

# Effect of Workload, Work Shift, and Work Stress on Burnout of General Practitioners at Makassar Regional General Hospital during the COVID-19 Pandemic

Efecto de la carga de trabajo, el turno de trabajo y el estrés laboral en el agotamiento de los médicos generales en el Hospital General Regional de Makassar durante la pandemia de COVID-19

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## SUMMARY

**Objective:** This study aimed to analyze the relationship between workload, work shifts, work stress, and work fatigue in general practitioners at Makassar Regional General Hospital.

**Method:** This research used an analytical observational method with a cross-sectional study design. The sampling method used total sampling on general practitioners at Makassar Regional General Hospital. Workload, work shifts, work stress, and work fatigue were measured using questionnaires.

**Results:** There were 30 respondents involved in this

study. Most of the respondents were in the 20-30-year age group (73.3 %), female (90 %), working duration <10 years (80 %), and having another one place of practice (40 %). The results of the multivariate statistical test showed an effect of workload ( $p=0.001$ ) and work stress ( $p=0.0001$ ) on the work fatigue of general practitioners at Makassar Regional General Hospital. However, work shift ( $p=0.366$ ) had no effect on general practitioner fatigue at Makassar Regional General Hospital.

**Conclusion:** Workload and work stress affect the work fatigue of general practitioners in Makassar Regional General Hospital. The most influential factor in work fatigue is work stress.

**Keywords:** Workload, work shift, work stress, work fatigue.

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## RESUMEN

**Objetivo:** Este estudio tuvo como objetivo analizar la relación entre la carga de trabajo, los turnos de trabajo, el estrés y la fatiga laborales en los médicos generales del Hospital General Regional de Makassar.

**Método:** Esta investigación utilizó un método observacional analítico con un diseño de estudio transversal. El método de muestreo utilizó muestreo total en médicos generales en el Hospital General Regional de Makassar. La carga de trabajo, los turnos de trabajo, el estrés y la fatiga laborales se midieron mediante cuestionarios.

**Resultados:** *Hubo 30 encuestados involucrados en este estudio. La mayoría de los encuestados se encontraban en el grupo de edad de 20 a 30 años (73,3 %), mujeres (90 %), antigüedad laboral <10 años (80 %) y con otro lugar de práctica (40 %). Los resultados de la prueba estadística multivariante mostraron un efecto de la carga de trabajo ( $p= 0,001$ ) y el estrés laboral ( $p= 0,0001$ ) sobre la fatiga laboral de los médicos generales en el Hospital General Regional de Makassar. Sin embargo, el trabajo por turnos ( $p= 0,366$ ) no tuvo ningún efecto sobre la fatiga del médico general en el Hospital General Regional de Makassar.*

**Conclusión:** *La carga de trabajo y el estrés laboral afectan la fatiga laboral de los médicos generales en el Hospital General Regional de Makassar. El factor más influyente en la fatiga laboral es el estrés laboral.*

**Palabras clave:** *Carga de trabajo, turno de trabajo, estrés laboral, fatiga laboral.*

## INTRODUCTION

The current COVID-19 pandemic can worsen various aspects of the work of health workers (increased workload, increased anxiety about being infected with COVID-19, increased stress, and fatigue) (1). COVID-19 has also affected other aspects of healthcare workers to work harder than ever, get tired, stay more sleepless, spend less time with their families, and even live separately from them to prevent families from getting infected with COVID-19. The high risk of infection among health workers in direct contact with COVID-19 patients and the increasing number of health workers infected with COVID-19 make work shifts and workload increase so that health workers in the COVID-19 pandemic are vulnerable to work stress and emotional fatigue (2).

The general practitioner is one of the health workers who are at the forefront of health services in the COVID-19 pandemic. The general practitioner who works in a hospital has a high workload because the emergency room has many emergency cases, and the general practitioner must immediately treat patients quickly. The medical profession bears many responsibilities in handling patients, and general practitioners' physical and mental activity demands make

them vulnerable to experiencing stress and work fatigue (3).

Working amidst intense media and public attention, the long, massive, and possibly unprecedented work duration for some healthcare workers has additional implications in triggering the occurrence of adverse psychological effects, including emotional disturbances, depression, stress, low mood, irritability, panic attacks, phobias, symptoms, insomnia, anger, and emotional exhaustion (4). The stigmatization received and making health workers carriers of the virus is an attitude that can trigger psychological disorders in health workers (5)

Research in Turkey of 442 health workers showed 42 % (182 health workers) experienced stress disorders due to high working hours (6). Research in China by Zhu et al. found that 1 509 out of 5 062 health workers experienced stress during the COVID-19 pandemic, health workers consisting of 243 doctors, 1 130 nurses, and 136 health technicians (7). Research in Iraq by Saeed et al. showed that of 370 doctors working during a pandemic, 15.4 % experienced mild stress, 67.3 % moderate stress, and 17.3 % severe stress (8).

Burnout is a physical, emotional, and mental feeling that occurs because of chronic factors such as pressure and stress at work, and wear and fatigue over time. Emotional exhaustion, a dimension of burnout, is a feeling that emotional resources are exhausted in work done and the psychological inability to work. Özdemir et al. found that work stress positively correlates with emotional fatigue with a value of  $r = 0.687$ ,  $p < 0.01$  (2). Prolonged emotional exhaustion can lead to severe mental disorders (9). Emotional fatigue decreases job satisfaction and commitment from health workers (10). Emotional fatigue also causes productivity and performance to decline, and losses due to decreased productivity occur (11). Emotional exhaustion reduces the commitment of health workers to their profession, causing low resignation and patient satisfaction (2).

Based on the evidence this study aimed to analyze the relationship between workload, work shifts, work stress, and work fatigue in general practitioners at Makassar Regional General Hospital.

## METHOD

This study is quantitative with a cross-sectional approach. The information collected from respondents used a questionnaire with a general practitioner as the population. The survey method was used to assess the effect of workload, work shift, and work stress on the burnout of general practitioners at Makassar Regional General Hospital.

The population in this study was all general practitioners at Makassar Regional General Hospital, totaling 30 people, consisting of 22 intern doctors and 8 permanent general practitioners. The sampling technique in this study used total sampling. Four variables were measured in this study. Independent variables included workload, work shift, work stress, and work fatigue as the dependent variable.

Data were subjected to the analysis of the correlation of the influence of independent variables on dependent variables, and linear regression analysis of the relationship between workload, work shift, and work stress to burnout. Data were considered significant for a p-value of 0.05.

## RESULTS

Of the 30 respondents of general practitioners at Makassar Regional General Hospital, it was found that 22 respondents aged 20-30 years (73.3 %), 4 respondents aged 31-40 years (13.3 %), one respondent aged 41-50 years (3.3 %) and 3 respondents aged >50 years (10 %). There were 3 male respondents (10 %), and 27 female respondents (90 %). 6 people had a working period of  $\geq 10$  years (20 %) and 24 people were with a working length of <10 years (80 %). Ten people did not have other practice places (33.3 %), 12 people had one other practice place (40 %), and 8 people had 2 other practice places (26.7 %). 14 people were married (46.7 %), and 16 people were unmarried (53.3 %).

Of the 30 respondents in the variable workload measurement, most respondents had a high workload (96.7 %) and those with a very high workload (3.3 %). In the work shift variable,

most respondents have a fairly good work shift quality (70 %), while having poor work shift quality (13.3 %) and good (16.7 %). In the work stress variable, most respondents had normal stress levels (73.3 %), which had mild levels of work stress (13.3 %) and moderate (13.3 %). In the work fatigue variable, most respondents had a low level of fatigue (53.3 %), which had a moderate (43.3 %) and high (3.3 %) level of work fatigue.

Table 1. Analysis of the correlation of the influence of independent variables on dependent variables

| Variable              | Pearson Correlation | Sig    |
|-----------------------|---------------------|--------|
| Workload - burnout    | 0.559               | 0.001  |
| Work Shift - burnout  | -0.171              | 0.366  |
| Work stress - burnout | 0.605               | 0.0001 |

Table 1 showed that: (a) Workload is positively correlated with work fatigue in public docks at Makassar Regional General Hospital ( $r=0.559$ ) where the higher the workload of general practitioners, the higher the perceived work fatigue, the correlation has moderate strength, and statistically significant ( $p<0.001$ ). (b) Work shifts are negatively correlated and very weak with work fatigue in general practitioners at Makassar Regional General Hospital ( $r=-0.171$ ), the correlation is not statistically significant ( $p<0.366$ ). (c) Work stress is positively correlated with work fatigue in general practitioners at Makassar Regional General Hospital ( $r=0.605$ ) where the higher the work stress of general practitioners, the higher the perceived work fatigue, the correlation has strong strength and is statistically significant ( $p<0.0001$ ).

Table 2. Linear regression analysis of the relationship between workload, work shift, and work stress to burnout

| Variable    | Standardized coefficients beta | Sig   | R     |
|-------------|--------------------------------|-------|-------|
| Square      |                                |       |       |
| Workload    | 0.434                          | 0.004 | 0.547 |
| Work Shift  | -0.112                         | 0.410 |       |
| Work stress | 0.472                          | 0.002 |       |

From the results of regression analysis of the variables workload, work shift, and work stress on work fatigue, the significance value of the variables workload  $p= 0.004$  and work stress  $p= 0.002$ , which indicates that the variables workload and work stress have a significant effect on work fatigue. The work shift variable has a non-significance value of  $p= 0.410$  greater than 0.05. These results conclude that variable work shift does not have a significant effect on work fatigue. The magnitude of the R Square value is 0.547 shows that the contribution of the influence of workload, work shift, and work stress on work fatigue is 54.7 % while the remaining 45.3 % is the contribution of other variables that were not included in the study. These results also show that of the three independent variables, the most influential on work fatigue is work stress, because it has the highest beta value, which is 0.472.

## DISCUSSION

### **The effect of workload on general practitioner fatigue at Makassar Regional General Hospital**

Due to the COVID-19 pandemic, health workers are faced with heavy workload pressure, the source of the workload faced by doctors is increased working hours, poor sleep quality, and the risk of being infected with the virus and can transmit the virus to family members. The increased workload during the COVID-19 pandemic can cause burnout for healthcare workers (12). In addition, there is an increased mental burden on health workers caused by the increased risk of exposure, infection, and the possibility of infecting their loved ones is also a burden in itself. Many doctors have to isolate themselves from family and loved ones even if they do not have COVID-19, this is a difficult decision and can cause a significant psychological burden on them (13). Even with the use of complete Personal protective equipment (PPE), it can still contract the coronavirus through droplets or aerosols from patients in the air and enter through gaps formed accidentally by health workers when justifying positions, starting positions, wiping sweat, or when removing protective clothing (5). The use of complete PPE

for a long time and the many procedures carried out using PPE are one of the causes of fatigue in health workers (14).

When assess the effect of workload on the work fatigue of general practitioners at Makassar City Hospital, the correlation test showed that workload was positively correlated with work fatigue ( $r=0.559$ ) where the higher the workload of general practitioners, the higher the perceived work fatigue, the correlation was of moderate strength, and statistically significant ( $p<0.001$ ). In linear regression analysis, the workload variable had a significance value of  $p<0.004$ , which indicates that the workload variable has a significant effect on work fatigue. This study shows that the average workload score for general practitioners at Makassar Regional General Hospital is  $71.5 \pm 6.75$ , which means that the average score falls into the high category, this is in accordance with Shoja et al., who assessed the workload of health workers in Iran during the COVID-19 pandemic, and found that the average workload score for doctors was  $56.35 \pm 20.45$ , which means that the average is also included in the high category (15). Excessive workload (e.g. long working hours, frequent night tasks, and high work intensity), work-home conflict, loss of support from colleagues, and decreased control, autonomy, and meaning in the workplace have each been linked to burnout among clinicians (16).

### **The effect of work shift on general practitioner fatigue at Makassar Regional General Hospital**

The duration of longitudinal shifts often occurs in the practice of medicine. Extended shifts are when doctors are required to work continuously for more than 8 hours, with little or no rest, and often indefinitely. Research on elongated shifts in doctors has the impact of fatigue, increasing the risk of harm to patients and doctors themselves. This elongated shift is partly due to the lack of doctors working at the hospital (17). The shortage of doctors was found during the COVID-19 pandemic, and the increasing number of patients in hospitals made them overwhelmed and more vulnerable to being infected with COVID-19. Like other people, if doctors are infected with COVID-19, they are also required to self-isolate

for 10 days. This certainly makes shifts for other doctors in the same hospital increase in terms of duration and frequency.

Based on the results of the study, the distribution of respondents according to the quality of work shifts found that 70 % of general practitioners at Makassar Regional General Hospital rated the quality of work shifts as quite good, 16.7 % rated the quality as good and 13.3 % rated the quality of shifts as bad during the COVID-19 pandemic. The correlation test showed that work shift was negatively correlated and very weak with work fatigue in general practitioners at Makassar Regional General Hospital ( $r=-0.171$ ), the correlation was not statistically significant ( $p=0.366$ ). In multivariate analysis, the significance value of the work shifts variable was  $p=0.41$ . Thus, work shift variables do not have a significant effect on work fatigue. This is because most general practitioners at Makassar Regional General Hospital assess the quality of their work shifts as good enough so that work shift has less effect in causing work fatigue. In a study poor shift quality, such as an increase in the number of shift frequencies, lengthening shifts, and night shift frequencies played a role in causing physician fatigue (18). Elongated shifts make doctors tired quickly, because of lack of rest and a doctor's work where he must focus all the time on treating patients, performing medical procedures, and documenting the results of examinations and therapies given.

#### **The effect of work stress on general practitioner fatigue at Makassar Regional General Hospital**

Work stress is a state of tension that creates physical and psychological imbalances that affect the emotions, thought processes, and conditions of a worker. This stress is a demand to be able to adjust to the demands that take place. Claims of bias are current (factual) events and can also be things that may happen in the future but are perceived factually. Stressors are demands for conformity. Stress has a characteristic synonymous with behavior adapting to the environment, including things outside the self (outer world) and in the self (inner world) (19,20). The COVID-19 pandemic exposes health workers to many stressors that can increase work stress in

health workers. In handling COVID-19 patients, many physical difficulties are faced, such as prolonged use of PPE and carrying out medical procedures while using full PPE, mental and emotional difficulties such as fear of the risk of exposure to and infection with COVID-19, and increased workload (2).

Research on work stress in doctors during the COVID-19 pandemic found that around 75 % of doctors studied experienced moderate stress, many things that cause stress to doctors, such as fear of being beaten by the patient's family for no reason, fear of infection, not seeing family and friends, fear of infecting family, quarantine for 14 days after the assignment in special COVID-19 care and administrative pressure (21). The correlation test shows that work stress is positively correlated with work fatigue in general practitioners at Makassar Regional General Hospital ( $r=0.605$ ) where the higher the work stress of general practitioners, the higher the perceived work fatigue, the correlation has strong strength and statistically significant ( $p<0.0001$ ). In linear regression analysis, the work stress variable has a significance value of  $p<0.002$ , which indicates that the work stress variable has a significant effect on work fatigue. Health workers expend a lot of effort and energy in dealing with this work stress so that they can still handle patients professionally and carry out their duties. This can lead to emotional exhaustion (22). Özdemir et al. determined the levels of optimism, stress, and emotional exhaustion of healthcare workers related to COVID-19 and the effect of optimism directly and indirectly through job stress on emotional exhaustion caused by COVID-19. They conclude that the pandemic caused emotional exhaustion, one of these psychological effects. Also, it was determined a relationship between work stress and emotional fatigue, with a statistically significant relationship between the two ( $r=0.846$ ,  $p<0.01$ ), with a multivariate test of  $b=0.687$ ,  $p<0.01$  (2). Emotional exhaustion is essential for both the private and business life of employees in the health sector, as in other sectors; it creates many negative results both individually and organizationally, and it increases the intentions of healthcare workers to leave the job. Therefore, health organizations should identify and implement practices that will reduce employee emotional exhaustion; it

is particularly important to take the necessary precautions to minimize emotional exhaustion, especially during this pandemic, where the emotional exhaustion level is high (2).

### CONCLUSION

There is a significant influence between workload and work stress on work fatigue in general practitioners at Makassar Regional General Hospital during the COVID-19 pandemic. While in work shift, there was no significant effect on work fatigue.

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### Authors' Contributions

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### Conflict of Interest

The author(s) declared no potential conflicts of interest concerning this article's research authorship and/or publication.

### Availability of Data and Materials

All data generated or analyzed during this study are included in this published article.

### REFERENCES

1. Al Barmawi MA, Subih M, Salameh O, Sayyah Yousef Sayyah N, Shoqirat N, Abdel-Azeez Eid Abu Jebbeh R. Coping strategies as moderating factors to compassion fatigue among critical care nurses. *Brain Behav.* 2019;9(4):1-8.
2. Özdemir Ş, Kerse G. The effects of the COVID-19 process on health care workers: Analysing of the relationships between optimism, job stress, and emotional exhaustion. *Int Multidiscip J Soc Sci.* 2020;9(2):178-201.
3. Suharni, Samsualam, Kurnaesih E. Determinant Implementation for Living Baby and Children Health Program in the Makassar City. *Indian J Public Heal Res Dev.* 2017;8(4).
4. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet.* 2020;395(10227):912-920.
5. Handayani RT, Kuntari S, Darmayanti AT, Widiyanto A, Atmojo JT. Factors Causing Stress in Health Workers and the Community During a Pandemic COVID-19. *J Keperawatan Jiwa.* 2020;8(3):353-360.
6. Elbay RY, Kurtuluş A, Arpacioğlu S, Karadere E. Depression, anxiety, stress levels of physicians and associated factors in COVID-19 pandemics. *Psychiatry Res.* 2020;290(May):1-5.
7. Zhu Z, Xu S, Wang H, Liu Z, Wu J, Li G, et al. COVID-19 in Wuhan: Immediate Psychological Impact on 5062 Health Workers. 2020;(1095).
8. Saeed BA, Shabila NP, Aziz AJ. Stress and anxiety among physicians during the COVID-19 outbreak in the Iraqi Kurdistan Region: An online survey. *PLoS One.* 2021;16(6):1-15.
9. Tuithof M, ten Have M, Beekman A, van Dorsselaer S, Kleinjan M, Schaufeli W, et al. The interplay between emotional exhaustion, common mental disorders, functioning and health care use in the working population. *J Psychosom Res.* 2017;100(March):8-14.
10. Dishop CR, Green AE, Torres E, Aarons GA. Predicting Turnover: The Moderating Effect of Functional Climates on Emotional Exhaustion and Work Attitudes. *Community Ment Health J.* 2019;55(5):733-741.
11. Chen H, Richard OC, Dorian Boncoeur O, Ford DL. Work engagement, emotional exhaustion, and counterproductive work behavior. *J Bus Res.* 2020;114(March):30-41.
12. Patel RS, Bachu R, Adikey A, Malik M, Shah M. Factors related to physician burnout and its consequences: A review. *Behav Sci (Basel).* 2018;8(11).
13. Kang L, Li Y, Hu S, Chen M, Yang C, Yang BX, et al. The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *Lancet Psych.* 2020;7(3):e14.
14. Patmawati TA, Woge Y, Rif'atunnisa R, Secunda MS, Amir H. Analysis of Factors Associated with Patient

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- Safety Incident Reporting Culture among Nurses. *Jurnal Keperawatan*. 2022; 14(2) :465–472.
15. Shoja E, Aghamohammadi V, Bazayr H, Moghaddam HR, Nasiri K, Dashti M, et al. COVID-19 affects the workload of Iranian healthcare workers. *BMC Public Health*. 2020;20(1):1-7.
  16. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516-529.
  17. Kotze K, van der Westhuizen HM, van Loggerenberg E, Jawitz F, Ehrlich R. Doctors' extended shifts as risk to practitioner and patient: South Africa as a case study. *Int J Environ Res Public Health*. 2020;17(16):1-10.
  18. Hidayah N, Kristan K, Supu NM, Latif AI, Amir H. Telehealth Model in Improving Health Service during COVID-19 Pandemic. *Gac Méd Caracas* 2022;130(4):873-878.
  19. Wintoro AY, Dwiputri RR, Yuniarti S, Iskandarsyah A. Get to Know Closer: Occupational Stress on Internship Doctors. *J Psychol Sci Prof*. 2018;2(1):67.
  20. Suharni. Antidepressant Adherence Among Hispanics: Patients in an Integrated Health Care Model [Letter]. *J Multidiscip Healthc*. 2023;16.
  21. Mansi Dwivedi SP. Stress among doctors during COVID-19. *Int J Indian Psychology*. 2020;8(2).
  22. Sultana A, Sharma R, Hossain MM, Bhattacharya S, Purohit N. Burnout among healthcare providers during COVID-19: Challenges and evidence-based interventions. *Indian J Med Ethics*. 2020;V(4):1-6.