Original Research

The Workload and Stress Levels Among Staff Nurses in the Inpatient Ward of a Secondary Health Care Service in Indonesia

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ABSTRACT

Introduction: The workload is a discrepancy between a worker's capacity or capability and the demands of the job that must be performed. An evenly distributed workload should be able to minimize the level of job-related stress among staff nurses in the hospital. This study aimed to analyze the relationship between workload and stress levels among nurses in the Inpatient Ward of secondary health service in Indonesia.

Methods: This research employs a cross-sectional approach. The sampling technique used in this study is probability sampling with a simple random sampling technique, where samples were selected randomly without considering strata within the population, which consists of 64 staff nurses working in the Inpatient Wards of Class II and Class III. Collecting data was took place in a secondary health service; Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia. The NASA-TLX (Task Load Index) questionnaire is utilized to measure workload, while the DASS-21 (Depression Anxiety Stress Scale 21) questionnaire is used to assess the stress levels among nurses. The statistical test in this study used the Chi Square test to determine the correlation between variables.

Results: A total of 21 nurses (32.8%) experienced severe stress and 18 nurses (28.1%) had a heavy workload. The data analysis using the Chi-Square statistical test yielded a p-value of 0.001, which is less than the alpha level (α = 0.05) that indicate a relationship between workload and stress levels among staff nurses in the Inpatient Wards of Oto Iskandar Di Nata District Hospital Soreang Bandung, Indonesia

Conclusions: The workload has a strong correlation with stress levels among staff nurses in the Inpatient Wards of Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia. Further study for analyze other factors which has more influence to stress levels among nurses in the Inpatient settings is needed.

1. INTRODUCTION

Hospitals are organizations in the health sector that serve public health and are supported by quality resources. Generally, hospitals will try to provide good and quality health services to public health services. The services provided by the hospital are certainly inseparable from health workers who play a very important role in carrying out their duties to achieve the goals of the hospital. Nursing staff is one of the health workers involved in patient care and providing care to patients with diverse job demands. Nurses possess knowledge and authority to deliver nursing care to others. The nurse's duty is to serve the

community, and they are obligated to provide beneficial services to the community by treating, assisting, and supporting their patients to stay resilient and not easily lose hope in the face of their illness (Akbar & Kaseger, 2022).

Nursing staff working in hospitals are faced with patients with various potentially life-threatening conditions, requiring special attention, knowledge, and skills to provide prompt and accurate care. When delivering healthcare services, nursing staff tends to have a heavier workload compared to other healthcare professionals. The duties of nursing staff are not limited to the nursing field alone; they must also perform non-nursing tasks effectively. Workplace regulations and the workload at times may be perceived as not aligning with their physical, psychological, and emotional conditions (Widiastuti et al., 2017).

Based on a research article about the workload and stress level among nurses in General Hospital, it shown that high level of work stress (53.9%), and moderate workload (76.3%) (Singgih et al., 2023). According to Jumawan (2021), there are several factors that contribute to nurses' discomfort at work, including stress, an overwhelming workload that includes tasks that are not their responsibility, a higher patient to nurse ratio, and inadequate equipment assistance. that causes tension and anxiety in nurses when they're at work. This may result in a decline in nursing performance, making it difficult for nurses to provide patients with the best care possible.

Maulana (2021) defines workload as tasks assigned to employees or workers that must be completed within a specific time frame, considering the employee's capacity or capability in relation to the demands they face. An evenly distributed workload should be able to minimize the level of work-related stress among staff nurses in the hospital. The work situation encompasses facilities, hospital policies, good interpersonal relationships among colleagues, and the effective execution of tasks within their respective fields, thus creating a comfortable environment. A comfortable environment enhances the optimal performance of nurses, helping them avoid stress when providing nursing care, whether directly or indirectly. However, in reality, many nurses are required to perform non-nursing tasks, which are not within their field of expertise, potentially causing nurses to feel that the tasks they perform are not commensurate with what they should be accomplishing.

The statement above indicates that the workload of nurses is not aligned with the Indonesian Ministry of Health Decree Number 33 of 2015 concerning Guidelines for the Preparation of Health Human Resources Needs Planning. This decree provides guidance for healthcare institutions to develop human resources needs planning in accordance with their respective roles and functions, without imposing workloads exceeding their work capacity. An excessive increase in nurses' workload can trigger emotional strain, potentially leading to stress during

work and compromising the optimal performance of nurses. Additionally, the shortage of nursing staff is another factor that can contribute to nurse stress during their work.

According to the research findings of the World Health Organization (WHO), nurses working in hospitals in Southeast Asia, including Indonesia, experience an excessive workload due to being burdened with non-nursing tasks. Nurses subjected to an excessive workload may lead to a decline in health levels, work motivation, the quality of nursing care, and a failure to provide timely assistance to patients. When the working hours that nurses have to bear exceed their capacity, such as excessive overtime, it can have detrimental effects on the productivity of those nurses (Martyastuti et al., 2019).

"Work-related stress is an emotionally and physically disruptive condition that occurs when job demands do not align with the nurse's resource capacity (Musu et al., 2021). Nurses experiencing work-related stress may exhibit various abnormal behaviors such as nervousness, tension, constant anxiety, digestive disturbances, and high blood pressure. The impact of these symptoms can be observed in certain mental conditions, including difficulty sleeping, unfriendly attitude, despair, easy irritability, difficulty controlling emotions, and a tendency towards aggression. Stress can be defined as psychological or physical tension caused by physical, emotional, social, economic, job-related, difficult circumstances, or experiences (Runtu et al., 2018).

The United Nations (UN) states that work-related stress is a 20th-century disease, and work-related stress is likened to an epidemic. Data from the Self-reported Work-related Illness (SWI) survey by the European Agency for Safety and Health at Work in 2011 indicated that nurses had a high prevalence of job-related stress. According to the Labour Force Survey data in 2016, there were 440,000 cases of work-related stress (Hasbi & Alfira, 2019).

Many factors contribute to work-related stress, with the primary causes being workload (44%), social support (14%), violence, threats, and bullying (13%), workplace changes (8%), and potential other factors (20%) (Health and Safety Executive, 2018). The Indonesian Nurses Association (Persatuan Perawat Indonesia - PPNI) reveals that 50.9% of Indonesian nurses working experience work-related stress, leading to symptoms such as frequent headaches, fatigue, reduced friendliness, inadequate rest due to excessive workload, and insufficient income. Allowing this situation to persist will undoubtedly have more severe consequences (Martyastuti et al., 2019).

Several previous studies have reported varying workload levels in various care units. A study conducted by Prima (2020) on workload and work-related stress among nurses in the Inpatient Ward of Dr. Soebandi Jember Regional Hospital showed that 40% of respondents had a light workload, 50% had a moderate workload, and 10% had a heavy workload.

Regarding the variable of work-related stress, 41.7% of respondents experienced moderate work-related stress, while the remaining 58.3% experienced mild work-related stress (Sunarti et al., 2021). ~~Sunarti's research (2021)~~ Indicates the influence of education level on nurses' work-related stress. Knowledge and skills facilitate an individual's ability to receive information and implement it in their daily life. The research findings revealed that the majority of respondents experienced moderate stress, accounting for 67%. Essentially, work-related stress experienced by nursing staff can lead to various adverse effects, ultimately hindering nurses from performing their duties optimally, effectively, and efficiently.

The preliminary study conducted in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang, Bandung involved a total of 6 inpatient rooms, each staffed with 12 to 13 nurses, averaging 4 nursing staff per shift. In one room, there are 26 patients divided into 13 rooms. During a 6-hour work shift, nurses handle 6 or more patients. If calculated based on the standard nursing staff requirements according to the Department of Health using the Gillies formula, with a total of 26 patients in one room, 19 nursing staff members would be required. This situation does not align with the reality where the number of nurses is not proportional to the number of patients being cared for.

Work-related stress is one of the most common health issues, with 50-60% of all lost working days attributed to job-related stress. Consequently, the number of people suffering from work-related stress is increasing (Dimkatni et al., 2020). As staff nurses in hospitals, they are required to be always ready, alert, and punctual, serving as a point of contact for patient complaints. However, what if the patient needs are inversely proportional to the number of nursing staff available, coupled with the demanding working hours that lead to work-related stress due to excessive workload on nurses?

Based on the observed phenomenon, it can be concluded that staff nurses in hospitals experience work fatigue due to the increasing demands when there is a surge in hospital admissions, leading to work-related stress among nurses. The adverse effects that can arise when nurses experience stress include disrupted social interactions, whether with colleagues, doctors, or fellow nurses (Kasmarani, 2012).

Stress is one of the primary factors that can reduce the productivity of an organization or institution, particularly leading to psychological disturbances, including among nurses. The adverse effects that can result when nurses experience stress include disruptions in social interactions, whether with colleagues, doctors, or fellow nurses (Kasmarani, 2012). Based on the issues identified in the preliminary study results and supported by a review of several research journal articles, the researcher is interested in conducting a study with the title "The Relationship Between Workload and Stress Levels Among Staff Nurses in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia.

2. METHODS

2.1 Design

This research is a quantitative correlational study that utilizes the cross-sectional study approach, which is a fundamental research method used to examine patterns of attitudes, behaviors, opinions, and responses from respondents. This study aimed to analyze the relationship between workload and stress levels among nurses in the Inpatient Ward of RSUD Oto Iskandar Di Nata Soreang, Bandung, Indonesia. This study involves a systematic investigation of the relationships among variables, wherein the research develops connections between independent and dependent variables. This study was conducted in the inpatient ward of Oto Iskandar Di Nata District Hospital from February 21 2023 until June 31 2023.

2.2 Population, Sample and Sampling

The population for this study consists of staff nurses working in the Inpatient Wards of Class II and Class III at Oto Iskandar Di Nata District Hospital Soreang Bandung, Indonesia, totaling 76 nurses. The sampling method in this research is based on probability sampling, which is a sampling technique that provides equal chances for each element (member) of the population to be selected as a sample member (Sugiyono, 2017). The sampling technique used in this study was simple random sampling, which involves selecting members from the population at random without considering the strata present within the population using the Slovin formula, the minimum sample size required is 64 staff nurses working in the Inpatient Wards of Class II and Class III at Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia.

2.3 Variable

The independent variable in this study is the workload of nurses, which is classified into light, moderate, and heavy workloads. Meanwhile, the dependent variable is the level of stress in nurses, which is categorized as mild, moderate, and severe stress.

2.4 Instruments

The instrument used for nurse workload is the NASA-TLX (Task Load Index) questionnaire developed by Sandra G. Hard of NASA-Ames Research Center and Lowell E. Staveland of San Jose University (1981). The NASA-TLX questionnaire measures mental workload and includes six dimensions: mental demand, physical demand, temporal demand,

performance, effort, and frustration. The instrument's measurement results for workload are categorized as heavy (81-100), moderate (51-80), and light (0-50). To measure the stress level of nurses, the instrument used is the DASS-21 (Depression Anxiety and Stress Scale) developed by Lovibond. The DASS-21 instrument consists of 21 statement items with response alternatives using a Likert scale (Ifdil et al., 2022).

2.5 Procedure

The NASA-TLX (Task Load Index) instrument has been standardized with a Product Moment correlation value of 0.781 and is reliable with a reliability test value of 0.734 based on Cronbach's Alpha formula assessment (Widiastuti et al., 2017). Meanwhile, the DASS-21 instrument has been validated with a validity value of 0.82 based on the Product Moment correlation and is reliable with a reliability test value of 0.91 processed using Cronbach's Alpha formula assessment (Ifdil et al., 2022). The preparation of data collection includes selecting research samples in each room, explaining the purpose of the study, providing an explanation of informed consent to nurses. Contract the time and place of research to respondents. Researchers explain the procedures for filling out the questionnaires accompanied by researchers. If respondents having difficulties in filling, then the researchers will explain again about how to fill out and help or guide in filling out the questionnaires. The researchers take back the questionnaires that has been filled out by the respondents, then the researchers provide an opportunity if there are questions, suggestions, and criticisms from the respondents. At the end of the closing session of study, the researcher gave the souvenirs to respondents as a sign of gratitude for participating in research activities.

2.6 Data Analysis

Data analysis used to determine the relationship between workload and stress level is using the Chi-Square test.

2.7 Ethical Clearance

This research has been conducted ethical feasibility test and received approval from Rajawali Health Institute No. 10/XI/2023.

3   RESULTS

According to this study, 17 nurses, or 26.6% of the practicing nurses working at the Oto Iskandar Di Nata District Hospital Soreang inpatient ward, have fewer than ten years of experience. Furthermore, the research is primarily distinguished by the gender of the nurses: 9 nurses (14.1%) are male, and 55 nurses (85.9%) are female. Meanwhile, the workload of staff nurses in the inpatient ward is shown on Table 1.

Based on Table 1, it proves that respondents experiencing a heavy workload are 18 nurses

(28.1%) whereas 28 nurses (43,8%) are moderate and only 18 nurses (28,1%) had a low workload. A workload that matches the individual's capacity enhances greater work productivity. However, an unequal workload can lead to various issues during work. Workload represents a discrepancy between a worker's capacity or capability and the demands of the job that must be performed. All human work involves mental and physical aspects, thus each job has different levels of exertion.

In the results of the NASA-TLX workload questionnaire, there were respondents with a relatively high score in the "Time Demand" dimension, totaling 32 nurses (50%). Interviews with some nurses also revealed that they tend to feel rushed while performing their tasks due to time constraints. Limited time combined with a high number of patients also contributes to nurse fatigue. Consequently, tasks are sometimes not completed on time. Many nurses have expressed concerns about this issue, yet there is no clear solution on how to manage workload due to urgent time constraints. Every individual, especially nurses, has limitations in terms of both knowledge and capabilities. When given too many tasks that require quick completion, it can lead to inaccuracies and even mistakes. Mistakes made during healthcare services, particularly nursing care in hospitals, can have fatal consequences.

In a study conducted by Aimi (2018) on nurse workload, it was found that the "Time Demand" dimension emerged as the most dominant indicator because nurses are tasked with high time constraints. Several nurses encountered difficulties in completing patient-related reports and administrative tasks on a daily basis. Each nurse is required to complete their tasks within a specific shift system, but it's not uncommon for shift changes to be delayed. In other cases, nurses may request specific shift schedules from the head nurse, but this often results in a shortage of nursing staff during certain shifts. The existence of this "scheduling request" system leads to fatigue among nurses when shifts are closely scheduled, consequently reducing their break time. Many nurses have expressed concerns about working hours, break times, and shift schedules, all of which are correlated with the shortage of nurse-to-patient ratios.

The results of this study also indicate that the majority of respondents, totaling 28 nurses (43.8%), had a moderate workload. Most of the staff nurses working in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang are heavily occupied with various tasks, resulting in a higher perceived workload. This finding aligns with a study conducted by Sunarti (2021) on the relationship between workload and work-related stress among staff nurses in the Inpatient Ward, which showed that the majority of respondents had a moderate workload, with 18 respondents (55%) falling into this category. Workload for nurses is defined as all activities or tasks performed by a nurse during their duty in a healthcare unit, particularly in nursing care. This

Table 1. The Workload of Staff Nurses in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia

Nurses Workload	N	%
Heavy	18	28,1
Moderate	28	43,8
Light	18	28,1
Total	64	100,0

Table 2. The Level of Stress Among Staff Nurses in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia

Stress Level	N	%
Severe	21	32,8
Moderate	23	35,9
Mild	20	31,3
Total	64	100,0

Table 3. The Relationship between Workload and Stress Levels among Staff Nurses in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia

| Nurses Workload | Stress Level of Nurses | | | | | | Total | | p-value |
| | Severe | | Moderate | | Mild | | | | |
	N	%	N	%	N	%	N	%	
Heavy	7	38,9	2	11,1	9	50,0	18	100	
Moderate	9	32,1	17	60,8	2	7,1	28	100	0,001
Light	5	27,8	4	22,2	9	50,0	18	100	
Total	21	32,8	23	36,0	20	31,2	64	100	

occurs because nursing staff represent the largest proportion (40-60%) of healthcare workers in hospitals. Additionally, nursing staff bears significant responsibility for providing quality care, both directly and indirectly, to patients for a full 24 hours, continuously.

Other causes of the perceived heavy workload are the shortage of staff nurses in a "heavy duty" room and the lack of incentives provided to the nurses. According to the researcher's assumption, workload comprises the task intensity at work, the number of tasks performed, the time available to complete tasks, and the subjective perception of each individual regarding their duties while working, as assigned to nurses.

Based on Table 2, it shows that the respondents who experienced a high level of stress were 21 nurses (32.8%). Stress is a psychological response of an individual to workplace demands that require adaptation. According to Yao (2021), stress is a natural response to changes in one's environment that are perceived as disruptive and threatening. Thus, stress is something that naturally occurs in individuals. Increased job demands placed on nurses lead to stress. Nurses are required to be quick, accurate, and efficient in providing nursing care to patients, which can increase their stress levels. Therefore, work-related stress must be promptly addressed to ensure that nurses can perform their duties effectively.

This research is consistent with the study conducted by Badri (2020) on the relationship between workload and environment with the level of

work-related stress among nurses. The results of that study showed that the majority of nurses experienced high levels of stress (53.2%). This is because nurses with less than 10 years of work experience typically have higher job dissatisfaction compared to those with more experience. Adapting to the work environment and colleagues is essential, especially in a new environment, to ensure comfort and prevent work-related stress. This research also indicates that the majority of nurses experience moderate levels of stress, with 23 nurses (35.9%) falling into this category. This finding is consistent with the study conducted by Runtu (2018), where the majority of nurses experienced moderate levels of stress (70.7%). This is due to the excessive anxiety felt by nursing staff due to the increased number of patients being cared for. This research is supported by a study conducted by Titasari (2021), which suggests that, in addition to the perceived workload, the most significant losses experienced by nurses are psychological or mental disturbances caused by excessive anxiety, leading to physical and mental health issues among nursing staff.

According to the researcher's assumption, respondents experiencing high levels of stress are due to factors experienced by staff nurses in the Inpatient Ward, namely the imbalance between the nurse-to-patient ratio each day. In this study, in each room, one nurse in the Inpatient Ward is responsible for 6-7 patients during a 6-hour shift. This also aligns with the research conducted by Nursalam (2022) stating that ideally, professional nursing care for a group of patients from admission to discharge should

involve 3 nurses for 8–12 patients. Additionally, the work-related stress experienced by nurses can lead to a loss of focus at work and mood swings. Therefore, sometimes patients who seek assistance from nurses may be influenced by the situation and assume that the nurse is not treating them well during the provision of nursing care.

Based on Table 3, the relationship between workload and stress levels among staff nurses in the Inpatient Ward indicates that respondents experiencing heavy workloads with high levels of stress account for 38.9%. Respondents in the moderate workload category with high levels of stress make up 32.1%, and respondents in the light workload category with high stress levels account for 27.8%. This shows that the heavier the workload, the higher the proportion of perceived stress levels.

Statistical analysis using the Chi-Square test yielded a p-value of 0.001, which is smaller than alpha ($\alpha = 0.05$). Therefore, it can be concluded that there is a relationship between workload and stress levels among staff nurses in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang, Bandung, Indonesia. This indicates that as the workload increases, the perceived stress levels among nurses also increase while conversely, lower workloads result in lower levels of work-related stress.

4   DISCUSSION

According to the study's findings, seven respondents, or 38.9% of the sample, reported having a high workload and feeling stressed out. There were 9 respondents (32.1%) in the moderate workload category and 5 respondents (27.8%) in the light workload category who reported having a high level of stress. This implies that nurses endure higher levels of stress at work in proportion to their workload. On the other hand, nurses who have smaller workloads experience less stress at work.

Study by Vanchapo (2019)suggests that anyone, regardless of their profession, can experience stress, including healthcare workers like nurses. The allocation of workloads is a significant factor in this condition. The shortage of nurses in various hospital departments exacerbates this issue. Consequently, tasks are not well-distributed, leading to distractions while working. Overloading in terms of physical and mental tasks, such as handling too many activities, is a potential source of work-related stress. Every task is expected to be completed quickly, accurately, and with precision. However, time constraints can lead to mistakes, causing stress.

This is corroborated by Solon (2021) research, which asserts that heavy workloads due to urgent deadlines, an unhealthy work environment, work conflicts, leadership influence, and factors like anxiety and excessive thinking resulting from role demands outside the workplace contribute to an increased mental and psychological burden, leading to more severe stress. The study's findings highlight the potential adverse effects of stress on the physical and mental well-being of staff nurses. High stress levels can lead to burnout, which is a pressing concern in the nursing profession. Burnout not only affects the nurses themselves but also has implications for patient care quality. Stressed and burnt-out nurses may become less attentive, less empathetic, and more prone to errors, jeopardizing patient safety and overall care outcomes.

The connection between nurse stress levels and patient care quality is a critical consideration. When nurses experience high levels of stress due to excessive workloads, it can compromise their ability to provide optimal care. This compromised care can result in longer hospital stays, increased readmission rates, and decreased patient satisfaction. Hence, the study's findings emphasize the importance of addressing nurse stress to enhance the overall quality of patient care.

Another study by Pasang (2020) found that the variable workload was not dependent on the variable stress level among staff nurses at RSUD Kota Mobagu. The correlation coefficient was 0.156, indicating a weak correlation. The p-value of 0.157 is greater than 0.05, leading to the conclusion that there is no significant relationship between workload and stress levels among staff nurses. However, this study also emphasized that both excessive and minimal workloads pose health risks to workers. In line with this, Diki's (2021)research showed no significant relationship between workload and stress levels among staff nurses, with a p-value of 0.952, likely due to the varying workloads nurses experience daily, which depend on the number of patients they handle each day.

To mitigate the detrimental effects of workload-induced stress, healthcare institutions, and nursing management must adopt effective workload management strategies. These strategies may include task redistribution, optimizing staffing levels, providing additional training, and utilizing technology to streamline nursing tasks. By implementing such measures, hospitals can create a more manageable workload for nurses, which, in turn, can reduce stress levels. The study underscores the need for supportive measures within healthcare institutions. Hospitals should develop policies that promote nurse well-being, such as flexible scheduling, access to mental health resources, and recognition programs. Additionally, providing ongoing education and training opportunities for nurses can equip them with the skills and resilience needed to cope with the demands of their profession.

5   CONCLUSION

The study concluded that majority nurses have moderate workloads and majority of nurses have moderate stress level. There is a significant relationship between workload and stress levels among staff nurses in the Inpatient Ward of Oto Iskandar Di Nata District Hospital Soreang Bandung,

Indonesia, as the workload increases, the nurses' stress levels also increase.

To mitigate the stress levels experienced by nurses, it is imperative to enhance workload management within the hospital. This may involve task redistribution, additional training, or the utilization of technology to aid nurses in their responsibilities.

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