

## Work Fatigue Among Emergency Department Nurses in Banjarmasin Hospitals

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### ABSTRACT

High levels of fatigue among nurses in the Emergency Department (ED) can lead to various negative consequences, including increased risk of errors, changes in physical and mental health, and decreased quality of care. This study aims to describe the level of fatigue among ED nurses in hospitals in Banjarmasin. A quantitative research method was employed using the KUPK2 questionnaire, administered to 35 respondents through a total sampling technique during June–July 2024. Data were analyzed using univariate tests to provide a comprehensive overview of fatigue levels. The results showed that the average work fatigue score among nurses was 26.49, which falls into the "fatigued" category. These findings highlight the need for greater attention to nurses' health and well-being, as well as the development of intervention programs to improve the quality of care in the ED.

**Keywords:** Emergency Department, Nurse, Work Fatigue.

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### INTRODUCTION

The Emergency Department (ED) is the first point of contact for patients seeking immediate medical attention. Within the ED, various healthcare professionals work collaboratively, including nurses. Emergency nurses must be capable of caring for patients from diverse cultural backgrounds to ensure the delivery of high-quality care (1). In performing their daily duties, ED nurses are more prone to fatigue, especially when experiencing high workloads. This is due to the intense life-saving responsibilities they must undertake (2).

Work fatigue is an increasingly critical issue in the context of nursing, particularly in emergency units, marked by decreased efficiency and increased demands during work (3). It is characterized by reduced productivity

and heightened work-related demands, becoming a major cause of health and safety issues (4). Symptoms include persistent tiredness affecting reaction time, diminished activity and motivation, and physical symptoms, all of which have negative consequences (3). High fatigue levels among ED nurses increase the risk of errors, deteriorate physical and mental health, reduce service quality, and raise the potential for burnout. In contrast, nurses with low fatigue levels are more capable of maintaining care quality, managing stress, and remaining alert in emergency situations (5). The level and impact of fatigue vary depending on individual conditions.

Recent studies indicate that work fatigue contributes to health and safety issues, with symptoms such as persistent

tiredness affecting reaction time, as well as reduced activity, motivation, and physical performance (6). High fatigue levels among ED nurses not only increase the risk of errors but also contribute to worsening health, decreased quality of service, and a higher risk of burnout (7). Conversely, nurses with low fatigue levels are more likely to maintain service quality, manage stress effectively, and stay vigilant during emergencies.

Although previous studies have explored the impact of fatigue on nurses, there is still a lack of understanding regarding the specific factors influencing fatigue in EDs and the role of the work environment in exacerbating or alleviating this condition. This study focuses on the use of the KUPK2 (Kuesioner Alat Ukur Perasaan Kelelahan Kerja 2) instrument (8) to explore the relationship between the work environment and nurse fatigue levels in the ED. By adding recent data and comprehensive analysis, this research is expected to offer new insights that can inform strategies to reduce fatigue, enhance nurses' well-being, and ultimately improve healthcare service quality.

The global prevalence of nurse fatigue is estimated at 91.9% (approximately 25.7 million), while in Iran, 43.4% (99,820) of nurses reportedly experience fatigue (3). Specifically, 32.5% of emergency nurses are reported to experience fatigue (9). Another study conducted in emergency units in Iran found that 51.8% of nurses experienced moderate fatigue and 23.2% experienced severe fatigue (5). A survey by the Indonesian National Nurses Association (PPNI) found that 50.9% (286,943) of nurses in Indonesia reported stress, anxiety, fatigue, and high workloads (10). In South Kalimantan, 62 respondents (56.88%)

experienced mild fatigue, 44 respondents (40.36%) moderate fatigue, and 3 respondents (2.75%) severe fatigue (11). However, there is currently no recent research specifically investigating fatigue among emergency nurses in South Kalimantan.

A preliminary study involving 7 ED nurses at hospitals in Banjarmasin revealed that they face high demands from patients' families, must make accurate decisions, and handle patients with a variety of conditions. Three of the seven nurses reported frequently receiving additional duties from other staff. ED nurses are often burdened with extra responsibilities such as administrative tasks, managing patient data, transporting patients, and education-related tasks—typically performed by administrative officers or other healthcare workers (e.g., patient administration staff, loopers, cleaning staff, and health assistants). They also reported a nurse-to-patient ratio of 1:7 (ideally 1:5), with 7–8 nurses per shift handling 50–55 patients.

Administrative records showed an average monthly patient visit of 4,500–4,800 and 150–160 daily visits from January to August 2024. Of the 35 ED beds, an average of 29 were occupied per shift, resulting in a bed occupancy rate of 83.3% (29 out of 35). Nurses reported difficulties concentrating, forgetfulness, and feeling fatigued even before starting their shifts. These findings highlight the phenomenon of nurse fatigue.

## METHODS

This study was conducted in 2024 at the Emergency Department of Ulin Regional Hospital, Banjarmasin. It used a descriptive research design with a quantitative approach. The instrument utilized in this research was the KUPK2

(Kuesioner Alat Ukur Perasaan Kelelahan Kerja 2) questionnaire to measure the level of work fatigue among nurses. The study population consisted of all staff nurses working in the Emergency Department, totaling 35 individuals. A total population sampling technique was employed, meaning all nurses in the population were included as research respondents. Data collection involved primary data obtained through demographic questionnaires and the KUPK2 fatigue questionnaire.

The demographic variables examined in this study included age, length of service, gender, educational background, career level, and body mass index (BMI). Age was measured in years and categorized into four groups: 26–35 years (early adulthood), 36–45 years (late adulthood), 46–55 years (early elderly), and 56–65 years (late elderly). Length of service was defined as the duration the respondent had worked in the nursing field, categorized into 0–2 years, 3–5 years, 6–9 years, and more than 9 years. Gender was categorized as male or female. Education level referred to the nurse's last formal education, such as Diploma III in Nursing, Bachelor/Diploma IV in Nursing, or Bachelor/Diploma IV with a professional Nursing degree. Career level referred to the rank or professional stage of the nurse, ranging from pre-clinical (pra-PK) to PK V. BMI was calculated based on weight and height, then classified into underweight (<18.5), normal (18.5–24.9), overweight (25–29.9), and obese ( $\geq 30$ ).

Work fatigue was measured using the validated KUPK2 instrument, which consists of 17 items rated using a 3-point Likert scale: 1 = Never, 2 = Yes, rarely, and 3 = Yes, frequently. This instrument assesses various dimensions of fatigue including physical fatigue, mental fatigue, and physical symptoms such as

feeling tired before starting work, difficulty walking, and reduced self-confidence. The validity scores for this instrument range from 0.709 to 0.919, and the reliability test using Cronbach's alpha yielded a score of 0.972, indicating high reliability. Respondents' total scores were calculated by summing their responses to all items; a higher total score indicated a higher level of perceived work fatigue. All collected data were tabulated and analyzed using univariate analysis with the SPSS Statistics version 25 software.

## RESULTS AND DISCUSSION

Among the 35 respondents, the majority were aged 26–35 years (early adulthood), totaling 19 individuals (54.3%), with a mean age of 36.29 years and a mode of 32. The predominance of respondents in the 26–35 age group indicates that most emergency department (ED) nurses are in the early phase of their careers. This may suggest a higher level of energy and adaptability in facing the dynamic challenges of the ED environment (13). However, this cannot be generalized, as other studies have found that individuals in later adulthood tend to experience lower levels of work fatigue (12,14).

The majority of respondents were female, with 18 individuals (51.4%). Women are thought to be more resilient and less likely to experience fatigue under pressure compared to men (15). However, other studies revealed that empathy fatigue tends to be higher in female nurses, as shown in two consecutive studies conducted in Turkey during the COVID-19 pandemic (16). A study from Brazil confirmed that younger female nurses with less work experience reported higher levels of fatigue. Nevertheless, one limitation of that study was its small sample size,

Table 1. Frequency distribution of respondent characteristics based on age, gender, body mass index (BMI), length of service, latest education, and career level position among ED nurses at a hospital in Banjarmasin

| Characteristic                       | f  | %     |
|--------------------------------------|----|-------|
| <b>Age</b>                           |    |       |
| 26-35 years<br>(early adulthood)     | 19 | 54.3  |
| 36-45 years<br>(late adulthood)      | 16 | 45.7  |
| 46-55 years<br>(early elderly)       | 0  | 0.0   |
| 56-65 years<br>(late elderly)        | 0  | 0.0   |
| <b>Total</b>                         | 35 | 100.0 |
| <b>Gender</b>                        |    |       |
| Male                                 | 17 | 48.6  |
| Female                               | 18 | 51.4  |
| <b>Total</b>                         | 35 | 100.0 |
| <b>Body Mass Index (BMI)</b>         |    |       |
| Underweight                          | 0  | 0.0   |
| Normal                               | 14 | 40.0  |
| Overweight                           | 6  | 17.1  |
| Obese                                | 15 | 42.9  |
| <b>Total</b>                         | 35 | 100.0 |
| <b>Length of Service</b>             |    |       |
| 0-2 years                            | 4  | 11.4  |
| 3-5 years                            | 6  | 17.2  |
| 6-9 years                            | 9  | 25.7  |
| >9 years                             | 16 | 45.7  |
| <b>Total</b>                         | 35 | 100.0 |
| <b>Latest Educational Background</b> |    |       |
| Diploma in Nursing<br>(D3)           | 23 | 65.7  |
| Bachelor of Nursing<br>(D4/S1)       | 1  | 2.9   |
| Bachelor +<br>Professional Nurse     | 11 | 31.4  |
| <b>Total</b>                         | 35 | 100.0 |
| <b>Career Level Position</b>         |    |       |
| Pre-career (Pre PK)                  | 7  | 20.0  |
| Career Level I (PK I)                | 7  | 20.0  |
| Career Level II<br>(PK II)           | 8  | 22.9  |
| Career Level III<br>(PK III)         | 13 | 37.1  |
| Career Level IV<br>(PK IV)           | 0  | 0.0   |
| Career Level V<br>(PK V)             | 0  | 0.0   |
| <b>Total</b>                         | 35 | 100.0 |

which limits the generalizability of its findings (17).

Most respondents had a BMI in the obese category, with 15 individuals (42.9%), a mean BMI of 26.65, and a mode of 22. The predominance of high BMI among respondents may reflect potential health factors related to work fatigue. Research has shown that work capacity is affected by nutritional intake and body mass index (18). Obesity may contribute to physical limitations, which in turn may affect fatigue levels (19).

Most respondents had more than 9 years of service, totaling 16 individuals (45.7%), with an average of 10.54 years and a mode of 5 years. Nurses with over 5 years of service are generally more susceptible to work fatigue compared to those with shorter tenures (18). Although longer service may enhance skills and experience, it can also lead to burnout and fatigue (19).

The majority of respondents had a Diploma III in Nursing (65.7%). Higher education is associated with better awareness and mental resilience in facing professional responsibilities. Education reflects a nurse's ability to manage workload and professional demands (17). The predominance of Diploma III qualifications among respondents indicates opportunities to enhance educational capacity in addressing workplace challenges (18).

Most respondents were at career level PK III, totaling 13 individuals (37.1%). The findings show a relationship between career level and the level of fatigue experienced. Nurses at higher career levels, such as PK III, tend to experience more fatigue due to increased responsibilities and workload. These added responsibilities heighten stress and fatigue, although greater experience is expected to assist in managing

Table 2. Mean, standard deviation, and minimum–maximum of work fatigue among ED nurses at a hospital in Banjarmasin

| Mean  | Min-Max | SD    |
|-------|---------|-------|
| 26.49 | 17-35   | 5.690 |

Table 3. Work fatigue parameters among ED nurses at a hospital in Banjarmasin

| Parameter        | Min-Max | Mean  |
|------------------|---------|-------|
| Activity         |         |       |
| Weakening Aspect | 3-7     | 4.97  |
| Motivation       |         |       |
| Weakening Aspect | 12-24   | 18.46 |
| Physical         |         |       |
| Symptoms Aspect  | 2-6     | 3.06  |

pressure (18). Nevertheless, demanding work conditions and the pressure to deliver quality care may negatively affect nurses' physical and mental well-being (17). Therefore, it is crucial for healthcare organizations to manage workload effectively and provide adequate support to maintain nurse health and ensure quality care (13).

The average work fatigue score among nurses in the ED was categorized as "fatigued" at 26.49, with scores ranging from 17 to 35. This level of fatigue can significantly affect care quality. The average score for the activity weakening aspect was 4.97 (range: 3–7); for motivation weakening, 18.46 (range: 12–24); and for physical symptoms, 3.06 (range: 2–6). Fatigue is known to reduce efficiency, performance, and may endanger patient safety (14). Motivation weakening had the highest mean score at 18.46, where 65.7% of respondents rarely reported forgetfulness, reflecting the impact of mental fatigue on concentration (17). Physical symptoms had the lowest mean score (3.06), with 51.4% of respondents rarely feeling tired before starting work, supporting findings that fatigue may manifest both before

and during work (16). The measurable aspects of weakened activity, motivation, and physical symptoms also highlight the psychological and physical impact of heavy workload, which could contribute to errors in nursing care delivery (20).

## LIMITATIONS

This study used a self-report method, meaning that the data collected was limited to questionnaire responses. This limitation restricts the depth of information and may reduce the accuracy of understanding the topic. Future studies are encouraged to use more comprehensive and varied methods—such as qualitative approaches—to explore the issue in greater depth.

## RESEARCH ETHIC

This study was ethically approved by the Emergency Health Research Ethics Committee of Ulin Regional Hospital Banjarmasin under approval number No. 40/III-Reg Riset/RSUDU/24. The study adhered to research ethics principles including informed consent, anonymity, confidentiality, autonomy (the right to refuse), beneficence, and justice for all nurses working in the Emergency Department who participated as respondents.

## CONFLICT OF INTEREST

This study has no conflicts of interest that could influence the research process or outcomes. The researchers have no personal, financial, or institutional interests that could bias the design, data collection, analysis, or reporting. All stages of the research were conducted independently and solely aimed at scientific contribution without external influence that could compromise research integrity.

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## CONCLUSION

Nurse fatigue, especially in Emergency Departments, has serious implications for care quality and patient safety. Fatigue can impair nurses' ability to provide optimal care and increase the risk of medication and treatment errors. In the ED context, where fast and accurate decisions are critical, fatigue may cause delays in responding to emergencies with potentially fatal outcomes. Therefore, hospital management must implement effective strategies to reduce workload and support nurse well-being so that healthcare quality and patient safety remain top priorities.

It is recommended that hospitals improve the nurse-to-patient ratio to reduce workload, thereby minimizing fatigue risks and maintaining care quality. Additionally, stress management and workload handling training programs should be introduced to help nurses cope more effectively. Providing supportive facilities such as comfortable rest areas can also help nurses recharge

during their shifts. On the other hand, nurses are encouraged to practice good time management and maintain healthy lifestyles—including balanced nutrition and regular physical activity—to enhance stamina. For future studies, it is recommended to use in-depth methods such as interviews or direct observation to gain a more comprehensive understanding of the factors influencing work fatigue. Furthermore, the development of individualized interventions based on nurses' characteristics can be the focus of upcoming research.

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