

## Original Research Article

# NURSES' OCCUPATIONAL STRESS IN EMERGENCY CARE AND ISOLATION WARDS AFTER SECOND AND THIRD WAVE OF COVID-19

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### Article Info:

Received: April, 15<sup>th</sup>, 2024

Revised: November, 8<sup>th</sup>, 2024

Accepted: November, 16<sup>th</sup>, 2024

### DOI:

<https://doi.org/10.36720/nhjk.v13i2.648>

### Abstract

**Background:** COVID-19 pandemic caused globally public health crises. The massive spread of COVID-19 cases put nurses under immense stress due to high workload and thus high risk of infection, especially those in Emergency Room (ER) and Isolation Wards (IW). Both units were actively involved in handling COVID-19 as the first screening and treatment were given to COVID-19 patients.

**Objectives:** Analyze the differences in stress among nurses working in emergency room and isolation room in designated hospitals after the second and third waves of the COVID-19 pandemic.

**Methods:** The study was designed as comparative descriptive research, with observational and comparative longitudinal approach. There was a 14-month time periods between T1 and T2. The research samples were 33 nurses who working in emergency room (ER) and 32 nurses' isolation wards (IW) at two hospitals handling COVID-19. Healthcare Workers' Stress questionnaire was used to assess nurse's stress level. Data analysis was performed using the Mann Whitney U Test.

**Results:** The results indicated there were differences levels of stress among the 65 nurses who worked in the emergency room and isolation ward. On average, those Nurses working in the ER experienced lower stress than IW during first wave. By contrast, those Nurses working in IW experienced lower stress than ER during the third wave. There were significant differences on nurses' stress scores between the two departments during the second wave ( $p=0.000$ ) and third wave ( $p=0.036$ ) of COVID-19 pandemic.

**Conclusion:** This study suggests that nurses need to develop adaptive coping mechanisms to maintain decent nursing care during the COVID-19 pandemic. Attempts to anticipate or resolve the work stress are believed to maintain their performance on par with professional nursing care standards, even during the post-pandemic.

**Keywords:** COVID-19, Emergency, Nurse, Occupational Stress

## **INTRODUCTION**

The COVID-19 caused a health crisis to people around the world, and rapid transmission caused many sufferers to die (Handayani et al., 2020). The pandemic has continued to spread out up to its third wave since 2019 at world's level. The first wave of COVID -19 infections occurred in January to February of 2020 that continued to the second wave of COVID-19 cases which appeared in Indonesia from June to July 2021 due to the Delta variant. The Omicron variety hit Indonesia, causing the third wave (Wibowo, 2022).

Each of these waves of pandemic posed different impacts across different periods of time. The first wave resulted in high rates of deaths and disability. The second wave related to those who suffered in the medium-term due to measures taken to limit the spread of COVID-19 (Fisayo & Tsukagoshi, 2021). The third wave posed substantial impacts on the social determinants of health and the next generation (Elliot Major & Machin, 2020). By extension, COVID-19 has globally impacted healthcare delivery (Bojdani et al., 2020).

The increased cases of COVID-19 patients treated in hospitals led to changes the flow of healthcare services. On the other hand, the lack of health facilities and poor public awareness of health protocols made it difficult for Indonesia to stop the spread of COVID-19 infection (Sparrow et al., 2020). In the end, the number of infections and mortality were continually on the rise (Health, 2021).

The high number of infected patients admitted to hospital causes an increasing burden on nurses when treating their patients. This situation forced healthcare professionals, especially nurses, to work exceedingly harder upon taking care of COVID-19 patients (Afriani et al., 2022). The massive spread of COVID-19 cases put nurses under immense stress due to high workload and thus high risk of infection, especially those in ER and IW where first screening and treatment were given to COVID-19 patients (Kemkes, 2020). Both

units were actively involved in handling COVID-19 (Pavić et al., 2022).

In hospital care setting, during the pandemic, information regarding inpatients either suspected or confirmed of COVID-19 infection was recorded to inform the formation of COVID-19 isolation wards. IW received more emphasis in order to control the spread of infection in patients with suspected or confirmed infection. The isolation wards were necessary to prevent the transmission of infection among patients with suspected or confirmed infection. The increasing trends of patient admitted to IW gave rise to the risks of contracting COVID-19 for nurses (Buheji & Buhaid, 2020).

Healthcare workers in ER faced psychosocial stress and workload changes (Yeo et al., 2021). ER is the main entry point in hospitals for patient admission and initial screening. As an important operational force in hospital, nurses need to provide a complex nursing care during pandemic, causing more challenges to their day-to-day care. As a result, nurses experienced stress or mental stress due to the magnitude of their workload (Puspitasari et al., 2021).

During the COVID-19 outbreak, nurses in ER faced several difficulties in their professional and personal lives, which contributed to their stress levels (Salami et al., 2023). The huge amount of stress in ER threatens the mental health of nurses, causes inaccurate treatment, reduces the quality of care, and even reduces nurses' satisfaction and motivation. Not only does this situation affect their personal lives, but it also poses challenges to their families.

Another serious concern is that healthcare professionals have experienced stress and psychological trauma due to the outbreak (Lund et al., 2020). Nurses are leading the way in how the healthcare sector responds to the pandemic. As the largest group of health professionals, they are at the forefront of the health system in response to the pandemic. The emergent need for quick adaptation to new

working conditions posed multiple effects on nurses, which seriously affected their mental and physical health within their professional and personal lives. Majority of previous studies conducted since the beginning of COVID-19 pandemic had focused on nurse's occupational stress in either ER or IW separately.

Nevertheless, the comparison of those two units during the second and third wave of COVID-19 remained underexplored. The present study delved into healthcare in ER and IW at hospitals, which generally constitute a stressful environment due to these waves of COVID-19 spread. The research findings are devoted to crafting apt coping mechanisms and strategies. Understanding the stress levels of nurses in different wards can help healthcare administrators make informed decisions regarding workforce planning and managing stress among nurses.

**Objective(s):** This study aimed to analyze the different level of occupational stress among nurses working in ER and IW at hospitals in Pandalungan region during the second and third waves of the COVID-19 pandemic in Indonesia.

## METHODS

### *Study Design*

Employing observational and comparative longitudinal approach, this study involved two designated hospitals of COVID 19 in Pandalungan region, East Java of Indonesia.

### *Setting*

This study was conducted during second and third wave of COVID-19 pandemic in the Emergency Room and isolation wards of two designated hospitals of COVID-19 in Pandalungan region of East Java.

### *Research Subject*

The study sample were 65 clinical nurses which longitudinally recruited from ER and IW through total sampling. Their participation in this study was fully voluntary.

### *Instruments*

This study used the Healthcare Workers' Stress (HSW) adapted from Wang et al., (2020), the questionnaire consisted of four indicators: anxiety and social isolation, discomfort due to the use of personal protective equipment (PPE), anxiety due to transmission risk, and the burden of treating patients, with a total of 32 questions. In each question, the respondents were required to choose one of the following options: not at all, almost the same as usual, slightly more severe than usual, and more severe than usual. The scores obtained by completing the questionnaire were classified into three levels of stress, i.e., (0-32) low stress; (33-46) moderate stress, and (47-96) high stress.

The results of the validity and reliability test showed  $\alpha = 0.92$  with an I-CVI range between 0.81-0.85 with average CVI (S-CVI/Ave) of 0.85. These figures concluded that the questionnaire was valid and usable. The questionnaires were distributed to the participants in paper-based format. They had been informed about the research objective and procedure, and only those granting the research consent were involved. First period (T1) of data collection was from July to August 2021, and the second period (T2) was from October to November 2022. There was a 14-month time period between T1 and T2.

### *Data Analysis*

Univariate analysis was presented in the table showing frequencies and percentages. Such details as mean, median, standard deviation (SD), and minimum-maximum values were also reported. Non-parametric bivariate analysis of the Mann Whitney U Test was used to determine differences between the 2 independent groups at each phase. The confidence level was  $p \leq 0.05$  to identify a significant difference.

### *Ethical Consideration*

This research received the approval from the ethics committee of Faculty of

Nursing, University of Jember with reference number 98/UN25.1.14/KEPK/2021. The researchers explained the purpose and nature of the research to the participants, and the participants were also asked to give their consent by filling out a questionnaire through Google form.

**RESULTS**

**Table 1. Distribution of Respondent’s Age**

Characteristics	Emergency Room (n=33)	Isolation Ward (n=32)	Total (n=65)
	Mean ±SD	Mean ±SD	Mean± SD
<b>Age</b>			
<b>(Years Old)</b>	31.70± 3.949	31.06± 5.702	31.38± 4.863

This study involved 33 nurses who worked in ER and 32 nurses in IW, as shown in Tables 1 and 2. The results showed that the nurses’ average age is 31.38 ± 4.863 years old. Majority of the nurses are male (69.2%). Most of them have bachelor degree in Nursing (53.8%). Finally, most of them are married (84.6%).

**Table 2. Distribution of Respondent’s Gender, Education Level, and Marital Status**

Characteristics	Emergency Room (n=33)		Isolation Ward (n=32)		Total (N=65)	
	n	%	N	%	N	%
<b>Gender</b>						
Male	25	75,8	20	62,5	45	69,2
Female	8	24,2	12	37,5	20	30,8
<b>Education</b>						
Diploma	15	45,5	15	46,9	30	46,2
Bachelor	18	54,5	17	53,1	35	53,8
<b>Marital Status</b>						
Married	29	87,9	26	81,3	55	84,6
Unmarried	4	12,1	6	18,8	10	15,4

Table 3 describes the nurses’ stress score in ER unit in both hospitals in two periods time. The highest mean of stress scores in T1 among two hospitals are identified in different domains. The nurses in hospital A have highest stress score related to anxiety and social isolation. Meanwhile those in hospital B show highest stress score related to discomfort due to the use of PPE. Similarly, in T2, the highest means between two hospitals are documented on different domains. The highest mean score related to discomfort due to the use of PPE is found at hospital A while anxiety and social isolation is reported to be dominant in hospital B.

Table 4 shows the nurses’ stress score in IW at each hospital. The highest stress score at both hospitals is identified in the discomfort due to the use of PPE.

Table 5 presents the nurses’ stress total mean at second and third wave in two departments. In the second wave, the total mean stress score of those working in IW is 37.09, indicating moderate stress level. In contrast, the total mean stress score of those in ER is 19.91, corresponding to low stress level. Furthermore, in the third wave, the total mean stress score of nurses working in IW is 20.78, and the total mean stress score of those assigned in ER is 27.70. Both total scores indicate low-level stress.

The result of non-parametric test as shown in Table 6 prove significant difference in the stress scores between departments at T1 and T2 ( $p = 0.000 \leq \alpha = 0.05$ ;  $0.05 \leq \alpha = 0.05$ ) respectively. In addition, the analysis showed that the nurses’s stress score in isolation wards were significantly decreased between second to the third wave of COVID-19 pandemic. One interesting finding is that the nurses’s stress score in ER has significantly increased from T1 to T2.

**Table 3. Stress Level of Nurses in Emergency Room**  
**NURSES' STRESS SCORE IN EMERGENCY ROOM (n=33)**

	Hospital A (n=14)					Hospital B (n=19)				
	Min-Max	Q3	Q1	Median	Mean	Mean	Median	Q1	Q3	Min-Max
<b>SECOND WAVE</b>										
The worry of social isolation	0-15	10.00	4.25	8.50	7.43	4.79	4.00	1.00	6.00	0-18
The discomfort caused by the protective equipment	0-14	9.25	1.50	7.50	6.21	5.63	4.00	1.00	7.00	0-23
The difficulties and anxiety of infection control	0-10	7.00	3.00	4.00	4.71	3.58	1.00	0	6.00	0-19
The workload of caring for patients	0-12	8.25	1.75	6.00	5.57	2.95	2.00	0	4.00	0-14
<b>THIRD WAVE</b>										
The worry of social isolation	2-7	6.25	4.00	5.50	5.07	10.05	10.00	4.00	13.00	0-21
The discomfort caused by the protective equipment	0-15	9.00	7.00	8.00	8.00	9.00	8.00	6.00	12.00	2-19
The difficulties and anxiety of infection control	0-8	6.25	4.00	4.50	4.86	6.00	7.00	4.00	7.00	0-13
The workload of caring for patients	2-6	5.00	3.00	4.00	3.79	7.05	7.00	4.00	11.00	0-14

**Table 4. Stress Level of Nurses in Isolation Ward**  
**NURSES' STRESS SCORE IN ISOLATION WARDS (n=32)**

	Hospital A (n=20)					Hospital B (n=12)				
	Min-Max	Q3	Q1	Median	Mean	Mean	Median	Q1	Q3	Min-Max
<b>SECOND WAVE</b>										
The worry of social isolation	2-26	14.75	4.00	11.00	10.45	8.75	8.50	4.50	11.50	0-22
The discomfort caused by the protective equipment	0-21	15.50	6.00	9.00	10.45	12.08	13.00	8.00	16.75	3-19
The difficulties and anxiety of infection control	0-20	11.00	4.25	7.00	8.10	7.75	7.50	4.50	10.75	0-16
The workload of caring for patients	0-20	12.50	5.00	6.50	8.00	8.67	8.00	5.00	13.50	1-19
<b>THIRD WAVE</b>										
The worry of social isolation	1-10	6.75	3.00	4.50	5.10	4.83	5.00	3.00	6.00	1-10
The discomfort caused by the protective equipment	0-17	9.00	3.00	4.50	6.40	7.67	7.00	5.00	10.50	1-14

The difficulties and anxiety of infection control	0-11	7.00	2.00	4.50	4.85	3.17	2.50	0	4.75	0-12
The workload of caring for patients	0-11	5.75	2.00	3.50	4.25	5.42	6.00	1.00	9.50	1-12

**Table 5. Stress Level of Nurses in Emergency Room and Isolation Ward**

Sub Variable	ISOLATION WARD (n=32)					EMERGENCY ROOM (n=33)				
	Min-Max	Q3	Q1	Median	Mean	Mean	Median	Q1	Q3	Min-Max
<i>Second Wave</i>										
The worry of social isolation	0-26	13.75	4.00	10.00	9.81	5.91	5.00	1.50	9.00	0-18
The discomfort caused by the protective equipment	0-21	16.00	6.00	9.50	11.06	5.88	6.00	1.50	8.00	0-23
The difficulties and anxiety of infection control	0-20	11.00	4.25	7.50	7.97	4.06	4.00	0.50	6.00	0-19
The workload of caring for patients	0-20	12.75	5.00	7.00	8.25	4.06	3.00	0	6.50	0-14
Total Score	2-87	55.50	20.25	32.50	<b>37.09</b>	<b>19.91</b>	21.00	5.50	26.50	0-74
<i>Third Wave</i>										
The worry of social isolation	1-10	6.00	3.00	5.00	5.00	7.94	6.00	4.00	10.00	0-21
The discomfort caused by the protective equipment	0-17	9.00	4.00	6.00	6.88	8.58	8.00	7.00	8.00	0-19
The difficulties and anxiety of infection control	0-12	7.00	2.00	3.00	4.22	5.52	5.00	4.00	7.00	0-13
The workload of caring for patients	0-12	7.75	2.00	4.00	4.69	5.67	4.00	3.00	7.00	0-14
Total Score	1-48	29.00	12.25	22.00	<b>20.78</b>	<b>27.70</b>	23.00	19.00	32.00	6-67

**Table 6. Comparative Analysis of Stress of Nurses Working in Emergency Room and Isolation Ward Between the Second and Third Waves of Pandemic**

<i>p value</i>	Second Wave		Third Wave	
	±SD	Mean	Mean	±SD
<b>Isolation Ward</b> <i>p</i> = 0.000	±20.773	37.09	20.78	±10.895
<b>Emergency Room</b> <i>p</i> = 0.050	±16.736	19.91	27.70	±14.821

Table 7 shows comparative analysis of nurses' stress working both in ER and IW. The statistics demonstrate a significant difference in nurses' stress scores between the two departments during the second and third wave of COVID-19 pandemic, with *p* <0.001 and *p* 0.036, respectively. Furthermore, during the second wave, nurses in IW experience higher stress than those in ER. However, in the third wave, those in ER tend to experience higher stress than their counterparts.

**Table 7. Comparative Analysis of Stress of Nurses Working in Emergency Room and Isolation Ward Between the Second and Third Waves of Pandemic**

Nurse's Stress	Emergency Room (n=33)		Isolation Ward (n=32)		<i>p value</i>
	Mean	±SD	Mean	±SD	
<b>Second Wave</b>	19.91	±16.736	37.09	±20.337	0.000
<b>Third Wave</b>	27.70	±14.821	20.78	±10.985	0.036

**DISCUSSION**

This study examines differences of nurse's stress level in ER and IW when treating COVID-19 patients between two different waves of the pandemic. The second wave was associated with Delta variant of COVID while the third wave was driven by se Omicron variant.

The study revealed that nurses working in IW experienced significant decrease from the

second and the third wave. Furthermore, the study indicated that the most dominant factor to their stress in IW was related to discomfort due to the use of PPE. According to Jose et al., 2021 while providing care for COVID-19 patients, nurses must wear PPE for an extended time period in order to prevent transmission. However, PPE can lead to serious skin problems due to prolonged friction and pressure, physical strain (dehydration, heat, and exhaustion), and emotional issues (such as physical isolation and infection fear). PPE may also cause physical side effects including discomfort and headaches, which can lead to significantly higher amount of stress (Hoedl et al., 2021).

In this study, the total mean of nurses' stress level in ER in both waves were identified in low level. This is in line with a previous study in Indonesia that report 50% of nurses in ER experienced symptoms of mild stress during the COVID-19 pandemic (Handayani & Pratiwi, 2021). In addition, the work stress in the second wave of COVID-19 experienced by nurses working in ER was lower than those in IW. Notwithstanding, contrasting results showed that those working in ER encountered higher amount of stress than their counterparts working in IW. In the second wave, the main factor that caused stress to nurses was the fear of social isolation. In the third wave, the main factor leading to nurse stress was the discomfort of nurses wearing PPE. This finding implied different trend of stress level in ER. During the COVID-19 epidemic, nurses in ER are the front-line healthcare providers (Khordeh et al., 2022). Since nurses have the most frequent and longest contact with patients infected with COVID-19, they are on the front line of dealing with the COVID-19 disease. A previous study also acknowledged that nurses in ER are at a greater risk of infection and have been more affected by the virus (Shanafelt et al., 2020).

Our research also found that nurses working in ER tended to experience increasing stress levels, while those in IW experienced a significant decrease in stress levels from the

second to the third waves. This implied that nurses should work in reasonably shorter work shifts. The shift patterns at the hospitals during the COVID-19 pandemic varied. Exceedingly long shift and without adequate rest will cause an adverse impact on nurses' health due to increased workload, fatigue, stress and potential psychological disorders. (Sugianto et al., 2021). Both excessive and too little workload are at risk of experiencing health problems or work-related illnesses. Physical and mental fatigue arise due to excessive workload which subsequently triggers emotional reactions, such as indigestion, headaches, and irritability (Pasang et al., 2022). In this study, the stress level among nurses or married staff members was higher than that of others caring for COVID-19 patients. This can happen because married nurses tend to experience anxiety and fear of contracting and transmitting the COVID-19 virus to their loved ones. Many nurses have to isolate themselves from family and loved ones even though they are not infected. This can cause a significant psychological burden on nurses (R. T. Handayani et al., 2020). This study also found that male nurses are more prone to stress. This is in line with previous research reporting that males tend to experience psychological stress more easily than females. This is due to the pathomechanism of the hormone testosterone which can produce a chemical called cortisol. This will affect the frontal lobes in the human brain which will cause stress (Puspitasari & Suprayitno, 2021). Respondents in this study were divided into two educational backgrounds, diploma and bachelor degrees. Education level also affects the level of stress experienced by nurses. The higher the education level, the lower of stress level experienced, implying that nurses with higher education level tends to demonstrate more positive coping strategies in response to stress (Tazkirah et al., 2021).

The comparative analysis of stress scores between second and the third wave of COVID-19 pandemic between the two

departments indicated a significant differences of stress scores. A reasonable explanation is the declined COVID-19 cases among HCWs during the third epidemic wave after the onset of vaccination. Previous findings in the COVID-19 pandemic have also confirmed the moderate resilience of nurses. Another study reports that the level of stress experienced by nurses can decrease due to several aspects, including individual motivation and support from patient's family and hospital (Purwaningsih & Darma, 2021). Increased public knowledge regarding COVID-19 disease has nullified nurses' social isolation in the community. Extensive use of PPE has resulted in discomfort on nurses, which also tends to decrease during the third wave. These circumstances significantly reduce nurses' level of stress, especially among those working in IW during the third waves (Agustin, 2022).

The high workload among nurses' results in substantial stress and physical as well as cognitive issues (Ihsan & Rosyid, 2021). During Covid-19 pandemic, health workers generally experience burnout. One of the factors that affects their stress level is that the multiplied workload substantially higher than that in a normal situation (Purwaningsih & Darma, 2021). Nurses's work stress in ER was caused by new environmental and medical procedures as well as their accompanying conditions (Oktari et al., 2021). In line with previous study, this study has affirmed that nurses suffer from severe stress caused by the immense workload, extensive use of PPE, higher number of patients, and the lack of nursing staffs (Musu & Saelan, 2021). The increased number of confirmed cases of COVID-19 in the second and third waves has sparked unbearable anxiety because of higher risk of contracting new diseases and occupational stress (Pasang et al., 2022). Another driving factor to the increased anxiety and stress is the emergence of both positive and negative cases of infection (Puspitasari et al., 2021).



This study has portrayed the normality of increased prevalence of work stress among nurses during health crisis. It happened because nurses need to work harder in response to a new challenging condition (Pusung et al., 2021). Their work stress defined is an adaptive response to the demands of the work environment, which unfortunately leads to psychological tension, lower motivation, reduced work performance, and increased potential of inaccurate treatment (Prasetyo, 2017). Another study stated that controlled stress levels enabled nurses perform better due to potentially better work intensity and vigilance. In contrast, excessive stress levels will decrease their performance (Yuniar, 2021). Work stress can arise due to such factors as environmental factors, organizational factors, and individual factors (Pusung et al., 2021) (Sihombing & Elon, 2021). At the forefront of the fight against Covid-19 pandemic, nurses are the most vulnerable health care professionals in treating Covid-19 patients. More health and safety concerns need to be considered when maintaining nurses' stress during a pandemic. In fact, nurses' stress and burnout were recognized as a hazard to work even before the pandemic (Pavić et al., 2022).

It is necessary to develop a coping mechanism and strategies to address physical and psychological problems. Coping strategies refer to various efforts, both mental and behavioral, to navigate, tolerate, reduce, or minimize a stressful circumstance. The engagement of apt coping strategies will help to optimize nurses' performance in dealing with anxiety and stress during the COVID-19 pandemic.

## CONCLUSION

This study corroborates noteworthy differences in work stress among nurses working in ER and IW. The level of work stress among those in IW is significantly higher than those in ER. To reduce the impact of stress and maintain nurses' mental health, performance management is needed as a preventive measure

to help them perform optimally. By extension, this endeavor will maintain decent quality of healthcare at hospitals. The importance of support system between fellow nurses will aid in providing psychological support to each other and reduce stress level. Finally, nurses can better anticipate potential stress by implementing adaptive coping mechanisms.

## SUGGESTIONS

The study suggests the clinical care settings' managers to develop of targeted support strategies, such as psychological interventions, training programs, or additional staffing, to address the specific needs of nurses in each ward type. The study findings may indicate the need for adjustments in nurse-to-patient ratios, shift scheduling, or workload distribution to mitigate stress and prevent burnout among nurses.

## ACKNOWLEDGMENT

This work was supported by LP2M University of Jember. The authors would like to acknowledge and thank all nurses who participated in the study. We also thank those who supported the process of data collection.

## DECLARATION OF CONFLICTING INTEREST

All authors declare that they have no conflicts of interest.

## FUNDING

This work was supported by LP2M University of Jember (Grant Number 6385/UN25.3.1/LT.2021).

## AUTHOR CONTRIBUTION

**Nurfika Asmaningrum:** Presented idea and study design, supervise the study, analysis data, writing the manuscript; and critical appraisal.

**Aldi Rahardian Pujiyono:** Collected and presented the data, performed data analysis, and drafted the manuscript.

**Kholid Rosyidi MN:** Ethical clearance, data analysis and data presentation.

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#### REFERENCES

- Agustin, A. (2022). Analisis Perilaku Kepatuhan Penggunaan Alat Pelindung Diri (APD) Pada Tenaga Kesehatan Saat Pandemi Covid-19 (Systematic Review). *Jurnal Multidisiplin Dehasen*, 1(4), 535–538.
- Bakti Ihsan, N., & Nur Rosyid, F. (2021). Hubungan Beban Kerja Dengan Tingkat Stress Perawat Di Ruang Isolasi Covid-19 RSUD Kota Salatiga. *Seminar Nasional Keperawatan*, 66–71.
- Buheji, M., & Buhaid, N. (2020). Nursing Human Factor During COVID-19 Pandemic. *International Journal of Nursing Science*, 10(1), 12–24. <https://doi.org/10.5923/j.nursing.20201001.02>
- Eko Ari Wibowo. (2022). *2 Tahun Pandemi Covid-19, Ringkasan Perjalanan Wabah Corona di Indonesia*. Tempo.Co. <https://nasional.tempo.co/read/1566720/2-tahun-pandemi-covid-19-ringkasan-perjalanan-wabah-corona-di-indonesia>
- Elliot Major, L., & Machin, S. (2020). *Covid-19 and social mobility*. [http://eprints.lse.ac.uk/104673/1/Machin\\_covid\\_19\\_and\\_social\\_mobility\\_published.pdf](http://eprints.lse.ac.uk/104673/1/Machin_covid_19_and_social_mobility_published.pdf)
- Fisayo, T., & Tsukagoshi, S. (2021). Three waves of the COVID-19 pandemic. *Postgraduate Medical Journal*, 97(1147), 332. <https://doi.org/10.1136/postgradmedj-2020-138564>
- Handayani, P., & Pratiwi, C. A. (2021). Work Stress of Nurses in The Emergency Department of the General Hospital during Covid-19 Pandemic. *Developing a Global Pandemic Exit Strategy and Framework for Global Health Security*, 272–278. <https://doi.org/10.26911/ICPHepidemiology.FP.08.2021.04>
- Handayani, R. T., Kuntari, S., Darmayanti, A. T., Widiyanto, A., & Atmojo, J. T. (2020a). Faktor penyebab stres pada tenaga kesehatan dan masyarakat saat pandemi covid-19. *Jurnal Keperawatan Jiwa*, 8(3), 353–360.
- Handayani, R. T., Kuntari, S., Darmayanti, A. T., Widiyanto, A., & Atmojo, J. T. (2020b). Faktor Penyebab Stres Pada Tenaga Kesehatan dan Masyarakat Saat Pandemi COVID-19. *Jurnal Keperawatan Jiwa*, 8, 353–360.
- Hoedl, M., Eglseer, D., & Bauer, S. (2021). Associations between personal protective equipment and nursing staff stress during the COVID-19 pandemic. *Journal of Nursing Management*, 29(8), 2374–2382. <https://doi.org/10.1111/jonm.13400>
- Ika Puspitasari, D., & Suprayitno, E. (2021). Tingkat Stres Kerja Perawat Instalasi Gawat Darurat pada Masa Pandemi Covid-19. *Wiraraja Medika : Jurnal Kesehatan*, 11(1), 25–29. <https://www.ejournalwiraraja.com/index.php/FIK>
- Jose, S., Cyriac, M. C., & Dhandapani, M. (2021). Health problems and skin damages caused by personal protective

- equipment: Experience of frontline nurses caring for critical COVID-19 patients in intensive care units. *Indian Journal of Critical Care Medicine*, 25(2), 134–139. <https://doi.org/10.5005/jp-journals-10071-23713>
- Karimi Khordeh, N., Dehvan, F., Dalvand, S., Repišti, S., & Ghanei Gheshlagh, R. (2022). The COVID-19 fear, anxiety, and resilience among emergency nurses. *Frontiers in Psychology*, 13, 1–7. <https://doi.org/10.3389/fpsyg.2022.999111>
- Kemkes. (2020). *Panduan teknis pelayanan rumah sakit*.
- Musu, E. T., & Saelan, A. M. (2021). Gambaran Stres Kerja Perawat Igd Di Masa Pandemi Covid-19 Di Rumah Sakit Surakarta. *Jurnal Gawat Darurat*, 3(1), 1–10.
- Oktari, T., Nauli, F. A., & Deli, H. (2021). Gambaran Tingkat Stres Kerja Perawat Rumah Sakit Pada Era New Normal. *Health Care: Jurnal Kesehatan*, 10(1), 115–124.
- Pasang, M. T. I., Doda, D. V. D., Korompis, G. E. C., Kesehatan, F., Universitas, M., Ratulangi, S., & Abstrak, M. (2022). Hubungan Antara Beban Kerja Dengan Stres Kerja Pada Perawat Pelaksana Di Ruang Isolasi Covid-19 Rumah Sakit Umum Daerah Kota Kotamobagu. In *Jurnal KESMAS* (Vol. 11, Issue 2).
- Pavić, J., Vučko, M., & Liška, F. (2022). Implications of Work in the Covid Isolation Ward and the Central Emergency Department on the Life and Work of Nurses. *Croatian Nursing Journal*, 6(1), 71–81. <https://doi.org/10.24141/2/6/1/6>
- Prasetyo, W. (2017). Literature Review: Stres Perawat Di Ruang Instalasi Gawat Darurat. *Jurnal Ners Lentera*, 5(1), 43–55.
- Purwaningsih, C. I. I., & Darma, G. S. (2021). Menelisik Stres Kerja Tenaga Kesehatan Dimasa Pandemi Covid-19 di Rumah Sakit. *Jurnal Manajemen Bisnis*, 18(3). <http://journal.undiknas.ac.id/index.php/magister-manajemen/>
- Puspitasari, D. I., Suprayitno, E., & Bustami, B. (2021). Tingkat Stres Kerja Perawat Instalasi Gawat Darurat pada Masa Pandemi Covid-19. *Wiraraja Medika : Jurnal Kesehatan*, 11(1), 25–29. <https://doi.org/10.24929/fik.v11i1.1350>
- Pusung, B., Joseph, S. B. W., & Akili, A. R. (2021). Stres Kerja Pada Perawat Instalasi Gawat Darurat Rs Gmim Bethesda Tomohon Dalam Masa Pandemi Covid-19. *Jurnal KESMAS*, 10(6), 40–47.
- Salami, Z., Mozaffari, N., & Mohammadi, M. A. (2023). Perceived stress and coping strategies among emergency department nurses and emergency medical services staff during the fifth wave of COVID-19 in Iran: A cross-sectional correlational study. *International Journal of Africa Nursing Sciences*, 18, 1–7. <https://doi.org/10.1016/j.ijans.2023.100572>
- Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. *JAMA*, 323(21), 2133–2134. <https://doi.org/10.1001/jama.2020.5893>
- Sihombing, D., & Elon, Y. (2021). Gambaran tingkat depresi, kecemasan, dan stress yang dialami perawat dalam memberikan perawatan pada pasien Covid-19. *Jurnal Skolastik Keperawatan*, 7(1), 54–62. <https://doi.org/https://doi.org/10.35974/jsk.v7i1.2456>

- Sugianto, K. M. S., Hariyati, Rr. T. S., & Galleryzki, A. R. (2021). Pola Shift Perawat di Masa Pandemi COVID-19. *Journal of Telenursing (JOTING)*, 3(1), 136–144. <https://doi.org/10.31539/joting.v3i1.2157>
- Tazkirah, R., Cut Husna, ;, Safuni, ; Nani, Studi, M. P., Keperawatan, I., Keperawatan, F., Kuala, S., Aceh, B., Keperawatan, B., & Bedah, M. (2021). Description of Nurses Stress Levels During The COVID-19 Pandemic. *JIM*, 5(1), 20.
- Yeo, I. H., Kim, Y. J., Kim, J. K., Lee, D. E., Choe, J. Y., Kim, C. H., Park, J. B., Seo, K. S., Park, S. Y., Lee, S. H., Cho, J. K., & Lee, S. H. (2021). Impact of the COVID-19 pandemic on emergency department workload and emergency care workers' psychosocial stress in the outbreak area. *Medicina (Lithuania)*, 57(11), 1–10. <https://doi.org/10.3390/medicina57111274>
- Yuniar, N. (2021). Pengaruh Beban Kerja, Stres Kerja, Motivasi Kerja Terhadap Kinerja Perawat Pasien Covid-19. *Nursing Care and Health Technology Journal*, 8(2), 51–52.

**Cite this article as:** Asmaningrum, N., et al. (2024). Nurses' Occupational Stress in Emergency Care and Isolation Wards after Second and Third Wave of Covid-19. *Nurse and Health: Jurnal Keperawatan*, 13 (2), 226-237. <https://doi.org/10.36720/nhjk.v13i2.648>