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## **Workload and Stress Level in Non-COVID-19 Zoning Nurses at National Central Public Hospital Jakarta**

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# Workload and Stress Level in Non-COVID-19 Zoning Nurses at National Central Public Hospital Jakarta

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## Abstract

The COVID-19 pandemic has increased the workload for nurses directly handling COVID-19 patients and those working in non-COVID-19 zones. As the number of COVID-19 cases rises, nurses face psychological problems, including stress. This study aimed to determine the relationship between workload and stress levels in a non-COVID-19 zoning ward using a cross-sectional approach and Spearman's correlation test conducted on 94 nurses at one hospital in Jakarta, Indonesia, selected through simple random sampling. The workload questionnaire with 15 items and the DASS 42 questionnaire were used to measure stress levels. The results indicated that most nurses (73.4%) experienced a heavy workload. Regarding stress levels, most nurses (66%) reported severe stress, while a small number experienced mild (2.1%) and moderate stress (2.1%). The Spearman's test revealed a significant relationship between workload and stress levels in the non-COVID-19 zoning ward ( $p$ -value = 0.001). Based on these findings, hospitals are urged to effectively manage nurses' workload during the COVID-19 pandemic and implement specific interventions for nurses experiencing occupational stress.

**Keywords:** COVID-19, nurse, occupational stress, workload

## Introduction

Stress is the response of both the body and mind to the pressures imposed by the surrounding environment on an individual. In a work setting, individuals may experience feelings of inadequacy, pressure, and boredom, which can lead to reduced productivity and adverse effects on their work unit or company.<sup>1</sup> Extended periods of stress can affect various aspects and systems within a person's body, resulting in emotional, cognitive, physiological, and behavioral consequences.<sup>2</sup> These emotional impacts may manifest as anxiety, depression, physical tension, and psychological strain.<sup>3</sup>

The results of a survey conducted by PricewaterhouseCoopers (PwC) among several employees during the coronavirus disease 2019 (COVID-19) pandemic in 2020 explained that in the United States, the decline in work productivity ranked third among the concerns, following financial impacts and the potential for a global recession.<sup>4</sup> Frontline workers' jobs required them to be close and frequently interact with the general public, which increased their risk of getting infected with the COVID-19 virus.<sup>5</sup>

In a survey by the Indonesian National Nurses Association, 51% of nurses reported experiencing occupational stress, which manifested in exhaustion, unfriendliness, frequent headaches, and insufficient rest due to heavy workloads and inadequate income.<sup>6</sup> If left unaddressed, this situation may lead to more severe consequences. Based on data from the Indonesian Ministry of Health in 2019, there were approximately 345,508 nurses in the country, meaning there is a high potential for a prevalence of nurse stress.<sup>7</sup> These data highlight the importance of occupational stress as a significant issue in the working world, affecting both work productivity and personal life.

Although all professional staff are at risk of experiencing occupational stress, those in the health care sector have a particularly high prevalence, with nurses experiencing among the highest levels.<sup>8</sup> Nurse occupational stress is a condition that results from an individual's subjective appreciation, involving interactions between individuals and their work environments that may threaten and pressure nurses psychologically, physiologically, and behaviorally.<sup>9</sup> This issue is due to nurses' direct interact-

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ions with patients with various diagnoses and responses. The high stress experienced by nurses at work leads to feelings of saturation and boredom, ultimately affecting work productivity and decreasing both nurses' performance and patient care.<sup>10</sup>

However, work-life balance is the most significant factor contributing to nurse stress.<sup>11</sup> The increasing number of COVID-19 cases can also add to the nurses' workload, both physically and mentally, leading to occupational stress among nurses. Nurses' roles and responsibilities become challenging when protecting themselves, their colleagues, and their families from this deadly infectious disease.<sup>12</sup>

The impact of occupational stress can be either beneficial or detrimental. Although some stress may motivate employees to work with enthusiasm, unresolved stress may have negative consequences, including physical issues such as increased cholesterol and coronary heart disease; psychological factors, such as moodiness, low trust, and irritability; and organizational factors, such as tardiness, low work achievements, sabotage, and absenteeism.<sup>13</sup> In general, occupational stress has a negative impact on both employees and companies or organizations. Employees may experience decreased enthusiasm for work, heightened anxiety, frustration, and other adverse consequences. These consequences affect work activities and may extend to other areas outside of work, such as sleep disturbances, reduced appetite, difficulty concentrating, and more.<sup>14</sup>

As the number of COVID-19 cases in Indonesia, especially Jakarta, continues to rise, several hospitals have transformed into COVID-19 referral hospitals.<sup>15-17</sup> Every patient admitted to the wards must undergo a polymerase chain reaction (PCR) swab test with a negative result before admission.<sup>18</sup> After a few days of treatment, many patients often begin to exhibit COVID-19 symptoms and test positive in a follow-up PCR swab test. This condition leads health workers in non-COVID-19 zones who frequently care for patients to be confirmed positive without symptoms.<sup>19</sup>

From the above explanation, COVID-19 cases significantly impact those on the frontline of handling this disease, especially nurses who have direct and indirect contacts with patients and may experience stress and depression, which they may not even realize. If this issue persists, it can lead to a decrease in work performance. For these reasons, this study aimed to examine the relationship between workload and stress levels among nurses in the non-COVID-19 zoning ward.

**Method**

This study employed a quantitative approach with a cross-sectional design. This design investigated the correlation between independent variables (exposure or risk

factors) and dependent variables (outcomes or effects) by collecting data simultaneously at a single point in time. This study was conducted from October to December 2021. The target population consisted of all zoning nurses, totaling 558 individuals who were currently active in their roles. The sample size comprised 94 nurses selected using the simple random sampling method based on predetermined inclusion and exclusion criteria.

The data-collection technique involved distributing online questionnaires to the respondents. The collected data were tabulated, and univariate analysis was performed to describe the demographic characteristic variables (age, sex, education, marital status, and length of service), workload, stress level, anxiety, and depression. Furthermore, bivariate analysis was conducted using Spearman's correlation test to establish the relationship between workload and stress levels among non-COVID-19 zoning nurses.

**Results**

In the univariate analysis conducted on the respondents' characteristics, it indicated that most nurses were female and married (80.9%) and between 26 and 35 years old (68.1%). Regarding the education variable, most held a Diploma III of Nurse qualification and worked for over six years (Table 1). Moreover, Table 2 shows most nurses in this study experienced a heavy

**Table 1. Distribution Based on the Respondents' Characteristics (n = 94)**

Variable	Category	n	%
Age (years)	≤25	3	3.2
	26-35	64	68.1
	36-45	18	19.1
	46-55	9	9.6
Sex	Male	18	19.1
	Female	76	80.9
Education	Diploma III of Nursing	73	77.7
	Bachelor of Nursing	21	22.3
Marital status	Married	76	80.9
	Single	18	19.1
Length of service	<6 years	23	24.4
	6-10 years	37	39.4
	>10 years	34	36.2

**Table 2. Distribution Based on the Workload and Stress Level of the Respondents**

Variable	Category	n	%
Workload	Light	6	6.4
	Moderate	19	20.2
	Heavy	69	73.4
Stress level	Normal	3	3.2
	Mild	2	2.1
	Moderate	2	2.1
	Severe	25	26.6
	Very severe	62	66

Table 3. Correlation Between Workload and Stress Level

Workload	Stress Level												p-value
	Normal		Mild		Moderate		Severe		Very Severe		Total		
	n	%	n	%	n	%	n	%	n	%	n	%	
Light	3	3.2	2	2.1	1	1.1	0	0	0	0	6	6.4	0.001
Moderate	0	0	0	0	1	1.1	11	11.7	7	7.4	19	20.2	
Heavy	0	0	0	0	0	0	14	14.9	55	58.5	69	73.4	

workload (73.4%). On the other hand, fewer nurses had light and moderate workloads (6.4% and 20.2%, respectively). Finally, most nurses in this study experienced very severe stress (66%), and only 3.2% experienced normal stress.

Based on the cross-tabulation results (Table 3), it was observed that most nurses had a heavy workload (73.4%). Among them, 55 nurses (58.5%) experienced very severe stress, while 14 nurses (14.9%) reported severe stress. This study also revealed that 19 nurses (20.2%) had moderate workloads, of whom 11 (11.7%) experienced severe stress, seven (7.4%) experienced very severe stress, and one (1.1%) experienced moderate stress.

Moreover, the results indicated that a smaller proportion of nurses had a light workload (6.4%). Within this group, three nurses (3.2%) experienced normal stress, two (2.1%) reported mild stress, and one (1.1%) experienced moderate stress. The results obtained from Spearman’s test revealed a value of 0.001, with p-value = 0.001, which was smaller than the  $\alpha$  value of 0.05. These results indicated a significant relationship between workload and stress levels, with a coefficient of 0.563, signifying a strong correlation between workload and stress levels.

**Discussion**

The heavy workload of nurses can be caused by several factors: age, sex, education, duties, and environmental differences.<sup>20</sup> This excessive workload significantly impacts the productivity of health workers and, of course, affects the productivity of nurses.<sup>21</sup> The heavy workload experienced by nurses in the non-COVID-19 zoning ward was related to work demands amid the COVID-19 pandemic, during which nurses had to provide optimal service related to infection prevention and control measures for the safety of themselves and the community. The heavy workload caused stress for most nurses due to several factors, including that most nurses were 26–30 years old. Another influencing factor was the length of service, which, in this study, was mainly 6–10 years. Various events that workers experience may often help them ad-

just and improve their work quality.<sup>22</sup>

Workload is the number of activities an individual or a group must complete within a specific period under normal circumstances.<sup>23</sup> This study revealed that most respondents faced a heavy workload while few experienced light and moderate workloads. The difference in workload was influenced by several factors, including internal factors such as age, sex, education, weight, height, nutrition, physical health, motivation, trust, job satisfaction, and aspirations.<sup>20</sup> External factors, however, include work organization, activities, tasks, and environmental differences.<sup>20</sup> According to a previous study, workload can be quantified when calculated based on the number of nursing actions performed to meet patient needs.<sup>24</sup> On the other hand, workload is qualitative when nursing work is regarded as a responsibility that must be executed optimally or professionally.<sup>25,26</sup>

The Spearman’s test on the workload variable with stress levels showed a significant relationship between workload and stress levels. This result indicated that the heavier the workload, the more severe the stress level the nurses experienced. This finding was consistent with a study conducted in Semarang City that demonstrated a relationship between workload and occupational stress among nurses.<sup>27</sup> Another study in Jember District also found that workload impacted occupational stress among nurses.<sup>20</sup>

The heavy workload experienced by nurses in the non-COVID-19 zoning ward was closely related to the work demands arising during the COVID-19 pandemic. Nurses were required to provide optimal service regarding infection prevention and control measures to ensure their safety and that of the community. The heavy workload contributed to stress among most nurses, which could be attributed to several factors, including the age and service experience of most of the nurses. The various experiences encountered while working can serve as valuable lessons for adjusting and enhancing the quality of work.<sup>22</sup>

**Conclusion**

There was a significant relationship between work-

load and stress levels in the non-COVID-19 zoning ward. Therefore, nurses are expected to adhere to health protocols consistently, and hospitals are encouraged to manage nurses' workloads effectively during the COVID-19 pandemic. Additionally, special interventions should be provided for nurses who experience occupational stress.

#### Abbreviations

COVID-19: coronavirus disease 2019; PCR: Polymerase Chain Reaction.

#### Ethics Approval and Consent to Participate

This study has received approval and passed an ethical review from the ethical commission of the Faculty of Medicine, Universitas Indonesia, No. KET-972/UN2.F1/ETIK/PPM/00.02/2021.

#### Competing Interest

The authors declared that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

#### Availability of Data and Materials

Data used in this study are available from the corresponding author upon reasonable request.

#### Authors' Contribution

Z led the study, contributed to the methodology and study design, and wrote the first manuscript draft. UNK, AD, SN, and AS provided resources, supervision, and study design and administration. RDA was involved in visualization, writing the substantial inputs, and editing the manuscript. All authors have approved the final version of the manuscript.

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