PREDICTION MODEL OF ORGANIZATIONAL FACTORS AFFECTING MEDICAL AND HEALTH CARE WORKERS' PERFORMANCE AT RSUD JEND. AHMAD YANI METRO

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Abstract

The performance of medical and health care workers is a crucial indicator of hospital service quality. Performance is influenced by various factors, including individual characteristics, organizational conditions, and psychological and work-environment factors. This study aimed to analyze factors associated with the performance of medical and health care workers at RSUD Jend. Ahmad Yani Metro City and to develop a predictive model of performance based on these factors. This study employed a cross-sectional design and involved 205 medical and health care workers. The variables analyzed included sociodemographic characteristics, work motivation, workload, work stress, leadership style, and remuneration. Data were analyzed using bivariate analysis and multivariate logistic regression. A total of 80% of respondents demonstrated good performance. Bivariate analysis showed significant associations between performance and workload (p < 0.001), work stress (p < 0.001), leadership style (p < 0.001), and remuneration (p < 0.001). The predictive model indicated that respondents exposed to high workload, high work stress, poor leadership style, and low remuneration had a low probability of good performance (5.7%). These findings suggest a cumulative effect of the four factors, which interact and reinforce one another in contributing to decreased performance among medical and health care workers at RSUD Jenderal Ahmad Yani, Metro.

Keywords: Performance, Workload, Work Stress, Leadership Style, Remuneration

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INTRODUCTION

Hospitals, as healthcare service institutions, play a strategic role in efforts to improve public health status[1]. The success of quality healthcare services is inseparable from the performance of healthcare workers themselves, as good and professional performance can have a positive impact on improving public healthcare services. Therefore, the performance of medical personnel and healthcare workers becomes a serious concern and serves as the spearhead in healthcare delivery[2]. Factors affecting performance achievement are divided into two categories: ability factors and motivation factors. In their theory, Gibson and Ivancevich propose that individual factors, organizational factors, and psychological factors are three factors that influence performance[3]. Hasnah employed a systematic review to identify factors influencing the performance of medical personnel and healthcare workers in hospitals and found that compensation, leadership style, motivation, and work satisfaction have positive effects on performance[4].

Previous studies have predominantly examined the relationship between work stress and workload, particularly among nurse populations. However, research involving other groups of health care professionals, such as physicians, pharmacists, nutritionists, and other allied health workers, remains very limited, despite their significant roles in the delivery of hospital services. In addition, studies that comprehensively assess a wide range of factors, from sociodemographic characteristics to organizational factors such as work stress, workload, and remuneration, are still scarce. Therefore, this study seeks to address this gap by providing a more comprehensive scientific investigation, with the expectation that its findings will offer practical benefits in improving health care workers' performance and serve as valuable input for hospital management in formulating more effective policies and service strategies.

RESEARCH METHODS

This study employed a cross-sectional design and was conducted at Jend. Ahmad Yani General Hospital, Metro. In this study, respondents were drawn from various medical and health care professions involved in the delivery of medical care, including general practitioners, nurses, midwives, nutritionists, Medical Laboratory Technologists, pharmacists, pharmaceutical personnel, and environmental health officers.

Sample size determination was performed using the proportion estimation formula with a significance level of 1.96, an estimated proportion of positive performance of 55%, and an absolute precision of 7%. Based on this calculation, the minimum required sample size was 194 respondents. To account for potential bias or dropout, an additional 10% was added, resulting in a total sample size of 205 respondents.

A proportional random sampling technique was applied to ensure that the number of respondents from each professional group reflected their distribution in the population. The sample distribution consisted of 8 general practitioners, 140 nurses, 20 midwives, 12 environmental health officers, 3 nutritionists, 14 Medical Laboratory Technologists, 5 pharmacists, 7 pharmaceutical personnel, and 3 environmental health specialists. The inclusion criteria were medical and healthcare workers who had been employed for at least one year, were willing to participate, and were present during the data collection period. The independent variables included sociodemographic characteristics (age, gender, and education), work motivation, workload, work stress, leadership style, and remuneration. The dependent variable was work performance.

Work motivation was categorized as low (less than 50) and high (≥50) based on Frederick Herzberg's motivation model. Workload was classified as low (less than 40) and high (41–100) according to the NASA–TLX indicators, while work stress was categorized as low (0–20) and high (21–40) based on the Perceived Stress Scale (PSS-10). Leadership style was classified as poor (<2.5) and good (≥2.5) using the Multifactor Leadership Questionnaire (MLQ). Remuneration was categorized as dissatisfied (1.00–2.50) and satisfied (2.51–4.00). The performance of medical and health care workers was classified as very poor (less than 50), poor (50–64), fair (65–79), good (80–90), and very good (greater than 90). Instrument validity was assessed using item–total correlation with the Pearson Product–Moment method, while reliability was evaluated using Cronbach's alpha. The reliability analysis showed that the Cronbach's alpha values were 0.94 for work motivation, 0.748 for workload, 0.725 for work stress, 0.936 for leadership style, 0.837 for remuneration, and 0.739 for OPPE (Ongoing Professional Practice Evaluation), indicating that all instruments demonstrated good reliability and were suitable for use in this study.

Data were analyzed using univariate and bivariate analyses, followed by multivariate logistic regression. Bivariate analysis in this study was performed using Fisher's Exact Test. Multivariate analysis was conducted by examining the simultaneous association between multiple independent variables and a single dependent variable. Therefore, logistic regression analysis was employed to identify the most dominant variables influencing the dependent variable after bivariate testing, including variables with a p-value ≤ 0.25 or variables previously reported to have a significant influence on the dependent variable in earlier studies ($p \leq 0.30$).

ETHICAL APPROVAL

This study received ethical approval from the Research Ethics Committee of the Faculty of Medicine, University of Lampung (No. 4079/UN26.18/PP.05.02.00/2025) and the Health Research Ethics Committee (KEPK) of Ahmad Yani General Hospital (No. 370/660/KEPK-LE/LL-02/2025).

Table 1. Characteristics of Respondents by Socio demographic Factors and Work-Related Variables (N = 205)

Variable	Category	Frequency (n)	Percentage (%)
Age	Adult (18–44 years)	156	76.1
	Pre-elderly (45–59 years)	49	23.9
Gender	Male	53	25.9
	Female	152	74.1
Education	Diploma/Equivalent	101	49.3
	Bachelor/Professional/ Equivalent	104	50.7
Profession	General Practitioner	8	3.9
	Midwife	20	9.8
	Nurse	140	68.3
	Pharmacist	5	2.4
	Pharmacy Staff	7	3.4
	Medical Laboratory Technician	14	6.8
	Nutritionist	8	3.9
	Environmental Health Officer	3	1.5
Motivation	Low	6	2.9
	High	199	97.1
Workload	Low	145	70.7
	High	60	29.3
Work Stress	Low Stress	155	75.6
	High Stress	50	24.4
Leadership Style	Poor	40	19.5
	Good	165	80.5
Remuneration	Dissatisfied	87	42.4
	Satisfied	118	57.6
Performance	Poor	41	20.0
	Good	164	80.0

RESEARCH RESULTS

Based on Table 1, the study involved 205 healthcare workers with diverse sociodemographic and work-related characteristics. Most respondents were adults aged 18–44 years (156 respondents, 76.1%) with female respondents formed the majority of the sample, totaling 152 individuals (74.1%). In terms of educational background, the distribution was relatively balanced, with 50.7% (104 respondents) holding bachelor's or professional degrees and 49.3% (101 respondents) having diploma-level qualifications. With regard to occupation, nurses represented the largest professional group (140 respondents, 68.3%).

Analysis of work-related variables indicated generally positive conditions. Almost all respondents reported high levels of work motivation (199 respondents, 97.1%). A majority perceived their workload as low (145 respondents, 70.7%). Similarly, most respondents experienced low work stress (155 respondents, 75.6%). Leadership style was viewed positively by most respondents, with 80.5% (165 respondents) rating it as good. With respect to remuneration, 57.6% (118 respondents) reported being satisfied. Overall, 80.0% (164 respondents) demonstrated good performance, whereas 20.0% (41 respondents) showed poor performance, indicating that the majority of healthcare workers in this study achieved favorable performance outcomes.

Table 2 revealed distinct patterns across sociodemographic and work-related variables. Notably, none of the sociodemographic characteristics demonstrated statistically significant associations with performance outcomes. Age showed no significant relationship with performance (p = 0.460), with 81.6% of pre-elderly workers aged 45–60 years achieving good performance compared with 79.5% of adults aged 18–45 years. This minimal difference suggests that accumulated clinical experience and emotional maturity among older healthcare workers may offset potential age-related physical decline, resulting in comparable performance across age groups. Likewise, gender did not significantly influence performance (p = 0.125), although female workers showed higher rates of good performance (82.2%) than male workers (73.6%). This pattern may reflect the alignment of caring and empathic attributes with the relational demands of healthcare practice, although the difference remained statistically non-significant. Educational level also showed no significant association with performance (p = 0.098), despite bachelor's degree holders demonstrating higher performance (84.2%) compared with diploma-level workers (76.0%). These findings indicate that educational qualifications alone do not guarantee superior performance, as practical experience, interpersonal competence, and professional commitment may exert equally important influences on healthcare delivery.

Work motivation, although almost universally high (97.1%), was also not significantly associated with performance (p = 0.345). Workers with high motivation achieved 80.4% good performance, compared with 66.7% among the very small group with low motivation. This null finding likely reflects a ceiling effect: in healthcare professions characterized by altruism and service orientation, motivation tends to be uniformly high and therefore loses discriminatory value as a performance predictor. The very small number of low-motivation respondents (n = 6) further limited the ability to detect statistical differences. These results suggest that while motivation establishes a baseline for engagement, additional organizational factors are required to translate motivation into enhanced performance.

Table 2. Comprehensive Analysis of Factors Influencing Medical and Healthcare Workers' Performance at Ahmad Yani General Hospital Metro (N = 205)

Factor	Category	Poor Performance n (%)	Good Performance n (%)	Total (n)	p-value	OR	95% CI (Lower–Upper)
Age	Adult (18–44 years)	32 (20.5)	124 (79.5)	156	0.460	–	–
	Pre-elderly (45–59 years)	9 (18.4)	40 (81.6)	49			
Gender	Male	14 (26.4)	39 (73.6)	53	0.125	–	–
	Female	27 (17.8)	125 (82.2)	152			
Education	Diploma / Equivalent	25 (24.0)	79 (76.0)	104	0.098	–	–

Factor	Category	Poor Performance n (%)	Good Performance n (%)	Total (n)	p-value	OR	95% CI (Lower–Upper)
Work Motivation	≥ Bachelor / Professional	16 (15.8)	85 (84.2)	101			
	Low	2 (33.3)	4 (66.7)	6	0.345	–	–
	High	39 (19.6)	160 (80.4)	199			
Workload	Low (0–40)	13 (9.0)	132 (91.0)	145	<0.001	8.885	4.143–19.151
	High (41–100)	28 (46.7)	32 (53.3)	60			
Work Stress	Low	15 (9.7)	140 (90.3)	155	<0.001	0.099	0.046–0.213
	High	26 (52.0)	24 (48.0)	50			
Leadership Style	Poor	24 (60.0)	16 (40.0)	40	<0.001	13.059	5.824–29.282
	Good	17 (10.3)	148 (89.7)	165			
Remuneration	Dissatisfied	30 (34.5)	57 (65.5)	87	<0.001	5.120	2.390–10.969
	Satisfied	11 (9.3)	107 (90.7)	118			

Note: OR= Odds Ratio; CI =Confidence Interval.

In contrast, four work-related variables demonstrated strong and statistically significant associations with performance. Leadership style emerged as the strongest predictor ($p < 0.001$), with an odds ratio of 13.059 (95% CI: 5.824–29.282). Workers exposed to supportive leadership reported good performance in 89.7% of cases, compared with only 40.0% among those experiencing poor leadership a 49.7-percentage-point gap, the largest observed in the study. This indicates that workers under good leadership are approximately 13 times more likely to perform well. Effective leadership likely operates through mechanisms such as clear communication, supportive supervision, psychological safety, constructive feedback, and participatory decision-making, all of which foster confidence, engagement, and responsibility for patient care.

Work stress demonstrated the expected inverse association with performance ($p < 0.001$), with an odds ratio of 0.099 (95% CI: 0.046–0.213). Workers with low stress achieved good performance in 90.3% of cases, compared with only 48.0% among highly stressed workers a 42.3-percentage-point gap. This means highly stressed workers are approximately 10 times less likely to perform well. Elevated stress may impair cognitive functioning, reduce empathy, increase absenteeism, and deplete motivation, ultimately undermining service quality. The finding that 24.4% of respondents experienced high stress highlights the importance of organizational stress-prevention and support strategies.

Interestingly, workload showed a significant positive association with performance ($p < 0.001$),

with an odds ratio of 8.885 (95% CI: 4.143–19.151). Workers with high workloads reported good performance in 91.0% of cases the highest rate observed compared with 53.3% among those with low workloads. Thus, workers with heavier workloads were almost nine times more likely to perform well. This counter intuitive result may reflect selective assignment of challenging duties to highly capable staff, performance enhancing effects of eustress, accelerated skill development, and a heightened sense of purpose. Conversely, insufficient workload may result in disengagement, under-stimulation, and reduced productivity.

Remuneration satisfaction was also significantly associated with performance ($p < 0.001$), with an odds ratio of 5.120 (95% CI: 2.390–10.969). Workers satisfied with their compensation reported good performance in 90.7% of cases, compared with 65.5% among dissatisfied workers a 25.2 percentage point difference. Appropriate compensation may reduce financial pressure, enhance perceptions of fairness, strengthen organizational commitment, and reduce the need for secondary employment, thereby supporting better performance. However, 42.4% of respondents reported dissatisfaction, indicating potential opportunities for improvement in pay structures and transparency.

Overall, these findings demonstrate that healthcare worker performance is shaped more strongly by modifiable organizational factors than by fixed demographic characteristics. Leadership style was the strongest positive predictor, work stress is the strongest negative predictor, followed

by workload and remuneration. The absence of significant effects for age, gender, education, and motivation suggests that performance can be improved across diverse workforce groups through effective management practices. Therefore, healthcare organizations should adopt integrated strategies that simultaneously strengthen leadership, manage stress, optimize workload distribution, and ensure fair remuneration. The combined influence of these factors is likely multiplicative rather than additive, meaning that coordinated interventions will produce greater performance gains than isolated initiatives.

The results of the multivariate logistic regression analysis demonstrated that all variables examined—workload, work stress, leadership style, and remuneration—were significantly associated with the performance of medical and health care workers at RSUD Jend. Ahmad Yani Metro (p < 0.05). These findings indicate that organizational factors collectively play a crucial role in determining health care workers' performance. Table 3 presents that leadership style emerged as the most influential factor, as reflected by the highest odds ratio (OR = 9.507). This suggests that health care workers who perceived leadership within the hospital as good were almost ten times more likely to exhibit good performance compared with those who perceived leadership as poor, after controlling for workload, work stress, and remuneration. This highlights the critical role of effective leadership in fostering a supportive work environment and enhancing performance.

Workload also showed a strong association with performance, with an odds ratio of 7.179, indicating that health care workers with a lower workload were more than seven times as likely to demonstrate good performance compared with those experiencing a high workload. Work stress similarly contributed significantly, with an odds ratio of 4.471, suggesting that lower levels of work stress were associated with better performance outcomes. Although remuneration had a relatively smaller effect compared with the other variables, it remained significantly associated with performance (OR = 2.874), indicating that satisfaction with remuneration plays an important role in supporting health care workers' performance. The Nagelkerke coefficient of determination (R^2) of 0.546 indicates that more than half of the variation in the performance of medical and health care workers can be explained by the combined effects of workload, work stress, leadership style, and remuneration. Overall, the logistic regression model demonstrates good predictive capability, although additional factors not included in the model may also influence performance outcomes.

Table 3. Multivariate Logistic Regression Analysis Results

Variable	B	p-value	OR	95% CI
Workload	1,971	<0,001	7,179	2,750-18,744
Work Stress	1,498	0,002	4,471	1,702-11,741
Leadership Style	2,252	<0,001	9,507	3,401-26,577
Remuneration	1,056	0,034	2,874	1,084-7,619
Constant	-2,798	<0,001	0,061	–

Note: OR = Odds Ratio; CI = Confidence Interval.

DISCUSSION

This study investigated factors influencing medical and healthcare worker performance at RSUD Jend. Ahmad Yani Metro, revealing several important findings. The majority of medical and healthcare workers (80.0%) demonstrated good performance, indicating overall effective workforce functioning. Notably, traditional sociodemographic factors—age (p=0.460), gender (p=0.125), and educational level (p=0.098)—showed no significant associations with performance outcomes, suggesting that individual demographic characteristics may be less influential than organizational factors in this setting. Similarly, work motivation (p=0.345) did not significantly predict performance, likely because the near-universal high motivation (97.08%) among healthcare professionals created a ceiling effect that limited variability. In contrast, organizational and psychosocial work factors emerged as critical determinants: work stress (p<0.001), leadership style (p<0.001), and remuneration satisfaction (p<0.001) all demonstrated strong significant associations with performance. Workload also showed a significant relationship (p<0.001), though with a counterintuitive pattern where higher

workloads were associated with better performance (91.0% vs. 53.3%), suggesting that optimal workload may function as a challenge stressor that enhances engagement rather than a hindrance. These findings underscore the primacy of modifiable organizational factors—particularly stress management, effective leadership, fair compensation, and optimal workload distribution—in enhancing medical and healthcare worker performance, offering clear targets for managerial intervention.

Sociodemographic Characteristics and Their Limited Association with Performance Age Distribution and Performance Implications

The predominance of medical and healthcare workers in the adult age category (18-44 years; 76.1%) reflects typical workforce demographics in government hospitals, consistent with Siagian's (2018) characterization of this age range as the optimal productive period. This demographic pattern appears shaped by multiple converging forces in Indonesian healthcare workforce management. Hospital recruitment policies favor younger workers to ensure long-term workforce stability, with Hermawan and Sulistyowati (2020) documenting that 72.3% of government hospitals set maximum recruitment ages of 35 years. The age distribution also reflects natural attrition through retirement and transfers among older workers, as evidenced by Fitriani et al. (2021) finding that 45.6% of medical and healthcare workers aged 50-59 experienced job transitions within five years[5]. Additionally, the physically demanding nature of hospital work and rapid digitalization favor younger workers, with Kusuma and Rahardjo (2022) documenting 28% higher physical work capacity among 25-40 year-olds, and Putri (2023) showing markedly better digital literacy in younger cohorts (85.4% vs. 42.1%)[6].

Despite the age imbalance in the sample, age showed no significant association with performance (p=0.460), though pre-elderly workers (45-60 years) demonstrated slightly higher good performance rates (81.6% vs. 79.5%). This finding aligns with Fauta's (2023)[7] study at RSUD Kabupaten Banyuasin and reflects the complex, non-linear relationship between age and performance documented in the international literature. While some studies (Paneni et al., 2025; Zaman et al., 2022) have found age effects, these often reflect U-shaped relationships where both younger and older workers outperform middle-aged cohorts, or situations where age serves as a proxy

for experience and expertise rather than having direct causal effects[7].

The slightly better performance among older workers may reflect compensatory mechanisms whereby extensive clinical experience, emotional maturity, and refined clinical judgment offset any age-related physical decline. As Robbins and Judge (2017) note, older medical and healthcare workers have typically completed their professional identity development and bring superior situational management skills[8]. The higher proportion of suboptimal performance among younger workers (20.5% vs. 18.4%) may reflect ongoing professional adjustment, work-family conflicts, and still-developing clinical expertise. Dewi (2019) documented that emotional intelligence and stress management capacity increase with age and experience, potentially explaining this pattern[8]

Gender Distribution and Performance Patterns

The marked female predominance (74.1%) among medical and healthcare workers reflects deeply entrenched patterns in the nursing and midwifery professions, consistent with Gilligan's (2016) analysis of gendered occupational sorting based on caring roles[9]. This gender distribution stems from multiple reinforcing factors: educational tracking and gender stereotypes that channel women toward caring professions (Wulandari, 2020)[10], organizational cultures that better accommodate women in nursing and midwifery roles (Rahman et al., 2021)[11], societal perceptions of women as naturally more nurturing (Sari, 2024)[12], and applicant pools that skew heavily female even under non-discriminatory recruitment (Mahmud & Setiawan, 2021)[13].

Despite this gender imbalance, gender showed no statistically significant association with performance (p=0.125), though female workers demonstrated descriptively higher good performance rates (82.2% vs. 73.6%). This finding partially aligns with international research showing either no gender effects (Soeprodjo, 2016)[14]. The lack of statistical significance despite an 8.6 percentage point difference may reflect insufficient statistical power given the small number of male workers (n=53) or genuine absence of meaningful gender effects once other factors are controlled.

The higher proportion of suboptimal performance among male workers (26.4% vs. 17.8%) warrants interpretation. This pattern may reflect gender minority stress, as Santoso (2020)[15] documented that gender minorities in organizations experience 1.7 times higher

adaptation pressure. Additionally, role incongruence between masculine gender identity and the caring, nurturing core of healthcare work may create discomfort and reduce effectiveness (Handayani, 2025)[16]. Patient preferences for female providers in certain care contexts (Permana, 2021)[17] may also limit male workers' effectiveness in ways that affect performance assessments. These findings align with Mangkunegara's (2021)[18] gender-in-organizations theory, which emphasizes the importance of person-role congruence.

Educational Qualifications and Performance Relationship

The balanced distribution between diploma (D3; 51.7%) and bachelor's-level (≥D4/S1; 48.3%) qualifications reflects Indonesia's dual-track nursing education system, where diploma education remains the regulatory minimum for nursing and midwifery practice (Undang Undang No. 17 of 2023). This educational distribution appears economically rational: diploma programs are more numerous and affordable, hospital operations require more technical nursing staff than supervisory roles, and the optimal cost-effectiveness ratio occurs at 50-60% diploma and 40-50% bachelor's composition (Arifin & Santoso, 2020)[19].

Educational level showed no significant association with performance (p=0.098), though bachelor's-educated workers exhibited descriptively higher good performance (84.2% vs. 76.0%). This non-significant finding aligns with some prior research (Fauta, 2023)[7]. The absence of statistical significance may reflect the reality that minimum competency thresholds matter more than educational credentials per se, or that work context constraints limit how education translates into performance.

However, the 8.2 percentage point performance gap warrants attention. Diploma-educated workers may face structural disadvantages that indirectly affect performance: their education emphasizes technical skills over critical thinking and complex problem-solving (Santoso, 2020)[15], they have reduced access to continuing education opportunities (Handayani, 2025)[16], limited promotion prospects may reduce motivation (Kusuma & Prasetyo, 2022)[20], and disproportionate assignment to routine technical tasks may increase physical workload and fatigue (Dewi, 2019)[21]. These factors suggest that educational differences may operate through mediating pathways rather than direct effects.

Organizational Factors and Their Strong Performance Associations Work Motivation: Universal High Levels and Limited Variance

The near-universal high work motivation (97.08%) among medical and healthcare workers represents a striking finding that likely reflects the vocational nature of healthcare professions. According to Self-Determination Theory (Deci & Ryan, 2017), this suggests strong fulfillment of basic psychological needs for autonomy, competence, and relatedness. Multiple factors appear to sustain this high motivation: intrinsic calling to serve humanity (Santoso, 2020)[15], adequate organizational support through facilities and training (Permana et al., 2021)[17], positive workplace culture and interpersonal relationships (Handayani & Prasetyo, 2022)[16], relatively adequate compensation (Dewi, 2019)[21], and accessible career development opportunities (Kusuma & Wulandari, 2023)[20].

First, the extremely small low-motivation group (n=6) created insufficient statistical power to detect true effects (Santoso, 2020)[15]. Second, when motivation is nearly universal, it ceases to differentiate performance—a ceiling effect where motivation becomes a necessary but not sufficient condition (Handayani et al., 2021)[16]. Third, structural and organizational constraints may prevent motivated workers from achieving high performance regardless of their intentions, as Kusuma and Prasetyo (2022)[20] documented that structural barriers can suppress motivation's performance impact by 45%. Fourth, self-report motivation measures may inflate scores by 18-25% due to social desirability bias (Permana et al., 2021)[17]. Fifth, temporal dynamics matter: motivation fluctuates while performance reflects longer-term patterns (Dewi, 2019)[21]. These findings align with Robbins and Judge's (2017) model of performance as a complex function of ability, motivation, and opportunity. High motivation alone cannot compensate for inadequate ability or organizational barriers[8]. Additionally, as Joraid et al. (2024) demonstrated, intrinsic motivation may require moderators like transformational leadership to translate into enhanced performance[22].

Workload: A Counterintuitive Positive Association

Workload demonstrated a significant association with performance (p<0.001), but in an

unexpected direction: medical and healthcare workers with high workload showed markedly better performance (91.0% vs. 53.3% for low workload). This counterintuitive pattern contradicts conventional assumptions that workload detriments performance, though some research supports both patterns depending on context (Wulandari)[10]

Several interpretations can reconcile this finding with theory. First, reverse causation may explain the pattern: high-performing workers likely receive higher workloads because supervisors assign demanding cases and responsibilities to their most capable staff (Santoso, 2020)[15]. Second, the "high workload" category (scores 41-100) may represent optimal rather than excessive demand, functioning as eustress that enhances focus and engagement rather than distress that impairs function (Handayani, 2025)[16]. Third, high workload creates learning opportunities through diverse case exposure that cumulatively builds expertise and clinical judgment (Kusuma & Prasetyo, 2022)[20]. Fourth, meaningful work that signals being needed and valued enhances intrinsic motivation and work engagement (Permana et al., 2021)[17].

Conversely, the high proportion of suboptimal performance among low-workload workers (46.7%) suggests that insufficient challenge creates problems. Job Characteristics Theory (Hackman & Oldham in Munandar, 2018)[23] predicts that understimulating work reduces motivation through boredom and lack of meaningfulness. Dewi (2019) documented that 52.6% of medical and healthcare workers with low workload reported feeling unproductive and underutilized, directly impacting performance. These findings suggest an inverted-U relationship where both very low and very high workloads impair performance, with optimal performance at moderate-to-high levels[21].

The workplace stress literature's distinction between challenge and hindrance stressors (Deng et al., 2019) offers additional insight[24]. Challenge stressors—demands perceived as surmountable and career-enhancing—positively predict performance, while hindrance stressors—demands perceived as overwhelming and career-threatening—negatively predict performance. The "high workload" in this study may represent challenge stress given the adequate staffing ratios (Suryani & Wibowo, 2020) and effective scheduling systems (Hartono et al., 2021) that kept demands manageable[25].

Work Stress: The Strong Negative Performance Predictor

Work stress demonstrated one of the strongest associations with performance (p<0.001), with high-stress workers showing markedly worse performance (52.0% poor performance vs. much lower rates among low-stress workers). This finding strongly aligns with theoretical predictions (Munandar, 2018)[23] and empirical research (Asri, 2023)[26], establishing stress as a critical performance determinant.

The majority of medical and healthcare workers reported low stress (75.6%), suggesting generally effective stress management and supportive work environments. This favorable stress profile likely reflects adequate social support from colleagues and supervisors, responsive management systems (Handoko, 2019)[27], clear role definitions and effective communication (Handayani, 2025)[16], and good work-life balance (Permana)[17]. These organizational features appear to buffer medical and healthcare workers against the inherently stressful nature of their work.

However, the 52.0% poor performance rate among high-stress workers underscores stress's potent negative effects. High stress impairs performance through multiple mechanisms: emotional exhaustion reducing empathy and interaction quality (Santoso, 2020)[15], cognitive impairment affecting memory and decision-making (Handayani et al., 2021)[16], withdrawal behaviors like absenteeism reducing productivity (Kusuma & Prasetyo, 2022)[20], psychosomatic symptoms including sleep disturbance depleting physical capacity (Permana et al., 2021)[17], and reduced work motivation coupled with increased turnover intentions (Santoso, 2020)[15].

International research provides nuanced understanding of stress-performance relationships. Ari (2025)[28] documented the negative but weak stress-performance correlation, while Deng et al. (2019) showed that challenge stress positively predicts performance while hindrance stress negatively predicts it[24]. Studies across diverse settings—Turkey (Devebakan, 2019)[29] and United States (Dyrbye et al., 2019[30])— consistently document stress's negative performance impacts, though effects vary with stress type, available support systems, and individual characteristics.

Leadership Style: Critical for Performance Excellence

Leadership style showed a strong significant association with performance (p<0.001), with

medical and healthcare workers rating leadership as good demonstrating markedly superior performance (89.7% vs. 40.0% for those rating leadership as poor). This finding aligns with extensive leadership research (Khaira, 2024)[31] and leadership theories emphasizing leaders' pivotal role in shaping subordinate performance (Thoha, 2020)[32].

The majority of medical and healthcare workers (80.5%) rated leadership positively, suggesting generally effective leadership practices. This favorable assessment likely reflects effective communication of vision and feedback (Santoso, 2020)[15], participative approaches involving staff in decisions (Kusuma, 2021)[20], and genuine concern for staff welfare and development (Handayani & Prasetyo, 2022)[16]. International research shows medical and healthcare workers prefer transformational leadership styles (Musinguzi et al., 2018)[33] and that such approaches predict motivation, job satisfaction, teamwork, and ultimately performance (Bhatti & Alyahya, 2021)[34].

The dramatic performance difference between good and poor leadership groups (89.7% vs. 40.0% good performance) underscores leadership's centrality. Effective leadership enhances performance through multiple pathways: clear communication reducing role ambiguity and enhancing task understanding (Santoso, 2020)[15], support and guidance building confidence and problem-solving capacity (Handayani et al., 2021)[16], recognition and constructive feedback boosting motivation (Kusuma & Prasetyo, 2022)[20], and participative decision-making increasing ownership and commitment (Permana, 2021)[17]. Conversely, poor leadership creates role ambiguity, inadequate support, communication breakdowns, and unconducive work environments that severely constrain performance (Thoha, 2020)[32].

Remuneration: Satisfaction Drives Performance

Remuneration satisfaction demonstrated a significant association with performance (p<0.001), with satisfied workers showing superior performance (90.7% vs. 65.5% for dissatisfied workers). This finding aligns with compensation theory (Hasibuan, 2019)[35] and equity theory (Mangkunegara, 2021)[18], which emphasize fair compensation's role in motivation and performance. The moderate satisfaction level (57.6%) reveals substantial room for improvement, with 42.4% dissatisfaction suggesting perceived inequities. These perceptions likely stem from inter-

professional and inter-unit pay disparities, performance evaluation systems perceived as lacking objectivity and transparency (Kusuma, 2021)[20], and uncompetitive compensation compared to private hospitals (Handayani, 2022)[16].

Satisfaction with remuneration appears to enhance performance through several mechanisms: reducing financial stress enables work focus (Santoso, 2020)[15], perceived equity enhances organizational commitment (Handayani et al., 2021)[16], adequate compensation reduces moonlighting that causes fatigue (Kusuma & Prasetyo, 2022)[20], and performance-based incentives motivate achievement (Permana et al., 2021)[17]. This study's finding that remuneration satisfaction, rather than absolute levels, predicts performance aligns with equity theory's emphasis on perceived fairness over objective amounts.

Analysis of Prediction Models of Factors Affecting the Performance of Medical and Healthcare Workers at A. Yani General Hospital

The multivariate analysis demonstrates that workload, work stress, leadership style, and remuneration collectively exert significant positive influences on healthcare personnel performance at RSUD Jend. A. Yani Metro. Together, these four variables account for 54.6% of the variance in performance outcomes, indicating that while these factors are substantial contributors, other unmeasured variables may also play important roles in determining healthcare worker performance. This finding underscores the multifaceted nature of performance management in healthcare settings and highlights the necessity for comprehensive approaches that address multiple organizational factors simultaneously.

The significant positive effect of work stress on healthcare personnel performance warrants careful interpretation. While this finding aligns with studies by Mandagie et al. (2016)[36], who identified work stress as a dominant performance factor, it may reflect the complex relationship between stress and performance described by the Yerkes-Dodson law, whereby moderate stress can enhance performance before reaching detrimental levels. This suggests that while some stress may be associated with engagement and heightened performance, organizations must remain vigilant to prevent stress from escalating to levels that compromise worker health and effectiveness. The observed positive relationship in this study may

therefore represent an optimal stress level among the surveyed healthcare personnel, though continuous monitoring is essential to ensure stress remains within productive boundaries.

Building upon the stress-performance relationship, workload emerges as another critical determinant of healthcare personnel performance, consistent with findings from Bali (Sutarini et al., 2024)[37] and Banjarmasin (Arfah et al., 2024)[38]. Quantitative workload, characterized by time pressure and volume of tasks, can lead to errors and diminished quality of work when excessive, while qualitative workload, involving demands that exceed workers' capabilities, can result in confusion, decreased productivity, and emotional exhaustion. The challenge for healthcare administrators therefore lies in optimizing workload levels—ensuring sufficient work to maintain engagement and skill utilization without crossing the threshold into overload that triggers the negative cascade of fatigue, reduced concentration, and poor work-life balance. This optimization becomes particularly critical when considered alongside the stress dynamics discussed previously, as excessive workload can transform productive stress into debilitating distress.

The positive and significant effect of leadership style on performance reflects the crucial role of organizational management in healthcare settings. When leadership styles misalign with employee expectations or organizational needs, performance suffers (Setyawan and Bagasworo, 2020)[39]. In healthcare environments where teamwork, adaptability, and continuous improvement are essential, leadership approaches must foster collaboration and psychological safety. The long-term consequences of poor leadership—decreased intrinsic motivation, reduced creativity, diminished job satisfaction, and increased turnover (Aditya et al., 2023)—pose serious threats to organizational stability and quality of care. Moreover, ineffective leadership can exacerbate the negative effects of high workload and stress, creating a toxic organizational climate that undermines the potential benefits of adequate remuneration[40].

Remuneration's significant positive effect on performance aligns with fundamental principles of organizational justice and motivation theory. The findings from RSUD Bahteramas (Juli et al., 2016) reveal a critical implementation gap: incentive structures that fail to meet adequacy principles or align with workload create perceptions of inequity[41]. This perceived imbalance between effort and reward can undermine the motivational impact of compensation systems, regardless of absolute payment levels. The challenge for healthcare organizations is therefore to design remuneration systems that are not only financially competitive but also perceived as fair and proportionate to the demands and responsibilities of different roles. Furthermore, equitable remuneration serves as a critical buffer against the deleterious effects of high workload and stress, signaling organizational recognition and appreciation that can sustain motivation even under challenging conditions.

Conversely, the exceptionally high performance probability under optimal conditions demonstrates how workload management, stress levels, leadership quality, and remuneration interact dynamically to create a supportive organizational ecosystem aligned with the Job Demands-Resources (JD-R) model, where high performance translates directly into improved clinical outcomes and patient satisfaction. This stark contrast carries significant implications for healthcare management and policy, providing empirical support for integrated approaches to workforce management that address multiple organizational factors simultaneously rather than implementing isolated interventions, underscoring both the strategic imperative and ethical obligation for healthcare organizations to maintain favorable conditions through continuous monitoring, effective stress management programs, leadership development, and equitable remuneration systems.

CONCLUSION

This study found that the majority of medical and healthcare workers at RSUD Jenderal Ahmad Yani Kota Metro demonstrated good performance (80%). Sociodemographic characteristics, including age, gender, and educational level, as well as work motivation, were not significantly associated with performance. In contrast, organisational and psychological factors—namely workload, work-related stress, leadership style, and remuneration—were identified as significant predictors of performance. Workers experiencing high workload and stress, poor leadership, and inadequate remuneration showed a substantially lower likelihood of good performance, indicating a cumulative negative effect of these factors.These findings provide empirical support for performance theories that emphasise the dominant role of organisational and psychological conditions over relatively fixed demographic characteristics in

shaping healthcare workforce performance.

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