mutiara medika
Jurnal Kedokteran dan Kesehatan
Vol 25 No 1 Page 28-36, January 2025

Mutiara Medika: Jurnal Kedokteran dan Kesehatan
http://journal.umy.ac.id/index.php/mm

Sleep Quality and Faculty Performance: A Multivariate Analysis of Influencing Factors

Fitria Ramadhani[1], Riry Ambarsarie[2*], Rizkianti Anggraini[3], Diah Ayu Aguspa Dita[4], Syeri Febrianti[5]

[1] Faculty of Medicine and Health Sciences University of Bengkulu, Bengkulu, Indonesia
[2] Department of Medical Education, Faculty of Medicine and Health Sciences University of Bengkulu, Bengkulu, Indonesia
[3] Department of Occupational Medicine, Faculty of Medicine and Health Sciences University of Bengkulu, Indonesia
[4] Department of Physiology, Faculty of Medicine and Health Sciences University of Bengkulu, Bengkulu, Indonesia
[5] Department of Epidemiology, Faculty of Medicine and Health Sciences University of Bengkulu, Bengkulu, Indonesia

DATE OF ARTICLE:
Received: 7 Aug 2024
Reviewed: 25 Oct 2024
Revised: 15 Dec 2024
Accepted: 31 Dec 2024

***CORRESPONDENCE:**
riryambarsarie@unib.ac.id

DOI:
https://doi.org/10.18196/mmjkk.v25i1

TYPE OF ARTICLE:
Research

Abstract: Sleep quality is a crucial factor influencing the well-being and performance of individuals. Several studies highlighted that sleep quality among university staff can be influenced by various factors. This study aimed to analyze the factors related to sleep quality and their impact on the work performance of Universitas Bengkulu's staff. The analytical observational with a cross-sectional approach was conducted on a sample of 115 lecturers at Universitas Bengkulu who met the criteria: aged 25-65 and have been teaching for at least three months. Sleep quality is measured with the Pittsburgh Sleep Quality Index (PSQI), and individual productivity is assessed using the Individual Work Productivity Questionnaire (IWPQ). The data analysis methods used are Chi-Square, Simple Logistic Regression, and Multiple Logistic Regression. The results of this study showed a significant relationship between sleep quality (p=0.041), sleep duration (p=0.02), and activity dysfunction (p=0.029) with work performance. The final multivariate modeling using logistic regression analysis revealed that sleep duration and activity dysfunction correlate with work performance (p=0.001). This study found that poor sleep quality and activity dysfunction significantly impact work performance, with less than 5 hours of sleep increasing the risk of low performance by up to 10.6 times.

Keywords: Sleep Quality, Work Performance, Lecture.

INTRODUCTION

Sleep quality is a crucial factor influencing the overall well-being and performance of individuals, including university staff. Good sleep quality is associated with numerous health benefits, such as improved cognitive function, emotional stability, and physical health. Conversely, poor sleep quality can lead to adverse outcomes like decreased cognitive performance, increased stress levels, and various health issues.[1]

In the context of higher education, university staff, including lecturers and administrative personnel, play a pivotal role in the academic and administrative success of institutions. Their performance directly impacts student outcomes, institutional reputation, and the overall educational environment.[2] Therefore, understanding the factors that influence the quality of sleep among university staff and how these factors affect their work performance is essential for developing effective interventions to enhance their well-being and productivity.

Several studies have highlighted that sleep quality among university staff can be influenced by various factors, including workload, stress levels, work-life balance, and environmental conditions.[3] For instance, high workload and job-related stress are commonly reported among university staff, leading to sleep disturbances and decreased work performance.[4] Additionally, the balance between professional responsibilities and personal life can significantly impact sleep quality. University staff who struggle to

balance these aspects often experience poor sleep quality, which, in turn, affects their professional efficacy and overall health.[5]

Environmental conditions, such as noise, light, and temperature, also play a significant role in sleep quality. Poor environmental conditions can disrupt sleep patterns, leading to inadequate rest and impaired daytime functioning.[6] Furthermore, personal health conditions, including mental health issues like anxiety and depression, can exacerbate sleep problems among university staff, further impacting their work performance.[7]

Despite the importance of sleep quality, there is limited research focusing specifically on university staff in Indonesia, particularly at the Universitas Bengkulu. Universitas Bengkulu is one of the two public higher education institutions in Bengkulu Province. It plays a significant role in producing quality graduates and contributing to regional development. To achieve this, the performance of its teaching staff must be optimal. This study is expected to provide data that can be used to design evidence-based interventions relevant to the conditions at Universitas Bengkulu. This study aims to fill this gap by analyzing the factors related to sleep quality and their impact on the work performance of staff at Universitas Bengkulu. By identifying these factors, the study seeks to provide insights that can inform the development of targeted interventions to improve the well-being and performance of university staff.

MATERIALS AND METHOD

The research design employed in this study was analytical observational with a cross-sectional approach. The analysis was conducted on a sample of 115 teaching staff at Universitas Bengkulu, selected through proportional random sampling. The independent variables in this study included subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The dependent variable was work performance. The data analysis methods used were Chi-Square, Simple Logistic Regression, and Multiple Logistic Regression.

Source Population and Study Population

The study targeted the teaching staff at Universitas Bengkulu, specifically active staff from the Faculties of Law, Economics and Business, Social and Political Sciences, Teacher Training and Education, Mathematics and Natural Sciences, Agriculture, Engineering, and Medicine and Health Sciences for the 2023/2024 academic year. The sample included all teaching staff who met the inclusion criteria across these 8 faculties, totaling 866 staff members.

Inclusion and Exclusion Criteria

The inclusion criteria in this study were being registered as a permanent or non-permanent lecturer who had been teaching for at least the last three months in any faculty and program at Universitas Bengkulu, aged between 25 and 65 years, and actively teaching at Universitas Bengkulu. The exclusion criteria were currently receiving psychiatric treatment, being on leave for more than one month before completing the questionnaire, or currently using antidepressants. The dropout criteria included incomplete completion of the questionnaire by the respondent and withdrawal of the respondent from the study.

Sample Size Determination and Sampling Technique

The sample size was calculated using the formula by Lemeshow et al. (1997) for estimating population proportions, resulting in a minimum of 97 samples. To account for potential attrition, the final sample size was set at 107 subjects. The sampling technique used was probability sampling with proportional random sampling, ensuring that every member had an equal chance of being selected according to their proportion within the population.[8]

Study Variables

The independent variables in this study were factors related to sleep quality among teaching staff at Universitas Bengkulu. These included both quantitative and qualitative aspects of sleep, such as sleep duration, sleep latency, frequency of awakenings, and subjective aspects like sleep depth and satisfaction. The dependent variable was the work performance of the teaching staff at Universitas Bengkulu for the year 2023.

Operational Definition and Definition of Terms Satisfactory knowledge: Sleep Quality Factors consist of: Subjective Sleep Quality: Self-assessment of overall sleep quality, rated as Very Good, Fairly Good, Fairly Poor, or Very Poor; Sleep Latency: Time required to fall asleep, categorized as ≤15 minutes (0), 16-30 minutes (1), 31-60 minutes (2), or >60 minutes (3); Sleep Duration: Total sleep time from falling asleep to waking up, categorized as >7 hours (0), 6-7 hours (1), 5-6 hours (2), or <5 hours (3); Sleep Efficiency: Ratio of Total Sleep Time (TST) to Time In Bed (TIB), rated as >85% (0), 75-84% (1), 65-74% (2), or <65% (3); Sleep Disturbances: Conditions affecting the amount, quality, or timing of sleep, scored as 0 (no disturbances), 1-9, 10-18, or 19-27 (severe disturbances); Use of Sleep Medication: Frequency of sleep medication use, rated as None (0), <1 time/week (1), 1-2 times/week (2), or ≥3 times/week (3); Daytime Dysfunction: Impairment in daily activities due to sleepiness, scored as 0 (no impairment), 1-2, or 3-4 (high impairment).[9] Work Performance: Overall effectiveness in completing tasks during a specific period, assessed using the Individual Work Performance Questionnaire (IWPQ), with ratings categorized as Low or High performance.[10]

Data Collection Instruments

Validity and reliability testing were conducted on 30 respondents with a table value of r = 0.361. The instrument is considered valid if the calculated r value is greater than the r table value. The validity test for the sleep quality instrument showed correlation values ranging from 0.474 to 0.607. All items in the PSQI instrument were declared valid. A variable is considered reliable if Cronbach's Alpha value is greater than 0.6, meaning the reliability is sufficient. The reliability test for the Pittsburgh Sleep Quality Index (PSQI) sleep quality instrument obtained a Cronbach's Alpha value of 0.830, and the instrument was declared reliable.

In this study, sleep quality factors were measured using the PSQI, which included 18 questions across 7 components, each rated on a scale from 0 to 3. These components were subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction. Individual productivity was assessed with the Individual Work Productivity Questionnaire (IWPQ), which evaluated three main dimensions: task performance, context performance, and counterproductive work behavior. Each item was rated on a five-point Likert scale (0–4) ranging from 'rarely' to 'always.' The average score for each dimension was calculated using the formula: Task Performance + Context Performance + (4 - Counterproductive Work Behavior). The total average score ranged from 0 (low) to 12 (high).

Data Quality Control

Data quality was controlled through training of data collectors on objectives, questionnaires, and ways of administering questionnaires. All filled questionnaires were checked for completeness, accuracy, and consistency.

Data Processing and Analysis

Univariate analysis was used to describe the distribution of age, gender, strata, and employment status, utilizing the Kolmogorov-Smirnov test due to the sample size being ≥ 50. Bivariate analysis was employed to examine the relationship between independent variables (factors related to sleep quality) and the dependent variable (work performance) using the Chi-Square test. Multivariate analysis was conducted to identify which independent variables (sleep quality factors) most significantly affected work performance among the teaching staff at Universitas Bengkulu, using logistic regression analysis.

Ethical Consideration

This study was conducted in accordance with the Declaration of Helsinki, which provides guidance for researchers to protect research subjects. The study was approved by the Institutional Research Review Committee of the Health Research Ethics Committee, Faculty of Medicine and Health Science, Bengkulu University, Bengkulu (ref. no. 55/UN30.14.9/LT/2024). Participants were informed that their participation was voluntary and made aware of the benefits and risks involved. Sample collection was carried out based on their agreement.

RESULT

Sociodemographic Characteristics

The majority of research subjects were aged between 25-45 years (81.7%), with ages ranging from 28 to 65 years. Most held the status of regular lecturers (94.8%), and all faculties/departments met the minimum subject requirement, with a total of 115 respondents. Additionally, 58.3% had worked for more than 5 years, and 73.9% held a Master's degree. Based on Table 1, it was found that 64.3% of the study subjects had fairly good subjective sleep quality. The performance level of lecturers was assessed through several performance indicators, including task performance, contextual performance, and counterproductive work behavior.

Table 1. Distribution of Research Subjects Based on Sleep Quality Factors

Variable	Category			
Subjective Sleep Quality	**Very Good**	**Fairly Good**	**Fairly Poor**	**Very Poor**
n	10	74	31	0
%	8.7%	64.3%	27%	0
Sleep Latency	**Score 0**	**Score 1-2**	**Score 3-4**	**Score 5-6**
n	26	60	25	4
%	22.6%	52.2%	21.7%	3.5%
Duration	**>7 hours**	**6-7 hours**	**5-6 hours**	**<5 hours**
N	9	4	47	55
%	7.8%	3.5%	40.9%	47.8%
Sleep Efficiency	**≥85%**	**75-84%**	**65-74%**	**≤65%**
n	108	6	0	1
%	93.9%	5.2%	0	0.9%
Sleep Disorders	**Score 0**	**Score 1-9**	**Score 10-18**	**Score 19-27**
n	6	92	17	0
%	5.2%	80%	14.8%	0
Use of Sleeping Pills	**Never**	**1x/week**	**2x/week**	**≥3x/week**
n	113	1	1	0
%	98.3%	0.9%	0.9%	0
Activity Dysfunction	**Score 0**	**Score 1-2**	**Score 3-4**	**Score 5-6**
n	34	71	10	0
%	29.6%	61.7%	8.7%	0

Based on Table 2, the distribution of research subjects based on work performance has an average work performance level of 8.03. After obtaining the results for subjective sleep quality and work performance, a bi-variate analysis was conducted using the Pearson Chi-Square Test to examine the relationship between subjective sleep quality and work performance, as shown in Table 3.

Table 2. Distribution of Research Subjects Based on Work Performance

Work Performance	n(%)
Mean ± SD	8.03 ± 1.63
High	53 (46.1%)
Low	62 (53.9%)

Table 3. Chi-Square Test Results for the Relationship Between Subjective Sleep Quality and Work Performance

Factors Affecting Sleep Quality	Low Work Performance n(%)	High Work Performance n(%)	*p*	OR	95%CI
Subjective Sleep Quality					
Very Good	3 (30%)	7 (70%)	0.041		
Fairly Good	37 (50%)	37 (50%)		2.3	0.56 – 9.72
Fairly Poor	22 (71%)	9 (29%)		5.7	1.20 – 27.11
Very Poor	0	0			

Data in Table 3 show a significant relationship between subjective sleep quality and work performance (p = 0.041). Subjects with 'very good' sleep quality had a higher proportion of high work performance (70%) compared to other groups. 'Very poor' sleep quality was associated with an increased risk of low work performance (OR = 5.7; 95% CI: 1.20–27.11). From Table 3, it can be seen that poor sleep quality significantly increases the risk of low work performance.

Table 4. Chi-Square Test Results for the Relationship Between Sleep Duration and Work Performance

Factors Affecting Sleep Quality	Low Work Performance n(%)	High Work Performance n(%)	p	OR	95%CI
Sleep Duration					
>7 hours	2 (22.2%)	7 (77.8%)			
6-7 hours	1 (25.0%)	3 (75.0%)	0.020	1.1	0.07-18.34
5-6 hours	22 (46.8%)	25 (53.2%)		3.0	0.57-16.40
<5 hours	37 (67.3%)	18 (32.7%)		7.1	1.30-38.19

Table 4 shows a significant relationship between sleep duration and work performance (p = 0.020). Subjects with a sleep duration of 7–8 hours had the highest proportion of high work performance (78.8%) compared to other durations. Sleeping less than 5 hours increased the risk of low performance (OR = 7.1; 95% CI: 1.3–38.19). This indicates that good sleep quality is important for maintaining work productivity. Based on the results in Table 4, it can be concluded that optimal sleep duration (7–8 hours) is associated with better work performance, and insufficient sleep duration (<5 hours) significantly increases the risk of low performance, emphasizing the importance of adequate sleep for optimal work performance.

Table 5. Chi-Square Test Results for the Relationship Between Activity Dysfunction and Work Performance

Factors Affecting Sleep Quality	Low Work Performance n(%)	High Work Performance n(%)	*p*	OR	95%CI
Activity Dysfunction					
Score 0	14 (41.2%)	20 (58.8%)			
Score 1-2	45 (63.4%)	26 (36.6%)	0.029	2.4	1.07-5.70
Score 3-4	3 (30.0%)	7 (70.0%)		0.6	0.135-2.78
Score 5-6	0	0		0.7	

Based on Table 5, it can be seen that there is a significant relationship between activity dysfunction and work performance (p = 0.029). The activity dysfunction score of 1–2 showed a higher proportion of high work performance (68.8%) compared to other scores. Higher activity dysfunction scores (>3) did not show a significant proportion of high work performance. Overall, it appears that low-level activity dysfunction (scores 1–2) still allows for good work performance. However, increased activity dysfunction seems to

correlate with a decline in work performance, although it was not significant for scores 3–4 and 5–6. From Tables 3,4, and 5 above, Variables with a p-value < 0.25—subjective sleep quality, sleep duration, and activity dysfunction—were included in the multivariate model and tested with logistic regression. The significance level for the study was set at p < 0.1 using the backward stepwise (Wald) method.

Table 6. Multivariate Analysis Results: Step 1 of Logistic Regression Testing Between Independent Variables and the Dependent Variable

Variable	OR (Exp.B)	95% CI Exp.B	*p*
Subjective Sleep Quality			**0.112**
Subjective Sleep Quality (1)	1.571	0.317 – 7.798	0.580
Subjective Sleep Quality (2)	4.257	0.741 – 24.447	0.104
Sleep Duration			**0.005**
Sleep Duration (1)	0.863	0.046 - 16.083	0.922
Sleep Duration (2)	2.311	0.412 – 12.972	0.341
Sleep Duration (3)	9.739	1.710 – 55.481	0.010
Activity Dysfunction			**0.021**
Activity Dysfunction (1)	1.955	0.738 – 5.178	0.177
Activity Dysfunction (2)	0.224	0.043 – 1.167	0.076

In the first step in Table 6, the independent variable, subjective sleep quality, was excluded from the model because its p-value was > 0.1. Variables that can be included in the next step of the logistic regression model are those with a p-value < 0.1. The next steps are detailed in the following Table 7.

Based on the results of the study, Table 6 shows that the component of Subjective Sleep Quality is not significant (p > 0.1) and was therefore excluded from the logistic regression model at this stage. Sleep Duration and Activity Dysfunction had p-values < 0.1, so they were included in the final model. Sleep Duration Category 3 showed the highest OR (9.239; 95% CI: 1.710–55.481; p = 0.009), indicating a higher risk associated with this variable. Activity Dysfunction category 2 had an OR of 0.224 (95% CI: 0.048–1.067), with p = 0.076, which is close to being significant. Sleep duration and activity dysfunction variables have a potential impact on the dependent variable, so they were continued to the final regression model. The subjective sleep quality variable did not play a significant role in this model.

Table 7. Multivariate Analysis Results: Final Model of Logistic Regression Between Independent Variables and the Dependent Variable

Variable	OR (Exp.B)	95% CI Exp.B	*p*
Sleep Duration			0.006
Sleep Duration (1)	1.581	0.094 – 26.603	0.750
Sleep Duration (2)	2.765	0.504 – 15.173	0.242
Sleep Duration (3)	10.641	1.857 – 60.678	0.008
Activity Dysfunction			0.006
Activity Dysfunction (1)	2.525	1.003 – 6.359	0.049
Activity Dysfunction (2)	0.251	0.500 – 1.261	0.037

Based on Table 7, it can be seen that Sleep Duration has a significant effect on performance (p = 0.006), particularly in Sleep Duration category 2 (OR = 2.765; 95% CI: 1.054–7.159; p = 0.038) and Sleep Duration category 3 (OR = 10.641; 95% CI: 1.857–60.678; p = 0.008). Additionally, Activity Dysfunction is also significant, specifically in Activity Dysfunction category 3 (OR = 2.525; 95% CI: 1.003–6.359; p = 0.049), which shows a significant impact on low performance, and Activity Dysfunction category 2 (OR = 0.251; 95% CI: 0.050–1.261; p = 0.037), indicating a protective relationship. Short sleep duration (categories 2 and 3) significantly increases the risk of low performance, particularly in Sleep Duration category 3, which shows the highest risk. Meanwhile, high-level activity dysfunction (category 3) correlates with an increased risk of low performance, whereas Activity Dysfunction category 2 has a protective effect on performance.

DISCUSSION

The study found that most subjects are between 25 and 45 years old and have been working for over 5 years. The majority of subjects are regular lecturers with a Master's degree, aligning with data from the 2020 PDDikti report, which shows most Indonesian lecturers hold a Master's degree with few additional responsibilities. According to the 2021 Law on Teachers and Lecturers, lecturers' workload includes a minimum of 12 and a maximum of 16 credit units per semester, covering education, research, and community service, along with additional supporting tasks.

The study sample comprises 115 participants from various faculties at Universitas Bengkulu: 27 from the Faculty of Teacher Training and Education, 8 from the Faculty of Law, 12 from the Faculty of Economics and Business, 9 from the Faculty of Social and Political Sciences, 25 from the Faculty of Agriculture, 15 from the Faculty of Mathematics and Natural Sciences, 11 from the Faculty of Engineering, and 8 from the Faculty of Medicine and Health Sciences. This sample meets the minimum requirement and includes representation from all 8 faculties at the university.

The study found that 27% of participants rated their sleep quality as poor, likely due to insufficient sleep, with many getting less than 5 hours per night. Most subjects had reasonable sleep latency, averaging 16-30 minutes.[11] However, 3.5% experienced very poor sleep latency, potentially influenced by stress, depression, and environmental factors.[12]

A significant portion of participants had a sleep duration of less than 5 hours, despite CDC recommendations for at least 7 hours. This short duration may be due to additional work done at home. [13] Despite this, 93.9% of respondents had high sleep efficiency, suggesting they used their sleep time effectively.[12]Most participants had minimal sleep disturbances and did not use sleep medications, indicating no severe sleep disorders. However, some experienced moderate dysfunction in daytime activities, possibly due to insufficient sleep, affecting productivity.[15]

Based on Table 3, subjective sleep quality has a significant relationship with work performance ($p = 0.041$). Subjects with "very good" sleep quality had a higher proportion of high performance (70%) compared to other groups. Conversely, subjects with "very poor" sleep quality showed an increased risk of low performance (OR = 5.7; 95% CI: 1.20–27.11). Poor sleep quality can lead to reduced concentration, persistent fatigue, and mood disturbances, which negatively impact work performance. This highlights the importance of maintaining sleep quality for optimal productivity. Overall, the majority had poor sleep quality, which can lead to decreased concentration, ongoing fatigue, and mood disturbances, potentially impacting their work performance.[16] The study reveals that most participants exhibited low work performance levels. Effective performance for educators includes planning, executing, and evaluating teaching programs. The low-performance levels in this study may be attributed to factors such as the heavy workload of faculty members, including administrative tasks, research, and teaching, which can lead to fatigue and decreased productivity.

Poor sleep quality negatively affects both physical and psychological conditions, leading to fatigue that impacts work performance. Research shows that employees with poor sleep quality often have lower performance and difficulties with concentration, organization, and patience with colleagues. The results in Table 4 show a significant relationship between sleep duration and work performance ($p = 0.020$). Subjects who slept for 7–8 hours had the highest proportion of high performance (78.8%). Conversely, sleeping less than 5 hours significantly increased the risk of low performance (OR = 7.1; 95% CI: 1.3–38.19). Optimal sleep duration (7–8 hours) is essential for maintaining productivity and work performance. Insufficient sleep duration significantly increases the risk of fatigue and decreased performance, supporting the CDC recommendation of at least 7 hours of sleep per night.

Sleep latency, the time taken to fall asleep from a wakeful state, is a key indicator of sleep quality, with a normal range of 10-15 minutes.[18] Research shows no significant relationship between sleep latency and work performance, which also indicates that sleep latency does not affect work performance. Although sleep latency increases on workdays compared to days off, this increase does not impact cognitive performance.[19] The results from Table 5 show a significant relationship between activity dysfunction and work performance ($p = 0.029$). Subjects with low activity dysfunction scores (1–2) had a higher proportion of high performance (68.8%) compared to other scores. Although higher activity dysfunction scores (>3) did not show a significant proportion of high performance, an increase in activity dysfunction appears to correlate with decreased work performance. Low activity dysfunction still allows for good work performance, but high dysfunction may lead to disruptions in daily tasks, fatigue, work errors, and decreased efficiency.

Bi-variate analysis reveals a relationship between sleep duration and work performance, which found that sleep duration impacts lecturer performance, with those experiencing sleep deprivation at a higher risk of work fatigue compared to those with adequate sleep. Multivariate analysis indicates that sleep duration is a dominant factor affecting the work performance of the University of Bengkulu's staff. Sleeping less than 5 hours increases the risk of low work performance by up to 10.6 times compared to those who sleep more than 7 hours. Prolonged sleep deprivation can reduce lecturer quality, potentially impacting student or graduate quality.[20]

Bi-variate analysis found no link between sleep efficiency and work performance. Pearson Chi-Square test results also showed no relationship between sleep medication use and work performance. While most respondents did not use sleep medications, two who did had lower performance, contradicting the other research, which suggested that sleep medications might improve performance.[21] Discrepancies may stem from different population characteristics and limited data on medication types. The bivariate analysis found that activity dysfunction affects work performance. Reported that daytime activity dysfunction due to sleep issues disrupts daily activities and increases the risk of errors and accidents, reducing work performance.

Multivariate analysis identified activity dysfunction as a major factor influencing work performance at the University of Bengkulu. Based on Table 6, the component of Subjective Sleep Quality was not significant ($p > 0.1$) and was excluded from the logistic regression model. Meanwhile, Sleep Duration and Activity Dysfunction had p-values < 0.1 and were therefore included in the final model. In the final model presented in Table 7, the variables Sleep Duration and Activity Dysfunction remained significant in relation to work performance. Short sleep duration, particularly <5 hours, increased the risk of performance decline, with Sleep Duration category 3 showing the highest risk. Additionally, high levels of activity dysfunction correlated with low performance, whereas low levels of activity dysfunction could be protective.

This study consistently demonstrated that subjective sleep quality, sleep duration, and activity dysfunction influence the work performance of teaching staff. Short sleep duration (<5 hours) increased the risk of low performance by up to 10.6 times, poor sleep quality raised the risk of low performance by up to 5.7 times, and high activity dysfunction negatively impacted performance. Conversely, low-activity dysfunction may have a protective effect.

Therefore, maintaining optimal sleep duration (7–8 hours) and addressing activity dysfunction are key factors in improving teaching staff performance. Enhancing sleep quality and managing daily activities should be priorities to optimize the productivity of educators.

CONCLUSION

This study found that sleep duration and activity dysfunction significantly impact work performance among lecturers at the University of Bengkulu. Short sleep duration (<5 hours) increased the risk of low performance by up to 10.6 times, while poor sleep quality raised the risk by up to 5.7 times. Additionally, high activity dysfunction correlated with decreased performance, whereas low dysfunction may offer a protective effect. These results align with previous research showing that inadequate sleep negatively affects productivity and cognitive function. However, subjective sleep quality was not a significant predictor, and the use of sleep medications showed no clear effect on performance. The strength of the study lies in its comprehensive approach to analyzing the role of sleep and activity dysfunction, but its limitation is that the research was conducted solely within the scope of the teaching staff at the University of Bengkulu and the exclusion of certain variables.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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