

NUTRITIONAL STATUS AND WORKLOAD ON STRESS LEVELS AMONG NURSES AT DR. H. A. ROTINSULU HOSPITAL BANDUNG

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Abstract

Stress is a common health problem among nurses and may negatively affect work performance and the quality of healthcare services. Various factors, including nutritional status, workload, sleep patterns, and nutrient adequacy levels, may contribute to stress among nurses. This study aimed to analyze the factors associated with stress levels among nurses at Dr. H. A. Rotinsulu Hospital, Bandung. A cross-sectional study was conducted involving 51 nurses selected through purposive sampling. Data were collected through interviews using structured questionnaires to assess respondent characteristics, stress levels, workload, sleep patterns, and nutrient adequacy levels. Nutritional status was measured using a weighing scale and stadiometer. Data were analyzed using univariate analysis and Spearman rank correlation tests. The results showed that 65% of nurses were classified as overweight or obese, and most respondents experienced high workload and stress levels. Although poor sleep patterns and excessive nutrient adequacy levels were common among the respondents, only nutritional status ($p = 0.000$; $r = 0.743$) and workload ($p = 0.000$; $r = 0.755$) were significantly associated with stress levels. Strong positive correlations were observed between nutritional status, workload, and stress levels. In contrast, sleep patterns and nutrient adequacy levels were not significantly associated with stress. These findings highlight the importance of maintaining a healthy nutritional status and managing workload to reduce stress among nurses.

Keywords: Stress Level, Nutritional Status, Workload

Introduction

Stress is a physiological and psychological response to mental pressure arising from physical demands, environmental conditions, or social situations that exceed an individual's coping capacity. Healthcare workers, particularly nurses, are among the occupational groups most vulnerable to work-related stress. Hospitals operate continuously for 24 hours a day, requiring healthcare personnel to work in shifts to ensure uninterrupted patient care and optimal service delivery (Seto et al., 2020).

According to the American National Association for Occupational Health (ANAHO), nursing is among the professions with the highest prevalence of occupational stress, ranking among the top occupations affected by work-related stress (Halawa et al., 2022; Carenina et al., 2024). High workload is one of the major contributors to stress among nurses. The increasing number of patients and work demands may elevate nurses' workload, resulting in physical and mental fatigue that can negatively affect work performance and increase the likelihood of errors (Kusmiati et al., 2023; Hidayati et al., 2023).

Shift work may also contribute to occupational stress by disrupting sleep patterns and circadian rhythms (Amirah et al., 2022). Inadequate sleep has been associated with an increased risk of obesity and diabetes through alterations in neuroendocrine regulation of appetite, leading to excessive food

intake and reduced energy expenditure (Anggraini et al., 2022). Consequently, unhealthy dietary habits may contribute to overweight and obesity (Sukianto et al., 2020).

The World Health Organization reported that in 2022, approximately 2.5 billion adults aged 18 years and older were overweight, while 890 million were living with obesity. Excess nutritional status may result from imbalances in dietary intake, sleep patterns, stress levels, physical activity, and workload (M. T. Anggraini, 2022). Therefore, understanding the factors associated with stress among nurses is essential. The novelty of this study lies in the simultaneous assessment of nutritional status, workload, sleep patterns, and nutrient adequacy levels in relation to stress levels among nurses, providing a more comprehensive understanding of factors associated with occupational stress in this population.

Method

This research is a quantitative study with a cross-sectional design and purposive sampling technique. The study was conducted at Dr. H. A. Rotinsulu Hospital, Bandung City, West Java. The subjects of this study were permanent nurses aged 25–55 years. Pregnant nurses, nurses with insomnia who were taking sleeping medication, and nurses serving as head nurses or team leaders were excluded from the sample. A total of 51 respondents were included in the study. Data collection was carried out using a structured questionnaire to obtain information on gender, age, years of service, monthly income, stress level, and workload.

The Depression Anxiety Stress Scales (DASS) questionnaire was used to measure stress levels, utilizing only the stress scale, which consists of 14 questions. Workload was measured using a workload questionnaire containing 14 questions covering job pressure, burnout, skill utilization, number of patients and staff, as well as clarity of instructions from superiors. Nutritional status was measured using body weight (digital scale) and height (stadiometer). The collected data were processed using the Statistical Program for Social Science (SPSS) version 21. Data analysis was conducted using the Rank Spearman test. In this study, the independent variables were nutritional status and workload, while stress level served as the dependent variable. The research ethics approval was obtained from the Research Ethics Committee of Dr. H. A. Rotinsulu Hospital, Bandung City, with decision letter No. LB 01.02/1679/2025 dated February 26, 2025.

Results

Respondent characteristics included age, sex, educational level, and years of service. In addition, nutritional status, workload, sleep patterns, nutrient adequacy level, and stress level were assessed. The data were obtained through structured questionnaires and anthropometric measurements and are presented in Table 1.

Table 1. Characteristics of Respondent

Indicator	n	%
Gender		
Male	16	31,4
Female	35	68,6
Age		
19-29 years	6	11,8
30-49 years	43	84,3
50-64 years	2	3,9
Mean $\pm$ SD	34 $\pm$ 6,22	
Length of Service		
<10 years	39	76,5
>10 years	12	23,5
Mean $\pm$ SD	9 $\pm$ 6,14	
Monthly Income		
Below UMR (<Rp 4.482.914)	32	62,7
Above UMR ($\geq$ Rp 4.482.914)	19	37,3
Mean $\pm$ SD	Rp 5.400.000 $\pm$ 2.090.355,07	
Stress Level		
Normal (0-14)	13	25,5
Mild (15-18)	18	35,3
Moderate (19-25)	20	39,2
Mean $\pm$ SD	19,1 $\pm$ 4,96	
Nutritional Status		
Normal (18,5-25,0 kg/m ²)	18	35,3
Overweight (25,1-35,5 kg/m ²)	33	64,7
Mean $\pm$ SD	26 $\pm$ 3,17	
Workload		
Mild ($\leq$ 28)	14	27,5
Moderate ($\leq$ 42)	15	29,4
High ($\leq$ 56)	22	43,1
Mean $\pm$ SD	43,2 $\pm$ 11,42	

Table 1 shows that the majority of respondents were female, accounting for 35 nurses (68.6%), while male respondents comprised 16 nurses (31.4%). Based on age distribution, most respondents were aged 30–49 years, representing 43 nurses (84.3%), followed by those aged 19–29 years (11.8%) and 50–64 years (3.9%). The mean age of respondents was 34 $\pm$ 6.22 years, with a range of 26–50 years. Regarding years of service, most respondents had worked for less than 10 years, accounting for 39 nurses (76.5%), while 12 nurses (23.5%) had worked for more than 10 years.

The average length of employment was 9 $\pm$ 6.14 years, ranging from 3 to 31 years. Based on monthly income, 32 respondents (62.7%) earned below the regional minimum wage (IDR 4,482,914), while 19 respondents (37.3%) earned at or above the regional minimum wage. The average monthly

income of respondents was IDR 5,400,000 $\pm$ 2,090,355.07, with a minimum income of IDR 2,800,000 and a maximum income of IDR 11,000,000.

Table 2. Bivariate Analysis Results

Variable	Stress Level			<i>p-value</i>	<i>r</i>
	Normal	Mild	Moderate		
Nutritional Status					
Normal (18,5-25,0 kg/m²)	7	6	5	0,000*	0,743
Overweight (25,1-27,0 kg/m²)	6	12	15		
Workload					
Mild (≤28)	9	4	1	0,000*	0,755
Moderate (≤42)	3	9	3		
High (≤56)	1	5	16		

Table 2 shows that nutritional status and workload were significantly associated with stress levels among nurses. Nutritional status had a strong positive correlation with stress levels ($r = 0.743$; $p < 0.001$), indicating that overweight nurses tended to experience higher stress levels. Workload also showed a strong positive correlation with stress levels ($r = 0.755$; $p < 0.001$), with nurses experiencing high workloads more likely to report moderate stress levels. Among the variables examined, workload demonstrated the strongest correlation with stress levels.

Discussion

Based on the bivariate analysis results obtained through the Rank Spearman test, it was found that excessive nutritional status and high workload have a significant relationship with stress levels among nurses. Excessive nutritional status is an important indicator that not only reflects dietary intake but is also associated with psychological responses to work-related pressure. In stressful situations, some nurses tend to use food as an emotional coping mechanism, particularly high-calorie and fast food, which are easily accessible and can be consumed within a limited time (Rafkhani et al., 2021; Yugharyanti et al., 2024). This pattern, known as emotional eating, carries the risk of gradually increasing body weight, which in turn affects nutritional status.

This condition not only has consequences on physical aspects but also worsens psychological conditions. Nurses with excessive nutritional status are reported to be more vulnerable to prolonged stress accompanied by fatigue, sleep disturbances, and a decline in quality of life. These findings are consistent with the study by Septiani and Rizqiawan (2022), which stated that there is a relationship between excessive nutritional status and increased stress levels, particularly among healthcare workers.

A high workload is also a dominant factor contributing to nurses' stress. Nurses working in inpatient units bear significant responsibilities, with a fast-paced work rhythm, a high number of patients, and the demand to remain professional and empathetic. This pressure is further aggravated by the limited number of nursing staff, causing many of them to complete tasks within a short period of time, even beyond their primary responsibilities (Cesilia & Kosasih, 2024).

A continuous increase in workload has been shown to cause both physical and mental fatigue, which directly impacts the decline in performance and the quality of nursing care. The study by Ilahi et al (2023) supports this finding, indicating a significant relationship between stress levels and workload among nurses. In certain conditions, unmanaged work pressure can even lead to burnout, reduce productivity, and affect job satisfaction among healthcare workers (Pakka et al., 2021).

The main factors causing work-related stress include intrinsic job demands, pressure from the external work environment, limited time for task completion, frustration, changes in job type, and individual characteristics such as personality, skills, values, needs, years of service, age, and educational level (Putra et al., 2021). Excessive nutritional status and high workload are two important interrelated factors influencing nurses' stress levels. Efforts to prevent and manage stress require not only psychological interventions but also the implementation of healthy work patterns and the promotion of balanced nutrition as part of institutional support for the well-being of healthcare workers.

Relationship Between Nutritional Status and Stress Levels

This study found a significant relationship between nutritional status and stress levels among nurses ($p < 0.001$). Most respondents were classified as overweight, indicating an imbalance in nutritional intake. Limited break times and demanding work schedules may encourage nurses to choose fast food due to its convenience and accessibility, despite its poor nutritional quality (Yugharyanti et al., 2024).

The findings are consistent with previous studies suggesting that individuals with poor nutritional status, including overweight and obesity, are more likely to experience psychological problems such as stress (Ilahi et al., 2023). Nutritional imbalance may affect brain function, hormonal regulation, and neurotransmitters involved in mood regulation. In addition, stress can increase cortisol secretion, which may stimulate appetite and promote visceral fat accumulation, thereby worsening nutritional status (Lovyana & Humayrah, 2023). These findings indicate a strong association between nutritional status and stress levels among nurses.

Relationship Between Workload and Stress Levels

This study found a significant relationship between workload and stress levels among nurses ($p < 0.001$). Most respondents reported a high workload, which may be attributed to an insufficient number of nursing staff relative to the increasing number of patients. As a result, nurses are required to complete multiple tasks within a limited time, leading to increased work pressure. This finding is consistent with previous research indicating that nurses working in inpatient units tend to experience higher workloads due to prolonged patient care responsibilities (Lestari & Ariadi, 2025).

Nurses also reported feeling burdened by tight deadlines, unclear instructions from supervisors, and excessive workloads resulting from high patient volumes. These conditions may contribute to work fatigue and increase stress levels (Sumantri et al., 2024). Since inpatient nursing services are provided continuously for 24 hours, nurses are expected to maintain professionalism and deliver high-quality care despite demanding work conditions (Cesilia & Kosasih, 2024). Therefore, excessive workload may negatively affect both nurses' well-being and the quality of healthcare services provided to patients (Pakka et al., 2021).

Conclusion

Based on the research findings, there is a significant relationship between nutritional status and workload with stress levels. Respondents with excessive nutritional status tend to have higher stress levels compared to those with normal nutritional status. Excessive nutritional status is associated with an increased likelihood of higher stress levels. Respondents with a high workload are at risk of experiencing higher stress levels compared to those with a low workload. A high workload is also associated with an increased tendency toward higher stress levels. Therefore, the risk factors for stress among nurses at Dr. H. A. Rotinsulu Hospital are excessive nutritional status and high workload. Nurses are advised to pay greater attention to maintaining balanced nutritional status by adopting a healthy diet with balanced nutrition to support physical endurance and emotional stability in coping with high workloads.

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