Metode Penelitian Manajemen Pedoman Penelitian untuk Penulisan Skripsi Tesis dan Disertasi Ilmu Manajemen.* In: Kelima E, editor. Semarang: Badan Penerbit Universitas Diponegoro; 2014.
34. Solimun, Fernandes AA, Nurjannah N. *Metode Statistika Multivariat Pemodelan Persamaan Struktural (SEM) Pendekatan WarpPLS.* Malang: UB Press; 2017.
35. Kuncoro A, dan Riduwan E. *Cara Menggunakan dan Memakai Analisis Jalur.* Bandung: Alfabeta; 2008.
36. Hair JF, Hult GT, Ringle C, Sarstedt M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM).* 2nd ed. Los Angeles: Sage Publications; 2017.
37. Fajrillah, Nurfitriani. The relationship between work stress and the performance of implementing nurses in carrying out nursing services at the emergency department of a public hospital anutapura palu. *J Keperawatan Sriwijaya.* 2016;3(2):1-9.
38. Nadira B. Effect of Work-Life Balance and Work Stress on Employee Engagement. *J Ilmiah Mahasiswa FEB.* 2019;8(1):1-18.
39. Kusumawati RA. The effect of employee engagement on the performance of diploma III program workers at the economics faculty of the Indonesian Islamic University. *J Maksipreneur.* 2017;6(2):1-17.