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Research article

Sleep quality with nurse burnout during the covid-19 pandemic in East Java

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Abstract

The COVID-19 pandemic is currently a major global public health emergency. Health workers on the front lines during the pandemic are exposed to high chronic stress due to the high risk of infection and long working hours. These stress factors hurt sleep quality and mental health and ultimately lead to burnout in nurses. This study aimed to determine the relationship between sleep quality and nurse burnout during the COVID-19 pandemic in East Java. The research design used is correlational analytic with a cross-sectional approach. The research sample was 180 respondents who were taken by consecutive sampling technique according to the researcher's criteria for 2 weeks. Collecting data using the MBI-HSS questionnaire to measure burnout and PSQI to measure sleep quality via a google form link. Analysis of the data in this study using SPSS for Windows version 25 using the chi-square. The results showed that most of the respondents experienced poor sleep quality as many as 166 respondents (92.4%) and respondents experienced burnout were 83 respondents (53.9%). The results of the analysis obtained a p-value of -0.170 > 0.170 which means that there is no significant relationship between sleep quality and burnout. Respondents who have poor sleep quality but do not experience burnout, one of which is due to the COVID-19 pandemic, which is starting to slant, but respondents still show alertness to the incidence of COVID-19 which is indicated by the presence of several signs of burnout experienced by respondents.

INTRODUCTION

One of the current public health emergencies is the COVID-19 pandemic which started in China and has infected almost every country around the world. The disease is caused by a novel coronavirus (SARS-CoV-2, previously known as 2019-nCoV)[1]. The 2019 Coronavirus Disease (COVID-19) pandemic is currently a major global public health emergency [2]. As of July 8, 2021, there were 184,820,132 confirmed cases and 4,002,209 deaths. Indonesia as of July 8, 2021, there were 2,417,788 confirmed cases, 63,760 deaths and within 24 hours there were 852 deaths [3].

The pandemic caused by the COVID-19 disease has caused considerable psychological stress on health workers [4]. The main challenge for health workers is the risk of infection due to continuous contact with infected patients for a long time.

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Widespread infections and deaths among health care workers cause social and mental stress[5]. In addition, the continuous use of personal protective equipment (PPE) adds to physical fatigue and mental stress on health workers [6]. Health workers who are on the front lines during the pandemic are exposed to high chronic stress due to the high risk of infection and coupled with long working hours. These stress factors hurt sleep quality and mental health [7] [8] and finally burnout [9].

More than 40% of nurses and more than 30% of radiologists and pharmacists met burnout criteria. This study is the result of the first study to report the incidence of burnout among health workers in Japan during the pandemic [10]. The prevalence of burnout (68%) among nurses in the ICU during the COVID-19 pandemic, this incidence is higher than a previous study conducted in Belgium in the general nursing population where the prevalence ranged from 17% to 38% [11]. Based on the results of the study, it was found that poor sleep quality was positively correlated with nurse burnout [12].

Health workers on the front lines during a pandemic are exposed to high chronic stress due to the high risk of infection, and long working hours. These stress factors hurt sleep and mental health [13][8]. Lack of sleep quality during a pandemic can lead to an increase in burnout [14].

Sleep is one of the basic needs and must be regular so that a person can be physically and mentally healthy. Adequate sleep can be suggested as a very important parameter for mental health [14] and very important in preventing burnout [15]. This study aims to determine the relationship between sleep hygiene and nurse burnout in East Java.

METHOD

The research design used in this study is correlational analytic with a cross-sectional approach where the researcher emphasizes the measurement time or observation of independent and dependent variable data only once at a time. The population in this research were all nurses in East Java, Indonesia**.** The sample used was hypertensive patients with a sampling technique using consecutive sampling, within 2 weeks based on the researcher's criteria. The sample is 180 people. The research instrument uses a Burnout assessment (Maslach Burnout Syndrome Inventory-Human Services Survey (MBI-HSS)) and an assessment of sleep quality. (Pittsburgh Sleep Quality Index (PSQI)). The burnout variable was measured by the Maslach Burnout Syndrome Inventory-Human Services Survey Questionnaire (MBI-HSS). The burnout scale developed by Maslach in 1981 has been considered valid and reliable. The MBI-HSS scale consists of three dimensions, namely emotional exhaustion, depersonalization, and personal accomplishment. This questionnaire consists of 22 statement items [16].

Sleep quality variables were measured by the Pittsburgh Sleep Quality Index (PSQI)[17]. The 19-item PSQI is an instrument to measure sleep quality which consists of seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Respondents were asked to self-assess each of these seven domains using a 4-point Likert format with responses from 0 to 3, where higher scores mean poorer sleep quality in each domain. A global score from 0 to 5 can be obtained from the PSQI, with higher scores indicating poorer sleep [18].

Data collection in the research was carried out by researchers by providing research questionnaires to be filled in by respondents who had been selected based on the criteria determined by the researcher. The research instrument was given to respondents via the google form link. Once collected, data were checked for

completeness and entered into SPSS version 22.0 for further analysis. Data analysis was carried out by frequency distribution to get an overview of sleep quality and burnout. Data analysis using chi-square test.

RESULT

Based on table 1, it was found that more than 50% of respondents aged 21-30 years, i.e. 106 (58.9%), most of the respondents were female, namely 129 (71.7%), most of the respondents were married, as many as 111 (61,6%).

Table 1
Characteristic of Respondents (n=180)

Characteristics	*n* (%)
Age	
21 – 30 years	106 (58,9)
31 – 40 years	54 (30,0)
41 – 50 years	20 (11,1)
Gender	
Male	51 (28,3)
Female	129 (71,7)
Marital status	
Marry	111 (61,6)
Not married yet	66 (36,7)
Divorced	3 (1,7)
Education	
Nursing Diploma	66 (36,7)
Bachelor of nursing /health	109 (60,6)
Bachelor Non-Nursing	2 (1,0)
Megister/ Nursing Specialist	3 (1,7)
Work unit	
Hospitalization (Covid-19)	24 (13,4)
Hospitalization (non-Covid-19)	51 (28,3)
emergency room	8 (4,4)
ICU	20 (11,1)
ICCU	4 (2,2)
Other Units in the Hospital	33 (18,3)
Other health units/polyclinics	40 (22,3)
Total	180 (100)

Based on table 2, it is known that most of the respondents have good subjective sleep quality, as many as 100 respondents (55.6%), almost half of the respondents have a sleep latency score of 1-2, which is 72 respondents (40%) and have a sleep duration of 6-7. hours, namely as many as 84 respondents (46.7%), almost all respondents have Habitual Sleep Efficiency <65%, namely 172 respondents (95,6%), most of the respondents experienced sleep disturbance with a score of 1 - 9, namely 110 respondents (61,1%), almost all respondents did not use drugs to help sleep as many as 164 respondents (91.1%) and most of the respondents experienced daytime dysfunction with a score of 1 - 2 as many as 98 respondents (54.4%).

Table 2
Sleep Quality (n=180)

Sleep Quality	*n* (%)
Subjective Sleep Quality	
Very good	36 (20,0)
Well	100 (55,6)
Not enough	40 (22,2)
Very less	4 (2,2)
Sleep latency	
0	41 (22,8)
1 – 2	72 (40,0)
3 – 4	54 (30,0)
5 – 6	13 (7,2)
Sleep Duration	
> 7 hour	31 (17,2)
6-7 hour	84 (46,7)
5-6 hour	30 (16,7)
< 5 hour	35 (19,4)
Habitual Sleep Efficiency	
> 85%	2 (1,1)
75 – 84 %	0 (0)
65 – 74 %	6 (3,3)
< 65 %	172 (95,6)
Sleep Disturbance	
0	11 (6,1)
1 – 9	110 (61,1)
10 -18	53 (29,5)
19 – 27	6 (3,3)
Using Medication	
Never	164 (91,0)
1 x a week	11 (6,0)
2 x a week	4 (2,0)
>3x a week	1 (1,0)
Daytime Dysfunction	
0	65 (36,1)
1 – 2	98 (54,4)
3- 4	17 (9,5)
5- 6	0 (0)
Total	180 (100)

Table 3 shows that almost half of the respondents who had poor sleep quality did not experience burnout, as many as 87 respondents (48.3%), and only a small proportion of respondents who had good sleep quality experienced burnout, namely 4 respondents (2.2%). The results of the analysis using the chi-square test showed that the p-value -0.170 > 0.05 means that

there is no significant relationship between burnout and sleep quality.

Table 3
Cross Tabulation Sleep Quality With Burnout (n=180)

Sleep Quality	Burnout				Total		*p* value
	Burnout		No Burnout				
	f	%	f	%	f	%	
Well	4	2,2	10	5,6	14	7,8	0.170
Bad	79	43,9	87	48,3	166	92,2	
Total	83	46,1	97	53,9	180	100	

DICUSSION

Based on the results of the research, it was found that most of the respondents experienced poor sleep quality, as many as 166 respondents (92.4%). The psychological burden during the COVID-19 pandemic is associated with a decrease in the amount of sleep and the quality of sleep. This illustrates that the COVID-19 pandemic has something to do with sleep problems [19]. According to Waage [20] some nurses experienced sleep disturbances during the COVID-19 pandemic which was associated with problems of short sleep duration and poorer sleep quality. The results of this study are in line with research Tu, He and Zhou [21] which stated that the prevalence of poor sleep quality (75.72%) showed higher than 60%. A study conducted by Yeen Huang [22] stated that sleep quality disorders during the COVID-19 pandemic were found to be 35.1% and 18.2%, respectively. The nurses' mean PSQI score was 8 (IQR.5–10 and 6-10), which is similar to the mean of 8.48 ± 3.63 nurses in Wuhan measured during the COVID-19 pandemic. The increasing prevalence of poor sleep quality during COVID-19 can be attributed to several reasons including the increased workload coupled with excessive fear of transmission and influenced by demographic factors [23].

Most of the respondents in this study had poor sleep quality with the average PSQI score of 9 respondents as indicated by the results of 7 sleep quality indicators which showed that most of the respondents' subjective assessment of sleep quality was good, as many as 100 respondents (55.6%) , a small proportion of respondents took 16-30 minutes to start sleeping, almost only some respondents with 6-7 hours of sleep, namely as many as 84 respondents (46.7%), almost all respondents with habitual sleep efficiency <65%, namely 172 respondents (95.6%), most of the respondents experienced sleep disturbances at night, namely 110 respondents (61.1%), almost all respondents did not use drugs to help sleep as many as 164 (91.1%) and most of the respondents experienced not functioning sleep time during the day with a score of 1 – 2 as many as 98 respondents (54.%).

Based on the results of the study, it was found that the respondents who experienced burnout were 83 respondents (53.9%). During the COVID-19 pandemic nurses have higher burnout rates [24]. The results of this research are also in line with the results of the research Galanis [25] which in his research showed a significant prevalence of burnout in nurses during the COVID-19 pandemic based on an assessment using the MBI (Maslach Burnout Inventory) with the results that 34.1%, 15.2% and 12.6% of nurses experienced levels of emotional exhaustion, respectively. high, low personal achievement, and depersonalization. The results of this study also found that respondents who did not experience burnout, this could be due to the COVID-19 pandemic conditions when this research was conducted, but respondents were still wary of the occurrence of COVID-

19, which was indicated by the presence of several signs of burnout experienced by respondents.

Based on the results of the research, the analysis using the chi-square test showed that the p-value -0.170 > 0.170 means that there is no significant relationship between burnout and sleep quality. Lack of sleep has a significant negative effect on the personal life and results in a reduction in physical activity [26]. On the other hand, good quality sleep can quickly improve bodily functions, eliminate work-related burnout, maintain energy levels, and maintain psychological health [27]. Nurse working conditions with consecutive shifts, sleep disorders have a high prevalence [28].

Nurses are recognized as the largest group of health care workers. Anxiety, depression, substance abuse, aggression, and fatigue were the physical symptoms and mental disorders observed in this group [29]. The results of this study are not in line with the research Yuan, liao and Huang [30] who evaluated sleep quality during a pandemic using the PSQI scale and reported low sleep quality and increased burnout with sleep disturbances. This was also conveyed by Gao and Wang [31] in his research that good quality sleep is useful for reducing burnout. Song et al [32] in his research also stated that sleep quality as a mediator in the relationship between stress perception and burnout in nurses. In this research, there were respondents who had poor sleep quality who did not experience burnout. This is because there are several other factors that affect burnout such as age, gender, education, length of work, marital status, work stress, workload and personality type. In addition, there was a decrease in the number of Covid cases when the research was carried out.

CONCLUSION

There is no significant relationship between sleep quality and burnout, which means that poor sleep quality does not cause burnout for nurses during the COVID-19 pandemic. This study shows differences from previous studies.

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REFERENCES

[1] Guo Y, Cao Q, Hong Z, Tan Y, Chen S, Jin H, et al. The origin , transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak – an update on the status 2020:1–10.

[2] WHO. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020 2020. https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020.

[3] WHO. WHO Coronavirus (COVID-19) Dashboard 2021. https://covid19.who.int/.

[4] Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open 2020;3:1–12. https://doi.org/10.1001/jamanetworkopen.2020.3976.

[5] Talaee N, Varahram M, Jamaati H, Salimi A, Attarchi M, Dizaj MK, et al. Stress and burnout in health care workers during COVID-19 pandemic: validation of a questionnaire. Journal of Public Health (Germany)[revista en Internet] 2020 [acceso 20 de setiembre del 2020]. J Public Heal From Theory to Pract 2020:1–6.

[6] Al-rabiaah A, Temsah M, Al-eyadhy AA. Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia 2020.

[7] Kalmbach DA, Anderson JR, Drake. Vulnerability To Insomnia and Circadian Disorders 2020;27:1–39. https://doi.org/10.1111/jsr.12710.The.

[8] Qi J, Xu J, Li B, Huang J, Yang Y, Zhang Z. The evaluation of sleep disturbances for Chinese frontline medical workers under the outbreak of COVID-19 2020.

[9] Yifan T, Ying L, Chunhong G, Jing S, Rong W, Zhenyu L. Symptom Cluster of ICU Nurses Treating COVID-19 Pneumonia Patients in Wuhan , China 2020.

[10] Matsuo T, Kobayashi D, Taki F, Sakamoto F, Uehara Y. Prevalence of Health Care Worker Burnout During the Coronavirus Disease 2019 (COVID-19) Pandemic in Japan 2020;2019:2019–22. https://doi.org/10.1001/jamanetworkopen.2020.17271.

[11] Bruyneel A, Smith P, Tack J, Pirson M. Prevalence of burnout risk and factors associated with burnout risk among ICU nurses during the COVID-19 outbreak in French speaking Belgium. Intensive Crit Care Nurs 2021;65:103059. https://doi.org/10.1016/j.iccn.2021.103059.

[12] Giorgi F, Mattei A, Notarnicola I, Petrucci C, Lancia L. Can sleep quality and burnout affect the job performance of shift-work nurses ? A hospital cross-sectional study 2018:698–708. https://doi.org/10.1111/jan.13484.

[13] Kalmbach DA, Anderson JR, Drake CL. The impact of stress on sleep: Pathogenic sleep reactivity as a vulnerability to insomnia and circadian disorders. J Sleep Res 2018;27. https://doi.org/10.1111/jsr.12710.

[14] Yuan S, Liao Z, Huang H, Jiang B, Zhang X, Wang Y, et al. Comparison of the indicators of psychological stress in the population of hubei province and non-endemic provinces in China during two weeks during the coronavirus disease 2019 (COVID-19) outbreak in february 2020. Med Sci Monit 2020;26:1–10. https://doi.org/10.12659/MSM.923767.

[15] Sebastian C.K. Shaw. Hopelessness, helplessness and resilience: The importance of safeguarding our trainees' mental wellbeing during the COVID-19 pandemic. Nurse Educ Pract 2020;44:19–21.

[16] Maslach C, Jackson S, Leiter M. Malasch Burnout Inventory (3rd edition). Eval Stress A B Resour Vol 1 1986:191–218.

[17] Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. 1989.

[18] Simonetti V, Durante A, Ambrosca R, Arcadi P, Graziano G, Pucciarelli G, et al. Anxiety, sleep disorders and self-efficacy among nurses during COVID-19 pandemic: A large cross-sectional study. J Clin Nurs 2021;30:1360–71. https://doi.org/10.1111/jocn.15685.

[19] Ammar A, Mueller P, Trabelsi K, Chtourou H, Boukhris O, Masmoudi L, et al. Psychological consequences of COVID-19 home confinement: The ECLB-COVID19 multicenter study. PLoS One 2020;15:1–13. https://doi.org/10.1371/journal.pone.0240204.

[20] Waage S, Pallesen S, Vedaa Ø, Buchvold H, Blytt KM, Harris A, et al. Sleep patterns among Norwegian nurses between the first and second wave of the COVID-19 pandemic 2021:1–7.

[21] Tu ZH, He JW, Zhou N. Sleep quality and mood symptoms in conscripted frontline nurse in Wuhan, China during COVID-19 outbreak: A cross-sectional study. Medicine (Baltimore) 2020;99:e20769. https://doi.org/10.1097/MD.0000000000020769.

[22] Yeen Huang NZ. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: a web-based cross-sectional survey. Psychiatry Res 2020. https://doi.org/https://doi.org/10.1101/2020.02.19.20025395.

[23] Zhou Y, Ding H, Zhang Y, Zhang B, Guo Y, Cheung T, et al. Prevalence of poor psychiatric status and sleep quality among frontline healthcare workers during and after the COVID-19 outbreak: a longitudinal study. Transl Psychiatry 2021;11:1–7. https://doi.org/10.1038/s41398-020-01190-w.

[24] López-López, M. I, Gómez-Urquiza, J. L. C, Fuente D la, Albendín-García, et al. Prevalence of burnout in mental health nurses and related factors: A systematic review and meta-analysis. Int J Ment Health Nurs 2019;28(5):1035–1044. https://doi.org/https://doi.org/10.1111/inm.12606.

[25] Galanis P, Vraka I, Fragkou D, Bilali A, Kaitelidou D. Nurses ' burnout and associated risk factors during the 19 pandemic : A systematic review and meta- - analysis 2021:1–17. https://doi.org/10.1111/jan.14839.

[26] Kousloglou SA, Mouzas OD, Bonotis K, Roupa Z, Vasilopoulos A, Angelopoulos N V. Insomnia and burnout in Greek Nurses. Hippokratia 2014;18:150–5.

[27] Wu K, Wei X. Analysis of Psychological and Sleep Status and Exercise Rehabilitation of Front-Line Clinical Staff in the Fight Against COVID-19 in China. Med Sci Monit Basic Res 2020;26:e924085. https://doi.org/10.12659/MSMBR.924085.

[28] Yazdi Z, Sadeghniiat-Haghighi K, Javadi ARHS, Rikhtegar G. Sleep quality and insomnia in nurses with different circadian chronotypes: Morningness and eveningness orientation. Work 2014;47:561–7. https://doi.org/10.3233/WOR-131664.

[29] Perry L, Lamont S, Brunero S, Gallagher R, Duffield C. The mental health of nurses in acute teaching hospital settings: A cross-sectional survey. BMC Nurs 2015;14:1–8. https://doi.org/10.1186/s12912-015-0068-8.

[30] Yuan S, Liao Z, Huang H et a. Comparison of the Indicators of Psychological Stress in the Population of Hubei Province and Non-Endemic Provinces in China During Two Weeks During the Coronavirus Disease 2019 (COVID-19) Outbreak in February 2020. Med Sci Monit 2020;26 e923767. https://doi.org/doi:10.12659/MSM.923767.

[31] Gao X, Ma KL, Wang H, Gao Q, Lei LJ, Wang T. Association of sleep quality with job burnout among Chinese coal mine staff: a propensity score weighting analysis. Sci Rep 2019;9:1–9. https://doi.org/10.1038/s41598-019-45329-2.

[32] Song Y, Yang F, Sznajder K, Yang X. Sleep Quality as a Mediator in the Relationship Between Perceived Stress and Job Burnout Among Chinese Nurses: A Structural Equation Modeling Analysis. Front Psychiatry 2020;11:1–9. https://doi.org/10.3389/fpsyt.2020.566196.