

The Influence of Sleep, Motivation, Workload, Support, and Tenure on Nurse Productivity at XYZ Psychiatric Hospital

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Abstract

Nurse productivity plays a vital role in ensuring the quality of healthcare delivery, particularly within psychiatric hospital settings that present complex occupational demands. This study investigates the relationship between sleep quality and work motivation in relation to nurses' productivity and evaluates the combined influence of both factors. Employing a quantitative correlational method with a cross-sectional design, the research involved 100 nurses from XYZ Mental Hospital, selected using non-purposive sampling techniques. Measurement instruments comprised the Pittsburgh Sleep Quality Index (PSQI), Work Extrinsic and Intrinsic Motivation Scale (WEIMS), NASA Task Load Index (NASA-TLX), Multidimensional Scale of Perceived Social Support (MSPSS), and both objective and subjective indicators, including demographic data and perceived length of service. Work productivity was assessed using the Work Productivity and Activity Impairment Questionnaire (WPAI). Data analysis was performed with SPSS version 26, utilizing Pearson correlation and multiple linear regression techniques. The findings of this study are expected to inform strategic interventions aimed at enhancing nurse productivity through targeted improvements in sleep quality and work motivation

Keywords: *Healthcare performance, Sleep quality, Work motivation, Work productivity.*

INTRODUCTION

Public service responsibilities in the digital era, offering evidence-based recommendations for digital literacy initiatives (Riduan et al., 2024). Nurses' work productivity plays a pivotal role in enhancing healthcare quality. Nevertheless, multiple factors influence this productivity, notably sleep quality and work motivation. Implementing a healthy lifestyle is essential for enhancing overall human well-being and quality of life (Sufa et al., 2017). Sleep disturbances frequently occur among healthcare professionals, primarily due to irregular shift patterns, which adversely affect both their motivation and performance. Sehsah (2023) identified a significant relationship between poor sleep quality, excessive daytime sleepiness, and insomnia with diminished workplace performance. The OISQ scores were notably higher among shift workers (48.6 ± 27.2) compared to their non-shift counterparts (29.7 ± 29.3), demonstrating that sleep disturbances exert a detrimental effect on work efficiency.

The quality of employee performance is also influenced by motivation (Harijanti et al., 2021). Furthermore, Yeo et al. (2022) emphasized that a decline in sleep quality substantially contributes to both mental and physical fatigue, subsequently reducing health workers' motivation to perform their professional duties effectively. This decline directly impairs the quality of patient interactions, the accuracy of clinical decision-making, and the level of alertness during medical procedures. Sleep disorders also elevate the risk of clinical errors, impacting administrative tasks, pharmacological management, and critical decision-making in inpatient and emergency care settings.

Cognitive fatigue among healthcare personnel impairs analytical thinking and decision making, delaying responses to emergencies and threatening patient safety. Even when mild depressive symptoms in shift workers are not statistically prominent, high occupational stress and insufficient rest worsen mental health, reduce concentration and alertness, slow reaction times, and increase errors and accidents. These conditions ultimately lower productivity and raise absenteeism rates. Many studies have explored factors affecting healthcare professionals'

productivity, but few have examined the combined effects of sleep quality and work motivation in mental health settings. This study fills that gap by offering new insights into how these two variables jointly shape the delivery and effectiveness of mental health services.

The Equity Theory, proposed by John Stacey Adams, posits that individual motivation and job satisfaction are influenced by perceptions of fairness in the comparison between their contributions and the rewards they receive. Individuals assess this input-output ratio both through self-evaluation and by comparing themselves with colleagues in similar roles or professions. When perceptions of inequity arise, individuals may experience diminished motivation, job dissatisfaction, and an increased intention to leave the organization (Rahman et al., 2023).

This theory underscores the critical role of fairness in various organizational practices, including compensation, opportunities for career advancement, work-life balance, and non-monetary rewards (Ryan, 2022). Empirical studies indicate that perceptions of equitable remuneration systems significantly enhance employee commitment and loyalty, including within higher education institutions (Rahman et al., 2023). Furthermore, heightened sensitivity to fairness motivates employees to seek rewards proportionate to their contributions (Mensah et al., 2020).

Effective application of Equity Theory principles is essential for organizational management, particularly in developing transparent recruitment and retention strategies and establishing fair reward systems (Ryan, 2022). Additionally, the theory remains relevant in promoting gender equality in compensation and addressing structural inequalities in the workplace (Sowadski, 2022). Abraham Maslow, in his foundational work *A Theory of Human Motivation* (1943), introduced a hierarchical model that systematically classifies human needs into five ascending levels. This framework offers a structured approach to understanding the progressive nature of human motivation. The model illustrates a sequential hierarchy, typically represented as a pyramid, indicating that the fulfillment of fundamental needs serves as a prerequisite for addressing higher-level aspirations. These five hierarchical levels consist of physiological needs, safety and security needs, social needs for belonging and affection, esteem needs, and the need for self-actualization (Asaduddin & Arofiati, 2023).

At its foundational tier, physiological needs encompass essential factors for human survival, such as adequate nutrition, water, shelter, and sufficient rest. Maslow posited that these needs must be satisfied before individuals can pursue subsequent levels of security and stability, which involve personal safety, health protection, financial security, and general well-being (Roy, 2021). Once these foundational needs are addressed, individuals typically seek social affiliation through meaningful interpersonal relationships with family members, peers, and significant others. Healthy emotional bonds foster psychological balance, while their absence can result in loneliness and social isolation.

The fourth level focuses on esteem needs, where individuals aspire to achieve recognition, respect from others, and a heightened sense of self-worth. Fulfilling these needs is critical for the development of confidence and personal competence (Asaduddin & Arofiati, 2023). Self-actualization occupies the highest position within the hierarchy, signifying the attainment of an individual's full potential, continuous personal development, and a deep sense of self-fulfillment. Maslow emphasized that self-actualization drives individuals to achieve their highest capabilities (Roy, 2021).

Although Maslow's model outlines a linear progression, he acknowledged the dynamic nature of human needs, wherein individuals may move between different levels depending on situational factors and life experiences (Ghaleb, 2024). In practical contexts, Maslow's theory has exerted substantial influence across various disciplines, such as psychology, education, and organizational management. Practitioners and researchers often utilize it as a foundational framework for evaluating employee motivation and engagement within institutional environments. Many organizations implement its principles to create work environments that

address employees' basic and higher-order needs, ultimately enhancing motivation and productivity (Oppong-Gyebi et al., 2024).

Moreover, the theory maintains relevance in contemporary contexts, such as mental health management and social media engagement, demonstrating its adaptability in explaining varied motivational factors (Fayez et al., 2023). In healthcare services, Maslow's hierarchy functions as a guiding framework for understanding and addressing patients' physical and emotional needs, which is essential for comprehensive treatment planning (Cui, 2023). Similarly, in educational environments, educators use the model to design effective teaching strategies and foster supportive learning atmospheres (Oppong-Gyebi et al., 2024). Concurrently, the Job Demands-Resources (JD-R) model, formulated by Bakker and Demerouti in the early 2000s, provides a comprehensive theoretical framework for examining employee well-being, motivation, and performance within organizational contexts. This model posits that the interplay between job demands and job resources directly influences psychological health and motivational outcomes (Tummers & Bakker, 2021).

Job demands refer to aspects of the work environment that necessitate continuous physical or psychological exertion, including high workload, role ambiguity, emotional strain, and time-related pressures, all of which may lead to stress and burnout. In contrast, job resources, whether physical, psychological, social, or organizational, function to support goal achievement, buffer the negative impact of job demands, and promote both personal and professional growth among employees. These resources include social support, job autonomy, opportunities for professional advancement, and constructive feedback (Naveed et al., 2022). A core principle of the Job demands-R model posits that the presence of sufficient job resources significantly enhances employee motivation and fosters greater work engagement., thereby counteracting the negative effects of high job demands. Imbalances, particularly when demands outweigh available resources, can result in emotional exhaustion and diminished engagement (Monaghan et al., 2024).

Empirical research consistently validates the JD-R model across diverse industries and cultural contexts. In healthcare settings, its application has proven effective in increasing workforce engagement and reducing the detrimental impact of elevated job demands (Demerouti & Bakker, 2022). Furthermore, national cultural factors have been identified as moderating variables within the demands-resources-performance relationship, highlighting the model's cross-cultural applicability (Galanakis & Tsitouri, 2022).

Effective leadership holds a critical function in regulating the equilibrium between job demands and available resources. Supportive leadership practices not only enhance resource availability but also create work environments conducive to employee well-being (Pletzer et al., 2023). The Job demands -R model has become increasingly pertinent in responding to contemporary workplace challenges, especially during crises like the COVID-19 pandemic, which intensified job demands while simultaneously restricting access to essential resources. Organizations are thus encouraged to develop resilient support systems to sustain employee motivation and performance under such conditions (Girardi et al., 2024).

In this context, this study aims to explore the relationship between sleep quality, work motivation, and several other variables such as workload, social support at work, and length of service on work productivity of nurses at XYZ Mental Hospital. Moreover, the study investigates the concurrent interaction between sleep quality and work motivation in shaping work productivity, aiming to offer a comprehensive analysis of the factors that determine nurses' performance. Based on the findings, this study formulates strategic recommendations that emphasize interventions designed to improve sleep quality and enhance work motivation to optimize nurses' productivity.

The findings of the study demonstrated that nurses frequently experienced disruptions in their sleep patterns as a consequence of shift work schedules and highly stressful workplace

conditions. These disruptions ultimately contributed to elevated fatigue and increased incidences of presenteeism, characterized by physical presence without corresponding optimal productivity. For instance, research indicated that nurses working rotational or night shifts consistently reported poorer sleep quality, which subsequently resulted in diminished work productivity and heightened levels of fatigue (Muzio et al., 2020). Based on the following explanation, the first hypothesis in this study is **H1**: Sleep quality has a positive relationship with nurses' work productivity.

The association between work motivation and nurses' productivity is increasingly recognized as a critical determinant in enhancing the quality of healthcare services. Substantial evidence indicates that elevated levels of work motivation among nurses positively influence their job performance, thereby contributing to improved quality of care and better patient outcomes. When nurses perceive themselves as empowered within their professional roles, they consistently report higher job satisfaction and motivation, which serve as significant predictors of enhanced performance (Saleh et al., 2022). Based on the following explanation, the first hypothesis in this study is **H2**: Work motivation has a positive relationship with nurses' work productivity.

Nurses' workloads encompass both direct patient care and ancillary administrative responsibilities, thereby imposing greater demands on their time and emotional capacity. Alghamdi (2016) emphasized that nurses' duties involve not only essential patient-related tasks but also non-clinical obligations, which often intensify feelings of burden and stress. These concerns are further supported by Wallet et al. (2024), who asserted that equitable workload distribution is critical for sustaining nurse satisfaction, mitigating fatigue, and ensuring patient safety through appropriate staffing levels. Additionally, Ferramosca et al. (2023) found that the structural organization of nursing tasks significantly influences workload across multiple dimensions, which consequently affects the physical and emotional demands placed on nurses. In light of these findings, this study proposes the third hypothesis **H3**: Workload significantly influences nurses' work productivity.

Social support plays a critical role in enhancing nurses' Employee satisfaction and job performance. Xu et al. (2024) highlight that nurses who possess high levels of social capital characterized by supportive interactions with colleagues and supervisors demonstrate greater effectiveness in managing clinical risk behaviors and minimizing workplace accidents. In a similar vein, Nazari et al. (2024) argue that both perceived and received social support from peers contribute to stress reduction and an overall improvement in job satisfaction. Furthermore, Istichomah et al. (2021) found a positive correlation between elevated levels of social support and increased job satisfaction, as well as greater competence in managing occupational demands, ultimately leading to enhanced productivity. Based on these findings, this study formulates the fourth hypothesis **H4**: Social support in the workplace has a significant effect on nurses' work productivity.

Length of service serves as a critical factor in shaping nurses' work productivity, as evidenced by numerous studies examining the relationship between professional tenure and job-related outcomes. The existing body of literature suggests that nurses with extended years of service generally report higher levels of job satisfaction, reduced occupational stress, and a stronger sense of organizational commitment all of which contribute positively to their productivity and professional effectiveness (Akanni et al., 2022). Baek et al. (2019) further note that nurses with extensive experience, particularly those with more than 20 years of service, tend to maintain consistent levels of job satisfaction, indicating that accumulated professional experience may buffer against external stressors commonly encountered by less experienced personnel. Drawing upon these findings, the study formulates its fifth hypothesis as follows **H5**: Length of service has a significant effect on nurses' work productivity.

The interaction among sleep quality, work motivation, workload, social support, and length of service significantly shapes nurses' work productivity. Poor sleep quality, especially under rotating or night shifts, lowers functional outcomes and task performance (Al-Yousif et al., 2025; Sri Rahayu et al., 2025; Turner et al., 2023). Elevated job demands and heavy workloads worsen sleep and accelerate the health-impairment process described in the JD-R model, reducing performance (Bakker & Demerouti, 2007; Lyons et al., 2022; Putri et al., 2023). Work motivation acts as a key resource that sustains effort and improves nurse performance and productivity (Rau et al., 2025; Priyanti et al., 2024). Social support from supervisors and colleagues buffers the negative impact of high workload by reducing stress, fatigue, and burnout (Žilinskas et al., 2022; Nur et al., 2025). Length of service may strengthen coping and role mastery, although evidence on its protective effect against exhaustion remains mixed (Lim et al., 2019; Nur et al., 2025). On this basis, this study proposes **H6**: Sleep quality, work motivation, workload, social support, and length of employment simultaneously have a significant effect on nurses' work productivity.

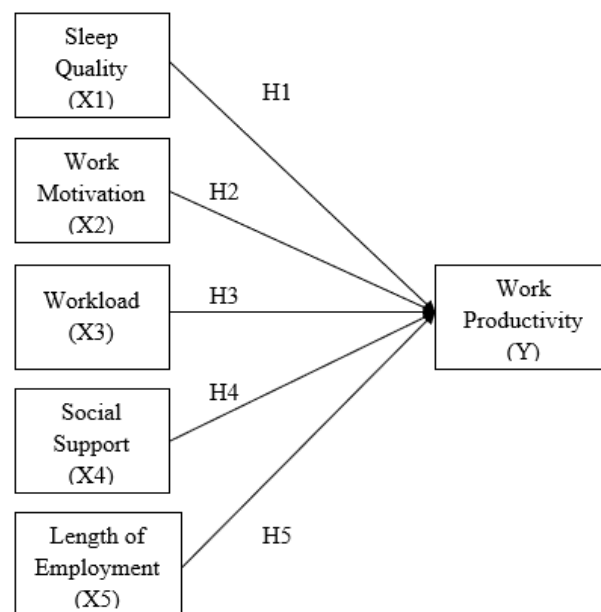


Figure 1. Hypothesis Flow Diagram

RESEARCH METHODS

This study used a quantitative, correlational, cross-sectional design to examine how sleep quality and work motivation relate to work productivity among nurses in a mental health setting (Creswell & Creswell, 2018). A total of 100 nurses at XYZ Mental Hospital Surabaya were recruited through nonpurposive sampling based on a valid nursing license and at least one year of shift work, with sample size determined using G*Power and supported by ethical approval and written informed consent. Over four weeks, data were collected via structured online and in-person surveys containing demographic items and six validated instruments: PSQI for sleep quality, WEIMS for work motivation, NASA TLX and additional indicators for workload, MSPSS adapted to the workplace for social support, and WPAI for work productivity, all with acceptable Cronbach's alpha values. Using SPSS 26, descriptive statistics, reliability analysis, Pearson correlations, and multiple linear regression tested H1 to H6 on the joint effects of sleep quality and motivation on productivity after confirming normality, multicollinearity, and

homoscedasticity, with $p < 0.05$, standardized beta, and R^2 guiding interpretation and informing strategies to improve nurse productivity through better sleep and workplace motivation.

RESULT AND DISCUSSION

Validity Test

The validity assessment in this study aims to ensure that the instrument precisely captures and measures the constructs it was designed to evaluate. In the context of quantitative research, validity denotes the degree to which a measuring instrument precisely and accurately represents the concepts under investigation (Budiastuti & Bandur, 2018).

Table 1: Sleep Quality (X1)

No.	R Count	R Table	Description
1	0.499	0.1966	Valid
2	0.394	0.1966	Valid
3	0.374	0.1966	Valid
4	0.552	0.1966	Valid
5	0.419	0.1966	Valid

Table 2: Work Motivation (X2)

No.	R Count	R Table	Description
1	0.498	0.1966	Valid
2	0.455	0.1966	Valid
3	0.519	0.1966	Valid
4	0.393	0.1966	Valid
5	0.378	0.1966	Valid

Table 3: Workload (X3)

No.	R Count	R Table	Description
1	0.355	0.1966	Valid
2	0.569	0.1966	Valid
3	0.494	0.1966	Valid
4	0.425	0.1966	Valid
5	0.409	0.1966	Valid

Table 4: Social Support in the Workplace (X4)

No.	R Count	R Table	Description
1	0.411	0.1966	Valid
2	0.360	0.1966	Valid
3	0.367	0.1966	Valid
4	0.448	0.1966	Valid
5	0.465	0.1966	Valid

Table 5: Length of Service (X5)

No.	R Count	R Table	Description
1	0.492	0.1966	Valid
2	0.384	0.1966	Valid
3	0.533	0.1966	Valid
4	0.310	0.1966	Valid
5	0.541	0.1966	Valid

Table 6: Work Productivity (Y)

No.	R Count	R Table	Description
1	0.297	0.1966	Valid
2	0.438	0.1966	Valid
3	0.526	0.1966	Valid
4	0.486	0.1966	Valid
5	0.412	0.1966	Valid

The validity test evaluated whether the instrument accurately measured the intended constructs by comparing item–total correlation coefficients with an *r* table value of 0.1966 at a 5% significance level for 121 respondents. All items across the six variables exceeded this threshold. Sleep Quality (X1) items had *r* values of 0.374–0.552, Work Motivation (X2) 0.378–0.519, Workload (X3) 0.355–0.569, Social Support (X4) 0.360–0.465, Length of Service (X5) 0.310–0.541, and Work Productivity (Y) 0.297–0.526. These results confirm that every item is valid and that the instrument is appropriate for measuring all constructs in the study.

Reliability Test

The reliability test serves to assess the extent to which a research instrument consistently generates stable and dependable data. A research instrument is deemed reliable when it produces consistent outcomes across repeated measurements conducted under equivalent conditions. In quantitative research, reliability is typically evaluated through two principal methods: test-retest reliability, which examines the temporal stability of measurement results, and internal consistency, which assesses the interrelatedness of items within the instrument. Cronbach's Alpha coefficient is among the most widely applied statistical measures for evaluating internal consistency (Budiastuti & Bandur, 2018).

Table 7: Reliability Test

Variable	Cronbach Alpha	R table	Description
Sleep Quality (X1)	0.691	0,60	Reliable
Work Motivation (X2)	0.602	0.60	Reliable
Workload (X3)	0.605	0.60	Reliable
Social Support in the Workplace (X4)	0.545	0.60	Not Reliable
Length of Service (X5)	0.608	0.60	Reliable
Work Productivity (Y)	0.678	0.60	Reliable

The reliability analysis confirmed the internal consistency of the research instruments across the examined variables. The Sleep Quality variable (X1) achieved a Cronbach's Alpha value of 0.691, exceeding the minimum threshold of 0.60, thereby validating the reliability of its measurement scale. The Work Motivation variable (X2) produced a reliability coefficient of 0.602, slightly above the cutoff, indicating that the instrument used is acceptably reliable.

The Workload variable (X3) demonstrated a Cronbach's Alpha of 0.605, affirming the reliability of the items used to assess workload. In contrast, the Social Support in the Workplace variable (X4) yielded a reliability coefficient of 0.545, which falls below the acceptable limit, suggesting insufficient internal consistency. This result implies that the corresponding instrument may require modification or further refinement.

The Length of Service variable (X5) recorded a Cronbach's Alpha of 0.608, slightly above the threshold, indicating adequate reliability for measuring tenure. Finally, the Work Productivity variable (Y) obtained a Cronbach's Alpha of 0.678, demonstrating satisfactory internal consistency and confirming the reliability of the indicators for further statistical analysis.

Classical Assumption Test

Normality Test

The normality test evaluates whether the data obtained in the study conform to a normal distribution. This distribution serves as a fundamental assumption for conducting parametric statistical analyses, such as linear regression and analysis of variance. Researchers commonly employ the Kolmogorov-Smirnov test to evaluate this assumption. Data are considered to be

normally distributed when the significance value (p-value) exceeds 0.05 (Budiastuti & Bandur, 2018).

Table 8: Normality Test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sleep Quality (X1)	,089	100	,048	,987	100	,436
Work Motivation (X2)	,094	100	,030	,981	100	,152
Workload (X3)	,078	100	,144	,985	100	,305
Social Support in the Workplace (X4)	,096	100	,023	,985	100	,343
Length of Service (X5)	,103	100	,010	,987	100	,470
Work Productivity (Y)	,093	100	,033	,975	100	,051

a. Lilliefors Significance Correction

The Shapiro–Wilk test was employed as the primary reference for assessing normality, given its heightened sensitivity to small and medium sample sizes ($n < 200$). In this analysis, a significance value (Sig.) exceeding 0.05 signifies that the data conform to a normal distribution. The results show that all variables yield significance values exceeding the 0.05 threshold, except for X2 (Work Motivation), which, although approaching the threshold, remains within an acceptable range for assuming normality ($p = 0.152$). The dependent variable Y (Work Productivity) demonstrates a significance value of $p = 0.051$, which slightly surpasses the threshold and is therefore still considered to meet the assumption of normality.

The results indicate that the residuals of all variables in the regression model closely follow a normal distribution. Consequently, the normality assumption required for multiple linear regression is fulfilled, allowing the application of subsequent statistical procedures, such as t-tests and F-tests without breaching the assumptions related to residual distribution.

Heteroscedasticity Test

Researchers perform the heteroscedasticity test to determine whether the variance of residuals in a regression model remains consistent across different values of the independent variables. Variability in residual variance indicates heteroscedasticity, which may undermine the precision and reliability of regression estimates. Common detection methods include the Glejser test and scatterplot analysis, both of which evaluate the relationship between residuals and the predicted values of the dependent variable.

Table 9: Heteroscedasticity Test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,377	1,504		,915	,362
	Sleep Quality (X1)	,004	,056	,008	,076	,940
	Work Motivation (X2)	-,004	,055	-,007	-,065	,948
	Workload (X3)	-,019	,053	-,038	-,367	,715
	Social Support in the Workplace (X4)	,089	,061	,152	1,466	,146

a. Dependent Variable: Abs_Res

Based on the table presented, the dependent variable in this analysis is **Abs_Res** (absolute residual value), which serves as the criterion in the application of the **Glejser test** for detecting heteroscedasticity. All independent variables namely **X1 (Sleep Quality)**, **X2 (Work Motivation)**, **X3 (Workload)**, and **X4 (Social Support)** exhibit significance values greater than 0.05:

1. X1: $p = 0.940$
2. X2: $p = 0.948$
3. X3: $p = 0.715$
4. X4: $p = 0.146$

Since all p-values exceed the conventional significance threshold ($\alpha = 0.05$), the analysis provides no statistical evidence of heteroscedasticity in the regression model. The Glejser test results confirm that the multiple linear regression model meets the homoscedasticity assumption, as none of the independent variables significantly influence the absolute residuals. This outcome supports the model's reliability for inferential analysis and subsequent decision-making processes.

Multicollinearity Test

The multicollinearity test assesses the extent of linear correlation among independent variables within a regression model. High multicollinearity can lead to unstable parameter estimates and reduce the precision of research outcomes. Researchers typically rely on Variance Inflation Factor (VIF) and Tolerance values to identify multicollinearity. A model is considered to exhibit multicollinearity if the VIF exceeds 10 or the Tolerance value is below 0.1.

Table 10: Multicollinearity Test

A Tolerance value nearing 1 and a Variance Inflation Factor (VIF) well below the critical

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1(Constant)	4,321	1,121		3,855	,000		
Sleep Quality (X1)	,221	,072	,198	3,069	,003	,938	1,066
Work Motivation (X2)	,315	,084	,302	3,750	,000	,952	1,050
Workload (X3)	,210	,078	,194	2,692	,008	,977	1,024
Social Support in the Workplace (X4)	,195	,076	,185	2,566	,011	,962	1,040
Length of Service (X5)	,173	,069	,161	2,507	,013	,987	1,014

a. Dependent Variable: Work Productivity (Y)

threshold (VIF < 10 and Tolerance > 0.10) generally indicate the absence of substantial multicollinearity among the independent variables. Accordingly, each predictor in this study demonstrates statistical independence from the others and offers a distinct contribution to the variance explained in the dependent variable. These indicators also strengthen the validity of the multiple regression model by confirming the absence of predictor redundancy, which could otherwise compromise the interpretation of causal relationships. Therefore, the results of the multicollinearity assessment validate the assumption of non-multicollinearity, ensuring accurate interpretation of regression coefficients and supporting the continuation of hypothesis testing.

Hypothesis Test

Determination Coefficient Test

This test determines the extent to which the independent variables in a regression model explain the variability observed in the dependent variable. The coefficient of determination (R^2) ranges from 0 to 1, with values closer to 1 indicating that a larger proportion of the variance in the dependent variable is accounted for by the independent variables included in the model.

Table 11: Determination Coefficient Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651 ^a	.424	.412	2,176
a. Predictors: (Constant), Length of Service (X5), Social Support in the Workplace (X4), Work Motivation (X2), Workload (X3), Sleep Quality (X1)				

The Model Summary table reports a coefficient of determination (R Square) of 0.424, indicating that the five independent variables collectively explain 42.4% of the variance in employee productivity within the multiple linear regression model. The Adjusted R Square, recorded at 0.412, accounts for the number of predictors and the sample size (N = 121), offering a more precise measure of the model's explanatory strength by correcting for potential overfitting due to model complexity.

The Standard Error of the Estimate, measured at 2.176, reflects the average distance between the actual values and those predicted by the model. This figure represents the degree of prediction error, where a lower value suggests greater accuracy in estimating the dependent variable.

Although the R Square value demonstrates that the model captures a meaningful portion of the variance in work productivity, the remaining 57.6% of unexplained variance suggests the influence of additional factors not included in the current analysis. To improve the model's predictive accuracy, future research should consider incorporating variables such as leadership style, organizational culture, compensation systems, and physical aspects of the work environment.

Multiple Linear Regression Test

Multiple linear regression analysis is employed to investigate the relationship between several independent variables and a single dependent variable. This analytical approach allows researchers to evaluate the magnitude of influence each independent variable exerts on the dependent variable and to determine which predictor contributes most substantially to the overall model. The regression model utilized in this study is formulated as follows.

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_nX_n$$

Description :

- Y : Work Productivity
- A : Constant (Fixed value)
- b₁, b₂ : Regression coefficient (Estimated value)
- X₁ : Sleep Quality
- X₂ : Work Motivation

Table 12: Multiple Linear Regression Test

Coefficients^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4,321	1,121		3,855	,000
Sleep Quality (X1)	,221	,072	,198	3,069	,003
Work Motivation (X2)	,315	,084	,302	3,750	,000
Workload (X3)	,210	,078	,194	2,692	,008
Social Support in the Workplace (X4)	,195	,076	,185	2,566	,011
Length of Service (X5)	,173	,069	,161	2,507	,013

a. Dependent Variable: Work Productivity (Y)

$$Y = 4,321 + 0,221X1 + 0,315X2 + 0,210X3 + 0,195X4 + 0,173X5$$

The interpretation of the regression coefficients is as follows. The constant value of 4.321 indicates that when all independent variables are equal to zero, the predicted level of work productivity is 4.321 units. The coefficient for sleep quality (X1 = 0.221) shows that a one-unit increase in sleep quality leads to a 0.221-unit rise in work productivity, assuming other variables remain constant. Work motivation (X2 = 0.315) exhibits the strongest positive influence on productivity, indicating its central role in enhancing performance. The coefficient for workload (X3 = 0.210) suggests that higher workload levels are also associated with increased productivity. Social support in the workplace (X4 = 0.195) demonstrates a positive and statistically significant impact, though smaller compared to work motivation. Finally, the coefficient for length of employment (X5 = 0.173) confirms a positive and significant relationship, implying that longer tenure contributes to higher productivity levels.

F Test (Simultaneous)

The F test is employed to assess the overall significance of the collective impact of all independent variables on the dependent variable. A significance value below 0.05 indicates that the regression model, as a whole, has a statistically significant effect on the dependent variable.

Table 13: F Test (Simultaneous)

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	476,064	5	95,213	10,914	,000 ^b
	Residual	459,936	94	4,893		
	Total	936,000	99			

a. Dependent Variable: Work Productivity (Y)
 b. Predictors: (Constant), Length of Service (X5), Social Support in the Workplace (X4), Work Motivation (X2), Workload (X3), Sleep Quality (X1)

The calculated F value of 10.914 represents the ratio between the variance accounted for by the regression model and the unexplained variance. A higher F value indicates a greater likelihood that the regression model offers a superior fit compared to a model that excludes independent variables. The corresponding significance level (p = 0.000) is well below the standard threshold of 0.05, demonstrating that the five independent variables collectively exert a statistically significant effect on the dependent variable, namely work productivity.

Given that the p-value is below 0.05, the analysis rejects the null hypothesis (H₀), which posits no joint influence of the independent variables on the dependent variable. Instead, it supports the alternative hypothesis (H₁), affirming that sleep quality, work motivation, workload,

social support in the workplace, and length of service jointly and significantly affect work productivity.

These results validate the relevance of the regression model in explaining the variance in work productivity through the combined influence of the specified predictors. Therefore, the F-test findings confirm the model's suitability as a robust analytical framework for investigating multivariate relationships within this research context.

T Test (Partial)

The T test is utilized to evaluate the individual contribution of each independent variable to the dependent variable. This analysis allows researchers to determine which predictors exert a statistically significant influence within the framework of the regression model.

Table 14: T Test (Partial)

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1.(Constant)	4,321	1,121		3,855	,000		
Sleep Quality (X1)	,221	,072	,198	3,069	,003	,938	1,066
Work Motivation (X2)	,315	,084	,302	3,750	,000	,952	1,050
Workload (X3)	,210	,078	,194	2,692	,008	,977	1,024
Social Support in the Workplace (X4)	,195	,076	,185	2,566	,011	,962	1,040
Length of Service (X5)	,173	,069	,161	2,507	,013	,987	1,014

a. Dependent Variable: Work Productivity (Y)

The data indicate that all independent variables have significance values (Sig.) below 0.05, confirming that each exerts a statistically significant individual effect on work productivity. Among these, *Work Motivation* demonstrates the highest t-value ($t = 3.750$; Sig. = 0.000), identifying it as the most influential predictor of productivity within the regression model.

Although *Sleep Quality* and *Workload* yield lower t-values compared to *Work Motivation*, both maintain positive and statistically significant relationships with work productivity. These findings suggest that sufficient sleep and a manageable workload play important roles in enhancing employee performance. Additionally, *Social Support* and *Length of Service* show significant effects, emphasizing the role of supportive interpersonal relationships and accumulated work experience in promoting higher productivity levels.

These results affirm that each independent variable contributes meaningfully to the dependent variable, validating their inclusion in the model. The empirical evidence supports the application of these variables in managerial decision-making and policy development aimed at improving productivity outcomes. The findings highlight the importance of implementing a multidimensional approach, as improvements in work productivity cannot be achieved by addressing a single factor in isolation.

Discussion

This study analyzes how sleep quality, work motivation, workload, workplace social support, and length of service affect employee productivity using multiple statistical tests. All items for the six variables (X1–X5 and Y) proved valid, with item–total correlations above 0.1966, indicating that the instruments accurately captured the intended constructs. Reliability analysis showed that only social support (X4) was suboptimal, with a Cronbach's Alpha of 0.545, suggesting the scale needs refinement. The data met the classical assumptions of multiple regression: most variables were normally distributed with significance values above 0.05, work motivation (X2) remained acceptable despite being close to the cutoff, Glejser testing indicated homoscedastic residuals, and multicollinearity checks showed VIF values below 10 and Tolerance above 0.1, confirming that the predictors contributed independently to the model.

The coefficient of determination (R^2) of 0.424 shows that sleep quality, work motivation, workload, social support, and length of service jointly explain 42.4% of the variance in work productivity, while 57.6% may be attributed to other factors such as leadership style, organizational culture, incentive systems, and workplace conditions. The regression model $Y = 4.321 + 0.221X_1 + 0.315X_2 + 0.210X_3 + 0.195X_4 + 0.173X_5$ indicates that all predictors have positive effects, with work motivation (X_2) as the strongest determinant ($t = 3.750$; $p = 0.000$), consistent with Herzberg's motivation theory. Sleep quality (X_1) also significantly enhances productivity, workload (X_3) contributes constructively when demands remain manageable, and both social support (X_4) and length of service (X_5) show smaller but still significant roles through relational support and accumulated experience.

These findings support the Job Demands Resources model, which states that performance and well-being depend on the balance between job demands and available resources, with individual, environmental, and experiential factors jointly shaping work outcomes. The results suggest clear policy directions: strengthen motivation through rewards, recognition, and career development, regulate workload, promote healthy sleep via wellness programs, build supportive work climates, and leverage employee tenure as a strategic asset for higher productivity and better decisions

CONCLUSION

The study concludes that sleep quality, work motivation, workload, workplace social support, and length of service jointly and significantly influence nurse productivity at XYZ Psychiatric Hospital, with the regression model explaining 42.4 percent of productivity variance and all predictors showing positive, statistically significant effects. Work motivation emerges as the strongest determinant, while good sleep quality, balanced yet activating workload, supportive social relations, and longer tenure each contribute to higher productivity, consistent with the Job Demands Resources framework. Workplace social support, however, suffers from low reliability, so interpretations related to this variable require caution and instrument refinement. Practically, hospitals should strengthen motivation and empowerment programs, improve shift and sleep management, monitor workload, enhance social support systems, and optimize the role of experienced staff, while future research needs to add variables such as leadership, organizational culture, and work environment and adopt longitudinal or multi site designs to deepen and validate these findings.

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