

Original Research Paper

The effect of workload on work stress of nurses in hospital

Prasanti Adriani* , Noor Yunida Triana, Rani Prabandari

Universitas Harapan Bangsa, Indonesia

 pra.adriani@gmail.com

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Abstract

The nursing profession is a stressful job and prone to stress due to the complexity of job demands and needs, high expectations, many responsibilities, and limited authority. The purpose of this study is to determine the relationship between workload and the work stress of nurses at the Ajibarang Regional General Hospital, Banyumas Regency in 2021. This research is an analytical survey using a cross-sectional approach. The sampling technique used in this study was a total sample of 68 respondents. Data analysis was carried out using the Chi-square test. The majority of respondents were female (60.2%). The workload of nurses was the most in the heavy category (67.6%) while the work stress of the majority of respondents was in the moderate category (61.8%). The results of this study showed a relationship between workload and the incidence of work stress in nurses by a p-value of 0.000 ($\alpha = 0.05\%$). Hospital management is obliged to ensure a balance between the needs of patients and the number and competence of nurses. This is to avoid work stress on nurses in order to improve the quality of service and patient safety.

Keywords: hospital; nurse; workload; work stress

1. Introduction

Improvement of qualified services on health and patient safety as an effort of increasing outcomes is a global commitment in order to realize the third goal of the SDGs (World Health Organization, 2018). Nursing is one of the professions that plays important and active role to achieve qualified services on health and patient safety both in the community, puskesmas and health services in hospitals (Putra, 2017). There are many factors that affect the Quality of Health Services and patient safety. One of the significant factors that influence the quality of health services and patient safety, especially in hospitals, is the workload of nurses (Aprilia et al., 2019; Carlesi et al., 2017; Chang et al., 2019; Fagerström et al., 2018; Pereira Lima Silva et al., 2020). The impact of this heavy nurse workload is quite risky for the health of nurses and patients because it can cause fatigue; deterioration of quality of life; increased risk of errors in treatment, and also the patient falls; nosocomial infections and even patient deaths (Banda et al., 2022; Carlesi et al., 2017; Ebrahimi et al., 2021; Waddill-Goad, 2019). In addition to causing the emergence of health problems, workload is also the main cause of violence against nurses, whose perpetrators are patients, patients' families/visitors (Darawad et al., 2015; Havaei & MacPhee, 2020; Pich et al., 2017; Spector et al., 2014).

Nurses are considered stressful jobs and prone to stress. This is not without reason given the complexity of job demands and needs, high expectations, many responsibilities, and limited authority (Jacob et al., 2020). Excessive workload, no management support, working in shifts, undeveloped careers, interpersonal problems are the causes of work stress in nurses (Happell et al., 2013). Studies in Ethiopia showed results that the prevalence of work stress in nurses reached 66.2 % (Baye et al., 2020), in Iran 63.47% (Chatzigianni et al., 2018), in Slovenia 56.5% (Dobnik et al., 2018). In China 68.3% of nurses have a high level of work stress (Gu et al., 2019). The high prevalence of work stress experienced

by nurses needs special attention from the authorities, because it can have a negative impact not only on nurses but also have an impact on patients and hospitals.

The negative impact of work stress on nurses is a decrease in work productivity and efficiency (Happell et al., 2013). This work stress also significantly increases the number of staff turnover and sick leave, reduces the quality and quantity of health services which has an impact on increasing health care costs and reducing job satisfaction (Dobnik et al., 2018) and reducing the quality of life (Babapour et al., 2022). In addition to the factors mentioned above, the COVID-19 pandemic is also a trigger factor for the high workload and increased work stress in nurses. Fear of being contaminated with the COVID-19 virus (Kang et al., 2020); anxiety and worry about the transmission of the virus to children and parents of nurses; fatigue due to long working hours (Mo et al., 2020) is the basis for the increasing psychological workload in nurses during the COVID-19 pandemic. However, research regarding this workload has not been carried out much, especially during the COVID-19 pandemic. The results of research related to workload in nurses have not been widely associated with nurses' work stress conditions. On that basis, the study was conducted for the purpose of determining whether there is a significant relationship between workload and the work stress of nurses at Ajibarang Hospital, Banyumas Regency in 2021.

2. Research Method

This research is an analytical survey through a cross-sectional approach. The population of this study was all nurses who worked in the Inpatient Room of Ajibarang Hospital, Banyumas Regency, which amounted to 68 people. The data collection tool consists of 3 types of questionnaires containing questions related to research data. Questionnaire 1 consisted of questions related to respondents' demographic data including names; gender; age; education and length of work; Questionnaire 2 contained questions regarding workloads that the researcher has modified and has been tested for validity and reliability. Each question comprises one "Yes" or "No" answer with scoring using the Guttman Scale and is categorized into two: light workload (score 1-18) and heavy workload (score 19-21). Questionnaire 3 is a questionnaire used for measuring stress, in this case OSI-R (Occupational Stress Inventory – Revised Edition) which has been modified in use and has been tested for validity and reliability. There are 30 questions with a choice of scores of 1-5 where the measurement results are categorized into 2 i.e., moderate stress (if score 79-117) and low level stress (if score 30–78).

Univariate analysis was performed to describe the characteristics of the respondents, namely gender, age, education, length of work, workload and work stress. Bivariate analysis was conducted to determine the relationship between workload and work stress on inpatient nurses at Ajibarang Hospital by using the Chi-square test. This study has complied with the research protocol with an ethical feasibility letter number B.LPPM-UHB/1373/09/2022 issued by the Health Research Ethics Committee of Universitas Harapan Bangsa.

3. Results and Discussion

3.1. Characteristics of Respondents

The total respondents in this study amounted to 68 respondents. Characteristics of respondents include gender; age; education and length of work as shown in table 1. Based on table 1, the majority of respondents are women (60.2%), with the most age between 26-30 years (30.9%), three quarters of respondents have D-3 Nursing education, and most of the them have worked for 1-5 years (51.5%). The results of this study explain that women still dominate the nursing profession, while men are still a minority in the nursing profession. Just compare these statistics with various other countries. The registered male nurses in China in 2016 was only 2.1% (Yang & Chen, 2018), in Australia 10.4% (Stanley et al., 2016), in Macau 11% (Mao et al., 2016) and in the United States of America. 9.4%

(Greenwood, 2021). The small amount of male nurses compared to women may be due to stereotypes which assume that nurses as humble, gentle, obedient, full of empathy more suitable for women, while masculine characteristics in men such as aggressive, dominant are considered unsuitable for nursing careers (O' Connor, 2015; Zamanzadeh et al., 2013).

Table 1. Characteristics of respondents

Characteristics	Number of Respondent	
	n	Percentage (%)
Gender		
Male	27	39.8
Female	41	60.2
Age		
20-25 years	5	7.4
26-30 years	21	30.9
31-35 years	18	26.4
36-40 years	16	23.5
>40 years	8	11.8
Education		
Diploma (D3)	51	75
Bachelor (S1)	17	25
Length of service		
1-5 years	35	51.5
6-10 years	12	17.5
>10 years	21	31

3.2. Level of Workload and Works Stress of Nurses

3.2.1. Level of Workload of Nurses

The data on nurses' workload levels are shown in table 2. The majority of nurses' workloads are in the heavy category, as many as 46 respondents (67.6%). The results of this study are not much different from the findings in Iran which show that the workload of nurses both physically and mentally is high (Nasirizad Moghadam et al., 2021). Tubbs-Cooley et al., (2018) describes the workload of nurses as the roles and responsibilities of nurses according to their level of competence to carry out routine nursing activities. The competencies required depend on where the nurse is placed in the hospital environment (Fagerström et al., 2018). Nurse workload includes a combination of physical workload and mental workload that plays a role in a person's performance in the work environment (Restuputri et al., 2019). Nurses in inpatient rooms have physical burdens such as moving patients, assisting patient's personal hygiene, assisting patient to bathroom, carrying medical equipment; tidying the patient's bed; while the mental workload includes working in shifts; psychological preparation of patients and families (preparation for surgery or critical conditions); special skills in treating patients; and communication with patients (Kasmarani, 2012).

According to Alghamdi, (2016) there are 5 main categories related to the type of nurse workload that can trigger stress, such as the amount of treatment time, the level of nursing competence, the weight of direct patient care, the level of physical activity and the complexity of care. Stress in nurses appears if there is no balance between skills, time availability, and physical ability (Desima, 2013). The workload of nurses is one of the important factors that affect the quality of care and patient safety, especially in hospitals (Aprilia et al., 2019; Carlesi et al., 2017; Chang et al., 2019; Fagerström et al.,

2018; Pereira Lima. Silva et al., 2020). Heavy workloads have a negative impact on nurses as well as patients such as causing fatigue; lower quality of life; increase the risk of medication errors as well as patient falls; nosocomial infections and even death of patients (Banda et al., 2022; Carlesi et al., 2017; Ebrahimi et al., 2021; Waddill-Goad, 2019). Fatigue caused by high workloads is the reason most nurses in the United States leave their jobs. In particular, the fatigue they experience is mostly due to a stressful work environment and also an inadequate number of staff (Shah et al., 2021).

Table 2. Level of nurse workload

Workload	Number of Respondents	
	n	Percentage (%)
High	46	67.6
Low	22	32.4
Total	68	100

The COVID-19 pandemic has further increased the workload of nurses, causing a shortage of staff in a situation of many patients which leads to increased nurse fatigue and anxiety (Lasater et al., 2021). Moreover, the majority of nurses are women and are married where they are not only responsible for their work but are also responsible for household and child care. This situation exacerbated their level of fatigue and burden during the COVID-19 pandemic.

3.2.2. Level of Work Stress in Nurses

Table 3 shows the level of work stress on nurses. The data clearly shows that the work stress of 42 nurses, 61.8% are in the moderate category. This study is in line with the results of previous studies which showed that the majority of nurses experienced moderate work stress (Almazan et al., 2019; Haryanti et al., 2013; Najimi et al., 2012; Sugiri et al., 2015).

Table 3. Level of works stress in nurses

Work Stress	Number of Respondent	
	n	Percentage (%)
Moderate	42	61.8
Low	26	38.2
Total	68	100

Nursing is considered a stressful profession. The complexity of job demands and needs, high expectations, many responsibilities, and limited authority are identified as the main causes of job stress in nurses (Jacob et al., 2020). According to Baye et al., (2020) the risk of experiencing work stress is 4.5 times higher in those who work in intensive care units; 2.6 times in nurses with chronic illness; 2.5 times for nurses who work in shifts and 2.1 times for nurses who have children. Najimi et al., (2012) distinguish the factors that cause stress in female nurses and male nurses. The causes of stress in female nurses are the scope of roles; duality of roles; and work environment, while in male nurses work stress is caused by the scope of the role; work environment and responsibilities. Various work situations and conditions can be a source of potential stressors because every aspect of the work environment can be perceived as stressful by workers (Almazan et al., 2019). According to (Haryanti et al., 2013) working

with sophisticated equipment is stressful; Lack of cooperation with other staff and no adequate experience are also factors that can increase stress on nurses.

Work stress can trigger 2 different things in each person. Some of them make stress as a challenge but some others make stress as a barrier (Cavanaugh et al., 2000). Some people who take stress as a challenge think that stress is an opportunity for individuals to grow, learn, and succeed (Liu & Liu, 2020). If there is no stress, then there is no work challenge, work performance tends to be low, in line with increasing stress, work performance also increases, because stress helps nurses to mobilize all resources in fulfilling various job requirements or needs. On the other hand, work stress that is not managed properly can be a barrier that can hinder creativity. Stress can be a barrier, especially related to excessive or unexpected work which often prevents individuals from achieving their work goals (Liu & Liu, 2020).

Stress caused by work can cause job dissatisfaction, conflicts with coworkers, difficulty in making decisions, quitting work, depression, interfere with one's physical and mental health, and ultimately can affect work productivity (Babapour et al., 2022; Ghanei Gheshlagh et al., 2013; Labrague et al., 2020; Unaldi Baydin et al., 2020). Work stress on nurses also has a negative impact on quality of life and caring behaviors (Babapour et al., 2022; Rizkianti & Haryani, 2020) and ultimately has an impact on service quality (Babapour et al., 2022; Sarafis et al., 2016).

3.3. The Relationship of Workload to Work Stress in Nurses

The results of the bivariate analysis with the Chi Square test at a confidence level of 95% ($\alpha = 0.05\%$), showed a significant relationship between workload and nurse work stress with a p-value of 0.000 as shown in table 4. The results of this study are in accordance with the results of previous studies which revealed the fact that a high workload was associated with high work stress for nurses in Ghana (Kokoroko & Sanda, 2019). Several studies have also shown similar results (Ikhsan et al., 2020; Samuel et al., 2021).

Table 4 . Relationship of workload to works stress in nurses

Workload	Work Stress				Total	P-Value
	Moderate		Low			
	n	%	n	%		
High	28		18		46	100
Low	14		8		22	100
Total	42		26		68	100

The high demands of work, the number of duties and responsibilities including other additional burdens outside the nurse's duties such as providing guidance to internship students, being a manager of the organization makes the nurse workload even heavier. Heavy workloads cause work stress on nurses which ultimately have an impact on nurses' caring behavior, decrease quality of life and cause health problems for nurses and reduce service quality (Rizkianti & Haryani, 2020; Sarafis et al., 2016). The effect of workload on work stress can be looked at the physical, psychological and behavioral aspects of workers (Akkoç et al., 2021; Robbins et al., 2016).

Robbins et al., (2016) classify work stress symptoms into 3 dimensions, i.e. physical, psychological and behavioral dimensions. Symptoms of work stress are generally not realized by workers. Physical symptoms include: changes in metabolic processes in the body; increased heart rate; breathing; blood pressure; headache; muscle ache; fatigue. Psychological symptoms include job

dissatisfaction, depression, anxiety, boredom, difficulty concentrating and decreased productivity. Behavioral symptoms include irritability and nervousness. The results of research conducted by Dalri et al., (2014) related to symptoms of physiological stress showed 46.3% of respondents experienced symptoms of mild physiological stress and 42.1% of respondents experienced symptoms of moderate physiological stress. While the symptoms of physiological stress include back pain, increased stomach acid, fatigue/fatigue, stiff neck.

Increasing the ratio of nurse patients to nurse recruitment, role clarity, autonomy and supervisor support can help nurses manage their workload (Kokoroko & Sanda, 2019). Workload and work stress on nurses should get special attention from hospital management. This is because nurses are at the forefront of health services in hospitals. Analysis and calculation of workload is absolutely necessary because it has an impact on work stress which greatly affects the performance of nurses, patient safety and the quality of health services. Programs related to improving mental health for health workers, especially nurses are also needed to prevent work stress.

4. Conclusion

The majority of respondents' workloads are in the heavy category (67.6%) and the most respondents' work stress is in the medium category (61.8%). There is a significant relationship between workload and nurse work stress. Hospital management must ensure a balance between patient needs and the number and competence of nurses, create programs related to mental health improvement to avoid work stress on nurses so as to improve service quality and patient safety.

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