Original Article

Nurses' Perspectives on Sleep Promotion Practices in Indonesian ICUs: A Multicenter Cross-Sectional Study

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ABSTRACT

Background: Critically ill patients commonly experience sleep disturbance, which has the potential to increase mortality and morbidity. Therefore, implementing interventions to enhance sleep quality is crucial. This study aimed to explore Indonesian nurses' perceptions of patients' sleep and to investigate the relationship between sleep promotion practices and the quality of sleep of patients in the Intensive Care Unit (ICU).

Methods: : A cross-sectional study design was used. A total of 211 nurses working in 10 ICU settings across 14 hospitals in Indonesia were involved using convenience sampling. The SLEEPii questionnaire was used to collect data from nurses who work in ICU for a minimum of one year. Data was analyzed using frequency, mean (±SD), Median (±IQR), the Spearman Rank test, Kendal tau, and Kruskal-Wallis test. This study was reported in accordance with the STROBE guidelines.

Results: 211 nurses from 14 hospitals in Indonesia reported that critically ill patients had sleep duration less than four hours (46.4%) and had fair sleep quality (58.8%). Sleep duration had significant differences between hospital status (p=0.004), and general hospital classification (0.002). Significant differences were also reported between sleep quality with ICU number of each Hospital (p=0.023), hospital status (p=0.047), and general hospital classification (0.032). Even though all participant reported that none of the ICU have protocol to promote sleep, this study found that duration of sleep correlate with control environmental noise levels (p=0.036), receiving medications for sleep (p=0.021), and activity to keeping ICU rooms dark at night (p=0.043), adhere to a clustered sleep protocol designed (p=0.001) and create conditions for a dedicated sleeping (p=0.004). Controlling environmental noise levels also correlated with sleep quality.

Conclusion: Most of the critically ill patients had fair sleep quality. Findings suggest the urgent need for standardized sleep promotion protocols in Indonesian ICUs.

Keywords: Intensive Care Units; Nurse; sleep duration; sleep quality.

Implications for Practice:

- Development and implementation of standardized ICU sleep protocols are urgently needed.
- Environmental modifications (noise and light control) should be prioritized as feasible, low-cost interventions.
- Education programs for ICU nurses regarding sleep promotion should emphasize translating knowledge into

Implications for Practice:
consistent clinical practice.

Introduction

Sleep is a natural process essential for overall health and well-being (Alegria et al., 2023). Poor sleep is one of the most common complaints (Shih et al., 2023; Sundstrøm et al., 2021). The amount of sleep for patients in the ICU ranges from 7-9 hours per day (Beck Edvardsen & Hetmann, 2020), but more than 50% of the total sleep duration is spent during the day (Beck Edvardsen & Hetmann, 2020; Elías, 2021). The prevalence of sleep disorders in the ICU ranges from 28% to 66% which occurred on average 51 times per night, with 46% to 80% experiencing poor sleep (Shih et al., 2023).

Disturbances of critically ill patients influenced by various factors (Ahn et al., 2023), including age, severity of illness, pain, mechanical ventilation, sedation, medications (Elías, 2021; Grimm, 2020), vital signs, blood samples, and diagnostic testing, noise, lighting, and temperature (Grimm, 2020). Inadequate sleep can cause increased catecholamine, cortisol, and prolactin levels in patients, hyperglycemia, arrhythmia, elevated blood pressure at night, apnea, late weaning from ventilators, delayed improvement, a tendency towards infection, memory loss, speaking difficulty and reduced pain tolerance (Grimm, 2020), agitation, delirium, depression, (Beck Edvardsen & Hetmann, 2020; Erkoc et al., 2024) and immune system impairment (Beck Edvardsen & Hetmann, 2020).

Various sleep problems in critically ill patients are important targets and priorities for implementing sleep promotion interventions in the ICU (Beck, Edvardsen & Hetmann, 2020). Effective interventions are needed to improve the sleep-wake cycle with a priority on non-pharmacological interventions (Grimm, 2020). The sleep promotion interventions consist of sleep protocols, approaches, and the implementation of multifaceted components (Darby et al., 2022). The multifaceted component consist activities as assessments and factors related to sleep quality (Ahn et al., 2023), sleep hygiene routines, nursing care plans involving sleep promotion, and appropriate medication regimens (Grimm, 2020), use of earplugs, eye masks, white noise, music, aromatherapy, massage, acupressure, light intensity, quiet time and minimization of nursing care (Jun et al., 2021), minimizing nighttime disruptions, optimizing medication administration schedules, and creating a conducive sleep environment (El Arab et al., 2025).

Implementing the protocol has benefits and can be implemented daily in the ICU. However, there are obstacles and challenges in its implementation, such as gaps between clinician awareness and protocol implementation (Devlin et al., 2018), difficulties in evaluating sleep quantity and quality (Nilius et al., 2021), low implementation measurement tools (Beck Edvardsen & Hetmann, 2020), no routine sleep assessments (Erkoc et al., 2024), and few ICUs have protocols for sleep promotion (Kamdar-2016.). The literature review shows that improving the sleep quality of critically ill patients is difficult (Sundstrøm et al., 2021). However, as staff who deal with patients all day, nurses have an important responsibility to do that (Beck Edvardsen & Hetmann, 2020), (El Arab et al., 2025). Nurses can assess sleep quality, identify the causes of sleep disorders, identify potentially modifiable factors (Ahn et al., 2023), and implement protocols (El Arab et al., 2025). Factors that impede nurses from enhancing sleep quality in the ICU include difficulties in assessing sleep, particularly in patients experiencing

sedation and delirium (Grimm, 2020), as well as the inability to execute interventions due to staffing limitations (Razali et al., 2023).

Understanding nurses' perspectives on patient sleep descriptions, sleep promotion practices in the ICU, and the quality of sleep is crucial to improving patient care outcomes in the ICU (El Arab et al., 2025). There were few studies on sleep promotion practices conducted in multicenter settings in Indonesia. Moreover, there's no national and standardized protocol for promoting sleep. Therefore, this study aimed to explore Indonesian nurses' perceptions of critically ill patients' sleep and the relationship between sleep promotion practices and the quality of sleep of critically ill patients in the ICU.

Methods

Study Design

This study used a cross-sectional design conducted in 10 critical care settings (General ICU, Medical ICU, Surgical ICU, Cardiac ICU, Surgical Cardiothoracic ICU, Surgical High Dependency Unit, Medical High Dependency, Medical-Surgical ICU, Cardiac Catheterization unit, and respiration & infection ICU) in Indonesia.

Participants

A total of 211 nurses were selected using a convenient sampling technique. They worked in 14 hospitals in 4 provinces (Yogyakarta Special Province, Central Java Province, East Java Province, and West Java Province) in Indonesia, with a total number of beds ranging from 105 (class C) to 882 (class A). The inclusion criteria were nurses who worked in the ICU for at least one year. The exclusion criteria were nurses who were on leave for more than 1 month. The sample size was calculated using the Slovin formula with an acceptable margin of error of 0.05. The Slovin formula is utilized since we used a larger population in five different provinces in Indonesia. The recommended sample was 200, and the total sample of this study was 211.

Instruments

Cultural Adaptation

The instrument was developed by the Sleep in the ICU Task Force (The ICU SLEEPii Task Force) and tested in 78 ICUs (Kamdar-2016,). Researchers obtained permission to adapt and use the instrument. The corresponding author, Kamdar BB (kamdar@ucsd.edu), approved on September 12, 2023. The SLEEPii instrument has undergone cultural adaptation through forward and backward translation. Two language institutions have done forward translation, and two different language institutions conducted backward translation and then synthesized experts to obtain an instrument in the original language.

Content and Face Validity testing

The instrument was tested for content validity by five experts, including a clinician with a master's degree qualification with a minimum of one year of work. The instrument has been pilot-tested on 30 ICU nurses. The instrument demonstrated strong validity, with a face validity score of 95.5% and maximum content validity values (CVR, I-CVI, and S-CVI all at 1).

The SLEEPii instrument did not require changes in the number of items or substance. However, there were several adjustments related to conditions in Indonesia. The SLEEPii instrument was a 27-question survey instrument to collect information on ICU provider demographics (14 questions) and 13 questions regarding provider perceptions of the importance of sleep in the ICU, quality and quantity of sleep in the ICU, and sleep-promoting practice in the ICU. The questionnaire is filled out by selecting options on a Likert scale or special choices depending on the item of the questionnaire.

Data Collection

The researcher collected secondary data from January 2024 to February 2025 to obtain valid instruments. Primary data was collected in March 2025 using the SLEEPii instrument. We used both an online form and a questionnaire to gather the data. The research assistant collected the data, while the local coordinator assisted in arranging data collection for each hospital. Incomplete data were managed by contacting the respondent and waiting for the response for a week. There's no missing data in this study. Authors are unfamiliar with the respondents and only have contact with the key person/relevant organization, which means we do not influence or direct the answers.

Data Analysis

Data were analyzed using SPSS software (version 21). We used descriptive statistics to analyze the mean, standard deviation, percentage, and frequency for all items. To analyze the differences among ICU factors and patient sleep quality and sleep duration, the Kruskal-Wallis test was used because the data were not normally distributed. Kendall Tau and the Spearman rank test were used to prove a correlation between promoting sleep practices and sleep quality, and also sleep duration.

Ethical Considerations

The study obtained ethical approval from the Medical and Health Research Ethics Committee (MHREC) of the Faculty of Medicine, Public Health, and Nursing, UGM-DR. Sardjito General Hospital, No. KE/FK/0375/EC/2025.

Results

A total of 211 nurses completed the survey and included it for analysis. The majority of the participants were female (n=170,80.6%), with a mean (±SD) age of 32.74 (±7.831). Most of them worked in MICU (n=74,35%) and had a mean (±SD) of work experience of 5.851±5.9827 years **(Table 1).**

Table 1. Characteristics of Nurse Respondents (n=211)

Variable	f (%)	Mean±SD
Sex		
Male	41 (19.4)	
Female	170 (80.6)	
Age		32.74±7.831
20-30	98 (46.4)	
31-40	74 (35.1)	
41-50	34 (16.2)	
51-60	5 (2.4)	
ICU Type (n=10)		
1 unit (General ICU)	62 (29.4)	
HCU, MHCU, SHCU, Catheterization unit	23 (10.9)	
SICU	37 (17.5)	
MICU & Respiration & Infection ICU	74 (35.0)	
ICCU	15 (7.1)	
Length of work (years)		5.851±5.9827
1-5	135 (43.0)	
6-10	43 (20.3)	
11-20	26 (12.2)	
21-30	6 (2.8)	
>30	1 (0.5)	
Hospital status (n=14)		
Government general hospital (n=1)	57 (27.0)	
Academic hospital (n=2)	97 (46.0)	
Private general hospital (n=5)	13 (6.2)	
Government Regional hospital (n=6)	44 (20.9)	
General hospital classification (n=14)		
Class A (n=1)	59 (28.0)	
Class B (n=11)	118 (55.9)	
Class C (n=2)	34 (16.1)	
Number of ICU beds of the Respondent		13.58±3.714
<10	23 (10.9)	
10-20	188 (89)	
>20	0 (0)	

Notes: ICU intensive care unit; MICU medical intensive care unit; SICU surgical intensive care unit; type A (tertiary hospital), HCU high care unit; MHCU medical high care unit; SHCU surgical high care unit; ICCU intensive cardiac care unit. Class A (the highest facilities & services) – D (the lowest facilities & services)

Most nurses (46.4%) reported that the sleep duration of a critically ill patient was less than 4 hours at hospitals. More than half (58.8%) of nurses also reported fair sleep in critically ill patients **(Table 2).**

Table 2. Nurses' Perception Regarding Sleep of Critical Ill Patients in ICU (n=211)

Variable	f (%)	Mean±SD
Sleep duration (hr)		7.93±4.276
<4	98 (46.4)	
4-5	47 (22.3)	
6-7	32 (15.2)	
≥8	34 (16.1)	
…. of dedicated sleep is sufficient for your patients (hr)		8.00±2.302
< 6	25 (11.84)	
≥ 6- 8	119 (56.39)	
≥ 8	67 (31.75)	
…… of sleep can be realistically achieved by your patients (hr)		6.73±2770
< 6	85 (40,28)	
≥ 6- 8	90 (42.65)	
≥ 8	36 (17.06)	
Overall sleep quality		
poor	32 (15.2)	
Fair	124 (58.8)	
Good	43 (20.4)	
Very Good	12 (5.7)	

Notes: Hr hour; ICU intensive care unit

Table 3 shows that the lowest median sleep duration was observed in hospitals with combined ICUs (Medical, Surgical, Cardiac, Med-Surg, Neurosurgical, and Burn Units) (1.00±1.00 hours). Sleep quality also showed significant differences according to hospital status (p=0.047) and general hospital classification (p=0.032). p value<0.05 is substantial.

Table 3. Differences between ICU respondents with sleep quality and sleep duration (n=211)

Variable	Patient Sleep duration	*p value*	Patient Sleep Quality	*p value*
	Median±IQR		Median±IQR	
ICU type (n=14)	2.00	0.239	3.00	0.124
General ICU	2.00±2.00		3.00±1	
HCU, MHCU, SHCU, Catheterization unit	2.50±1.75		3.00±1	
SICU	1.00±1.50		3.00±1	
MICU	1.50±2.75		3.00±0	
ICCU	3.00±1.00		4.00±1	
ICU Respiration & Infection	2.50±0.00		3.50±0	
MHCU	2.00±1.00		3.00±0	
ICU number of each Hospital (n=14)	2.00	0.001	3.00	0.023
1 unit (General ICU)	2.00±2.00		3.00±1	

Variable	Patient Sleep duration	*p value*	Patient Sleep Quality	*p value*
	Median±IQR		Median±IQR	
4 unit (Medical, Surgical, Cardiac, Med-Surg	2.00±3.00		3.00±0	
6 unit (Medical, Surgical, Cardiac, Med-Surg, neuro-surg, Burn ICU)	1.00±1.00		3.00±1	
Hospital Status (n=14)	2.00	0.004	3.00	0.047
Government general hospital (n=1)	1.00±1.00		3.00±1	
Academic hospital (n=2)	2.00±2.00		3.00±1	
Private general hospital RS (n=5)	1.00±2.50		3.00±2	
Government Regional hospital (n=6)	2.00±2.00		3.00±1	
General hospital classification(n=14)	2.00	0.002	3.00	0.032
Class A (n=1)	1.00±1.00		3.00±1	
Class B (n=11)	2.00±2.00		3.00±0	
Class C (n=2)	2.00±2.00		3.00±1	

ICU intensive care unit; MICU medical intensive care unit; SICU surgical intensive care unit; type A (tertiary hospital), HCU high care unit; MHCU medical high care unit; SHCU surgical high care unit; ICCU intensive cardiac care unit. Class A (the highest facilities & services) – D (the lowest facilities & services); IQR interquartile range; p<0.05=significant

Table 4 shows that several specific sleep-promoting practices demonstrated significant correlations with sleep outcomes. Nurses' certainty in controlling environmental noise level was significantly correlated with both sleep duration (p=0.036) and sleep quality (p=0.011). Furthermore, delaying non-emergency disturbances exhibited a significant positive correlation with sleep quality (p=0.031) but not with sleep duration (p=0.057). Similarly, temporarily suspending visitation hours was positively correlated with longer sleep duration (p=0.010), but no significant relationship with sleep quality was observed. Creating dedicated sleeping times for stable patients also correlated positively with sleep duration (p=0.004), though no significant association was found with sleep quality. The percentage of patients receiving medications for sleep showed a weak but significant positive correlation with sleep duration (p=0.021), whereas no significant correlation was observed with sleep quality (p=0.569).

Table 4. Correlation between sleep practices and sleep duration and quality of sleep in the ICU

Variable	*f (%)*	*Mean ± SD*	*Median±IQR*	*Sleep Duration*		*Sleep Quality*	
				r	*p value*	*r*	*p value*
How nurses certain can perform sleep promotion**		58.20	59.00±15.00	0.207	0.002*	0.105	0.128
Assess whether patients are sleeping enough	211 (100)	7.14±2.13	8.00±3.00	0.118	0.087	0.104	0.131
Control lighting conditions to allow patients to sleep	211 (100)	7.99±2.08	8.00±3.00	0.147	0.100	-0.026	0.705
Control environmental noise levels to allow patients to sleep	211 (100)	6.93±2.15	7.00±2.00	0.145	0.036*	0.175	0.011*
Adjust the ventilator or bi-level PAP to allow patients to sleep	211 (100)	7.16±1.94	7.00±2.00	0.013	0.852	0.044	0.523
Delay non-emergency disturbances to allow patients to sleep	211 (100)	6.86±2.28	7.00±3.00	0.131	0.057	0.148	0.031*
Adhere to a clustered sleep protocol designed for the ICU	211 (100)	6.86±2.18	7.00±3.00	0.242	0.001*	0.099	0.154
Temporarily suspend visitation to allow for sleep	211 (100)	7.50±2.03	8.00±3.00	0.178	0.010*	0.063	0.365
Create conditions for a dedicated sleeping time for stable patients	211 (100)	7.72±1.83	8.00±2.00	0.198	0.004*	0.033	0.634
Percentage of patients receive sedation	211 (100)	49.78±28.35	3.00±2.00	0.133	0.021*	0.031	0.569
1-20%	45 (21.3)						
21-40%	45 (21.3)						
41-60%	48 (22.7)						
61-80%	45 (21.4)						
81%-100%	28 (13.2)						
Activities to Improve of Quality of Sleep	211 (100)	5.24±1.34	6.00±1.00	0.030	0.611	0.096	0.163
Medication prescribed for sleep		0.59±0.493		0.015	0.830	-0.036	0.599
agree	87 (41.2)						
disagree	124 (58.8)						
Noise control		0.54±0.500		0.030	0.668	0.066	0.343
agree	97 (46.0)						
disagree	114 (54.0)						
Keep patients awake during the day so they are more tired for sleep		0.89±0.312		0.113	0.102	0.120	0.081
agree	23 (10.9)						
disagree	188 (89.1)						
Keeping them physically active during the day so they are more tired for sleep		0.93±0.249		0.090	0.192	0.043	0.532
agree	14 (6.6)						
disagree	197 (93.4)						
Keeping the ICU room dark at night and bright during the day		0.69±0.463		-0.139	0.043	-0.011	0.873
agree	65 (30.8)						

Variable	f (%)	Mean ± SD	Median±IQR	Sleep Duration		Sleep Quality	
				r	p value	r	p value
disagree	146 (69.2)						
Allowing patients blocks of interrupted sleep time		0.62±0.487		-0.005	0.941	0.108	0.117
agree	81 (38.4)						
disagree	130 (61.6)						
None of the above		0.00±0.000					
agree	0 (0)						
disagree	211 (100)						
Don't know		0.00±0.000					
agree	0 (0)						
disagree	211 (100)						
Others		0.98±0.137		0.094	0.174	0.130	0.059
agree	4 (1.9)						
disagree	207 (98.1)						
ICU Promotion Protocol availability		0.00±0.000					
yes	0 (0)						
No or unknown	211 (100)						

Notes: IQR interquartile range; SD standard deviation; p=significant; r=coefficient correlation

Discussion

This study revealed several important points related to duration and quality of sleep, particularly from the nurse's perspective on a large scale. Most nurses reported that ICU patients typically experienced a sleep duration of less than four hours. Different from research by (Elías, 2021), which states that total sleep duration in the ICU was 7.1–12.1 hours, with a normal adult mean of 6.6 hours.

This study found that patients commonly have a fair quality of sleep, which is different from other study that commonly has poor sleep. It can happen because of various sources of data assessment. This study assessed sleep based on nurse perception, and another study used the Richards-Campbell Sleep Questionnaire (RCSQ) based on patient self-report. However, research by Darbyshire et al. (2020) noted discrepancies between nurse-reported and patient-reported sleep assessments using the Richards-Campbell Sleep Questionnaire (RCSQ), in which nurses reported higher quality scores compared to patients' self-reports. According to Darbyshire et al. (2020), Nurse-completed and patient-completed assessments are not interchangeable, especially when patients are sedated or unable to express discomfort. In line with other third-party reporting of subjective measures, such as pain, nurses will report better sleep quality and quantity than patients themselves (Darbyshire et al., 2020).

The current study found significant differences between ICU and hospital characteristics with nurses' perceptions of patients' sleep quality and duration. Align with this study, (Sundstrøm et al., 2021), stated that patients in type A referral hospitals, which are typically larger tertiary-care centers, experienced shorter sleep duration, likely due to handling more complex and severe cases, higher patient acuity, frequent interventions, and more significant environmental disruptions compared to those in general hospital classifications class B and class C. Similarly, differences across hospital settings revealed that university hospitals reported better sleep outcomes than government and private hospitals. This is possibly due to structural challenges, better resource availability, differences in language, and more vigorous implementation of sleep-promotion strategies (El Arab et al., 2025). University hospitals might have better-established clinical guidelines, more access to sleep promotion resources, and a stronger emphasis on holistic patient care, especially sleep quality. These results suggest that organizational and environmental factors significantly affect sleep outcomes in ICU patients (El Arab et al., 2025).

Therefore, to be effective, interventions in sleep promotion may need to be tailored to hospital settings and ICU types. Sleep promotion is a concern to nurses due to the vital role of the nurse's certainty in performing the intervention. Besides, ICU nurses face several challenges in promoting sleep, including high noise levels, constant artificial lights, and hectic around-the-clock activity (Grimm, 2020).

The specific sleep promotion intervention about controlling noise levels correlated with better sleep duration and quality. In line with the findings by (Beck Edvardsen & Hetmann, 2020; Martinez et al., 2022) that emphasize modifiable environmental factors (sound, light) as key targets for improving quality sleep in the ICU. Noise levels in the ICU are commonly higher than those recommended by the World Health Organization, which suggests that sound levels should not exceed 30 decibels (dB) and that maximum individual sounds should be less than 40 dB during the

night (Martinez et al., 2022). Sound, which leads to noise levels in the ICU, is a common source of sleep disturbance that potentially can be reduced without much compromise for patient safety, such as avoiding unnecessary talk during nighttime hours and minimizing redundant alarms (Grimm, 2020; Martinez et al., 2022). It was also approved by (Souza et al., 2022) that an approach incorporating practices such as sound measures, establishment of quiet hours, and staff training is the best tool to reduce noise levels in the ICU. A combination or bundle of strategies makes better outcomes compared with a single intervention (Beck, Edvardsen & Hetmann, 2020)

Additionally, the nurse's perception of improving sleep by keeping the ICU room dark at night and bright during the day is also significantly related to the sleep duration. This highlights the importance of light management in supporting natural circadian rhythms and promoting better sleep. Even short and low-intensity light has also been correlated with circadian discrepancy (Grimm, 2020; Martinez et al., 2022). However, the weak negative correlation suggests that despite recognizing its importance, effective implementation may be limited by environmental or clinical factors in the ICU (Ahn et al., 2023; Beck Edvardsen & Hetmann, 2020).

Our findings indicated that sleep quality was significantly associated with the intervention of sleep promotion, which delays non-emergency disturbances to allow patients to sleep, such as medication administration, checking vital signs, and bathing, to allow uninterrupted sleep. Patient care activities have been a reason for sleep disruption. Patients might experience 40 – 60 interruptions/night due to patient care activities, including vital sign measurements, patient assessments, phlebotomy, radiographs, wound care, medication administration, transport, and bathing (Alegria et al., 2023)

The suggestions for the reorganization of multifaceted patient care interventions may be a key strategy for improving sleep quality in the ICU (Ashghab et al., 2024; Grimm, 2020; Martinez et al., 2022). The intervention included environmental control in the ICU, like auditory masking, relaxation, dynamic light therapy, music therapy, earplugs/eye masks, and rationalizing nurses' daily activities for ICU nocturnal patients. Besides improving sleep in critically ill patients, it enhances their psychological outcome and long-term cognitive (Ashghab et al., 2024; Razali et al., 2023).

However, it is concerning that none of the ICUs in the study reported the existence of a sleep promotion protocol, despite evidence showing that structured sleep protocols can significantly enhance sleep outcomes for critically ill patients (Andrews et al., 2021). The lack of standardized protocols could partly explain the variation in sleep promotion practices among different hospitals. Adopting this approach could promote more excellent implementation of sleep protocols in critically ill patients. Implementation of sleep protocols is evident as efforts to improve the quality of care, including nurses' intervention to enhance sleep quality and quantity (Locihová, 2020). Moreover, healthcare organizational support is crucial for the team surrounding the ICU patients, and fostering a cultural shift is necessary to strengthen communication and collaboration toward improving sleep quality and quantity in critically ill patients. The barrier to sleep promotion policies is the lack of knowledge of the importance of sleep quality and awareness among staff. A limitation of this study is that the reliance on nurse-reported perceptions may introduce bias.

Relevance to Clinical Practice

The findings of this study are very relevant to clinical practice because they provide an overview of the quality of sleep of critically ill patients in the ICU and the promotion practices carried out by nurses, even though they do not have a protocol. These findings can inform ICU policymakers or the Ministry of Health in formulating guidelines or protocols for ICU environmental standards. The availability of sleep promotion protocols, awareness, and seriousness in complying with the protocol can be a strategy to improve the sleep quality of critically ill patients. The example of a scenario is in the night shift, nurses turn off the lamp at 10 pm, then silence the active sound of the machine, and arrange to eliminate all activities except emergencies.

Conclusion

This study highlights the critical role of nurses in promoting sleep among critically ill patients in the ICU, revealing significant variations in perceptions and practices across hospital classification, hospital settings, and ICU types in Indonesia. Nurses reported that their patients had poor sleep quantity and fair quality in the ICU. Environmental and organizational factors, such as noise level, lighting, and patient care activities, were significantly related to the quantity and quality of sleep. These findings emphasize the urgent need to enhance sleep promotion strategies in ICUs. The absence of standardized sleep protocols underscores a critical gap in current practice. Developing and implementing comprehensive sleep protocols, promoting environmental modifications, and enhancing nurses' education on sleep management should be prioritized. Urgent action is needed to standardize and support the implementation of nurse-led sleep protocols at the national level. Future initiatives may focus on creating evidence-based protocols and providing structured training to ICU nurses, ultimately improving sleep quality and recovery for critically ill patients. Future research can investigate the factors associated with quality sleep using cohorts conducted in multicenter studies.

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CrediT Authorship Contributions Statement

Sri Setiyarini: Principal investigator, Conceptualization, Methodology, Supervision, Writing - Original Draft. Taken responsibility for the entire contents of the manuscript and approved its submission

Desy Listyaningrum: Investigation, Resources, Formal Analysis, Project Administration, Took responsibility for the entire contents of the manuscript, and approved its submission

Hersinta Retno Martani: Formal Analysis, Writing - Original Draft, Took responsibility for the entire contents of the manuscript, and approved its submission

Purwadi Sujal: Software, Validation, Data Curation, took responsibility for the entire contents of the manuscript, and approved its submission

Happy Indah Kusumawati: Visualization, Review & Editing, Took responsibility for the entire contents of the manuscript, and approved its submission

Conflicts Of Interest

The authors state no conflict of interest.

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