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Research Article

Effect of Workload and Competence on Nurses' Performance with Supervision Moderation in Cengkareng

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Abstract. Introducion The performance of nurses is a critical determinant of hospital service quality, influenced by multiple factors such as workload, competence, and supervision. This study aimed to analyze the effect of workload and nurse competence on nurse performance with supervision as a moderating variable at X Hospital. Methods The research employed a quantitative approach with a causal survey design. Data were collected using structured questionnaires distributed to 176 nurses and analyzed through Structural Equation Modeling (SEM) with SmartPLS 4.0. Result The findings revealed that both workload and competence significantly influenced nurse performance, with competence showing a strong positive effect. Workload was also found to have a significant effect on supervision, and nurse competence significantly enhanced supervision quality. However, supervision did not function as a moderating factor in the relationship between workload and nurse performance, nor between competence and nurse performance. Similarly, supervision itself was not significantly associated with nurse performance. The coefficient of determination showed that workload, competence, and supervision jointly explained 60% of nurse performance, while the remaining 40% was influenced by other unmeasured factors. Conclusion, workload and competence are proven to be direct determinants of nurse performance, whereas supervision in its current form does not enhance these effects. Hospital management should therefore focus on optimizing workload distribution, strengthening nurse competencies through continuous training, and reformulating supervision methods to be more participatory and supportive. These strategies are expected to improve the quality and effectiveness of nursing services and ensure sustainable improvements in hospital performance outcomes.

Keywords: Nurse Competence; Nurse Performance; Structural Equation Modeling (SEM); Supervision; Workload.

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1. Introduction

Health services in hospitals cannot be separated from the role of nurses as the healthcare professionals who most frequently interact directly with patients. Nurse performance is a crucial indicator that determines the quality of care, patient satisfaction, and the hospital's overall image in society. Motowidlo and Kell (2012) define job performance as the outcome of individual behavior that contributes to organizational goals. Therefore, improving nurse performance is a strategic aspect of hospital management that requires serious attention.

Several factors influence nurse performance, including motivation, work ethic, work environment, workload, and basic competence. Law Number 17 of 2023 concerning Health emphasizes that both government and private institutions are obliged to conduct health development effectively and efficiently. This aligns with Nursalam (2015), who stated that nurse performance is affected not only by individual factors but also by management systems and organizational conditions.Nursing competence encompasses knowledge, skills, values, and attitudes required to carry out nursing duties professionally. Nakayama defines nursing competence as the ability to take action by integrating knowledge, skills, values, beliefs, and experiences acquired as a nurse. Similarly, Benner (1984) emphasized that nurses with strong competencies are able to deliver standardized, professional care that increases patient satisfaction and strengthens public trust in hospital services.

On the other hand, workload is a major challenge that affects the quality of nurse performance. Gujarati (2009) explained that excessive workload can create performance estimation problems and lead to fatigue. Herawati et al. (2023) also found that workload is closely related to job satisfaction and performance, meaning that disproportionate workload distribution may reduce nursing effectiveness. Conversely, a well-managed workload can improve efficiency and productivity.

Supervision is another essential factor in nursing management. Sullivan and Decker (2005) argued that effective supervision is not limited to monitoring but also includes guidance, emotional support, and professional development. Participatory supervision can strengthen the positive effect of competence on performance and minimize the negative impact of workload. However, the effectiveness of supervision largely depends on leadership style, communication quality, and organizational culture within the hospital.

Cengkareng Hospita;l a Class B hospital in West Jakarta with several priority services, has the vision of becoming the community's hospital of choice. Data on nurse performance showed a slight decline, with an average performance target achievement (SKP) of 87.73% in 2024 compared to 87.88% in 2023. This indicates the need for evaluation of factors influencing nurse performance. Based on this context, this study was conducted to analyze the effects of workload and nurse competence on nurse performance, with supervision as a moderating variable.

2. Preliminaries or Related Work or Literature Review

Nurses' performance plays a central role in the quality of healthcare services provided by hospitals. According to Campbell (1990), performance includes behaviors relevant to organizational goals, not just work outcomes. In nursing, this reflects how well a nurse can deliver effective and safe patient care. The Multifactor Model by Campbell highlights several elements influencing job performance, such as task proficiency, interpersonal communication, effort, discipline, and teamwork. These factors are essential in evaluating nurses' contributions to organizational goals.

Workload is defined as the amount of tasks an individual must complete within a specific period. In nursing, it covers both the number and complexity of tasks, and includes physical, mental, and emotional demands. The Job Demand-Resources (JD-R) model by Demerouti et al. (2001) explains that excessive job demands without adequate resources can lead to burnout and performance decline. Supervision, therefore, is one of the key organizational resources that can buffer such effects.Nursing competence is a combination of knowledge, skills, and attitudes that allows nurses to perform tasks responsibly and effectively.

Spencer and Spencer (1993) categorized competencies into motives, traits, self-concept, knowledge, and skills. Meihan Chen et al. (2021) identified three core dimensions of nursing competencies: motivation and traits, professional values and philosophy, and technical knowledge and skills. These aspects are vital to maintaining the integrity and professionalism of nursing practice. Research has consistently shown a positive correlation between nurse competence and job performance. Competent nurses are better at making clinical decisions, responding to emergencies, and minimizing errors, leading to higher patient satisfaction.

Supervision in nursing is more than administrative oversight; it is a structured process of support, guidance, and evaluation to enhance clinical practice and improve outcomes. According to Glickman (1985), the goal of supervision is to foster professional development, enhance job satisfaction, and ensure quality care. Effective supervision can strengthen nurse autonomy and morale. Path-Goal Theory and Situational Leadership Theory suggest that effective supervision includes dimensions such as monitoring, coaching, support, decision-making, feedback, and communication—all of which are important in clinical environments. Sandra Helvitia's review indicates that academic model supervision reduces stress and improves job satisfaction among nurses.

It highlights the importance of structured mentorship in high-pressure environments like hospitals.However, findings at Cengkareng General Hospital revealed that supervision did not significantly moderate the relationship between workload and performance. This may be due to inconsistencies in the implementation or quality of supervision. Zamhir Basem found that factors like work-life balance, workload, and compensation directly affect job satisfaction and loyalty among healthcare staff, and job satisfaction can mediate the link between workload and performance.

Haron et al. (2017) emphasized that experienced and highly competent nurses tend to value supervision as a means for professional growth rather than merely managerial oversight. Several studies have identified supervision as a key "resource" within the JD-R model, helping staff cope with high demands. Nonetheless, excessive workloads can reduce the effectiveness of supervision efforts.The impact of supervision on performance is complex; in supportive work environments, it fosters growth, while in poorly managed settings, its influence may diminish or even backfire. At Cengkareng Hospital, it was observed that nurses with more than six years of experience were generally more autonomous and competent, which reduced the need for intensive supervision—a phenomenon referred to as the "ceiling effect." Fitri Nurlina et al. pointed out the importance of structured career development systems in nursing.

These systems help formalize professional growth and increase motivation and performance over time. Empirical data shows that workload, competence, and supervision account for around 60% of the variance in nurse performance, while the remaining variance may be influenced by factors such as organizational culture, leadership, and incentives. In conclusion, the literature suggests that nursing competence and supervision are critical in improving performance. However, their effectiveness is context-dependent, influenced by organizational systems, leadership styles, and the overall work environment.

3. Materials and Method

This study employed a quantitative cross-sectional design to examine the effect of nurses' workload and competence on performance, with supervision as a moderating variable. The study was conducted at Cengkareng Hospital, a type B hospital in West Jakarta. The target population included all clinical nurses (level 1–3) and midwives working in inpatient wards, ICU, and NICU, totaling 502 nurses. A sample size of 222 respondents was determined using Slovin's formula with a 5% margin of error, and participants were selected through proportionate stratified random sampling to ensure representativeness across units.

Data were collected using a structured questionnaire adapted from established theoretical constructs. Workload was measured using six dimensions by Rolos (2018), nurse competence was assessed based on the 12 core competencies from the Indonesian Nursing Law (Law No. 38/2014) and Ministry of Health Regulation HK.01/07/Menkes/425/2020, supervision was measured using indicators from Path-Goal Theory and Situational Leadership, and nurse performance was evaluated through three dimensions (task, contextual, and adaptive performance) according to Borman & Motowidlo (1997). All items were rated on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Validity and reliability were tested through Pearson correlation and Cronbach's Alpha (>0.70), with pilot testing conducted on 30 nurses outside the main sample.

Data analysis was performed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS version 3.0. The analysis included evaluation of the measurement model (outer model) to confirm validity and reliability, and the structural model (inner model) to test hypotheses. A significance level of $p < 0.05$ was applied to determine statistical significance.

This study uses a quantitative approach with an explanatory research method. The conceptual framework that describes the relationship between these variables can be seen in

Figure 3.1

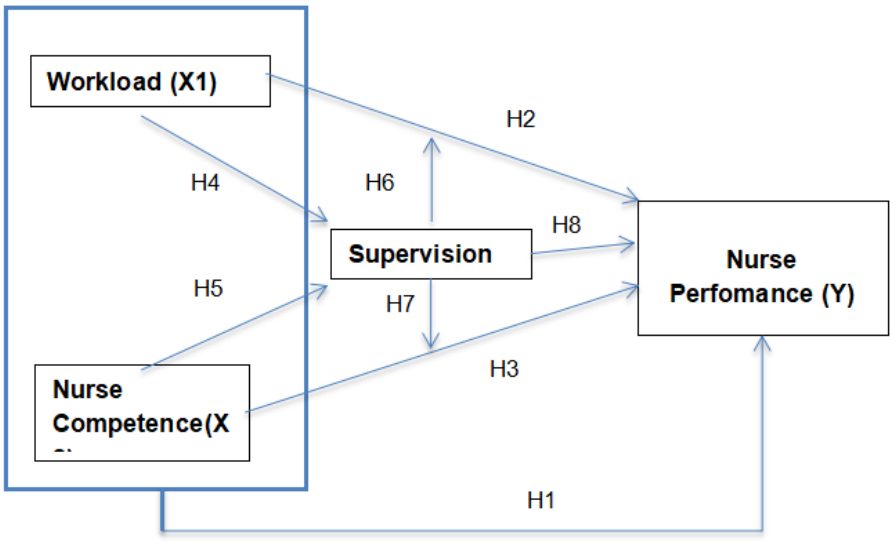

Figure 3.1 Conceptual Framework

4. Results and Discussion

Results

a) Respondens Characteristics

Respondens characteristics, the majority were aged 31–40 years with 115 participants (65%), followed by 34 participants (19%) aged 41–50 years, 26 participants (15%) aged 21–30 years, and only 1 participant (1%) over 50 years. This indicates that most respondents were in a productive age group, with relatively long work experience and many having participated in hospital-based training programs. In terms of gender, female nurses dominated the sample with 141 participants (80%), while male nurses accounted for 35 participants (20%).

Regarding educational background, most respondents held a Diploma in Nursing (D3) with 123 participants (70%), followed by 50 respondents (28%) with a Bachelor's degree in Nursing (S1), and only 3 respondents (2%) with a Diploma IV. Based on work units, the majority were assigned to inpatient wards (130 respondents, 74%), followed by ICU (29 respondents, 16%) and NICU (17 respondents, 10%). For functional positions, the largest group was Clinical Nurse 2 (PK2) with 124 respondents (70%), while Clinical Nurse 1 (PK1) included 23 respondents (13%), Clinical Nurse 3 (PK3) included 10 respondents (6%), and midwives accounted for 19 respondents (11%). In terms of length of service, most respondents had worked for more than six years (157 respondents, 89%), while 10 respondents (6%) had worked for 4–6 years, and 9 respondents (5%) for 1–3 years. These findings suggest that the majority of respondents had substantial professional experience, providing a representative overview for this study.

b) Hipotesis Test

The construction of the structural model test path diagram in this study uses 3 exagenous variables and 2 endogeneous variables which describe the relationship between variables as shown in

Figure 4.1

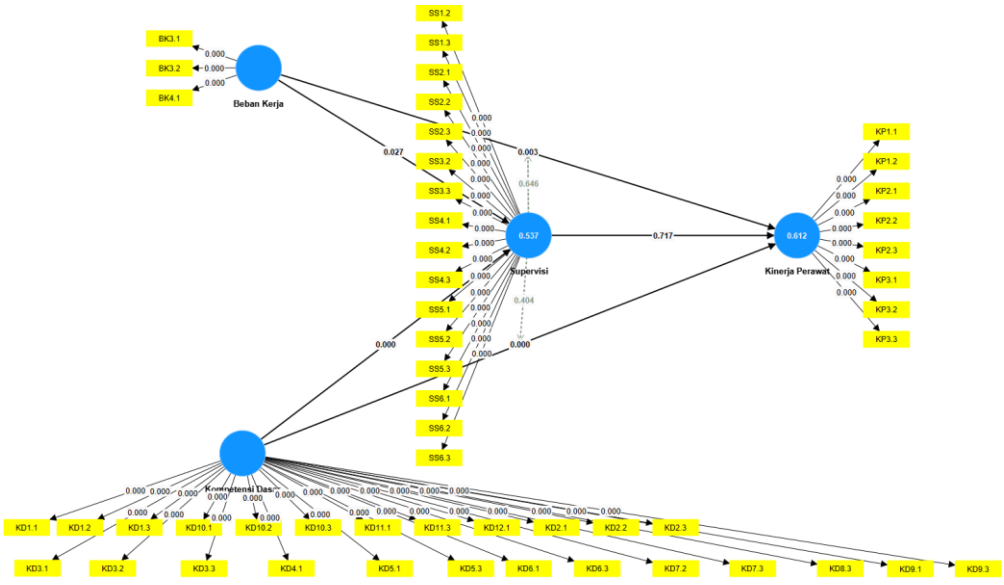

Figure 4.1. Construction of the Structural Model Test Path Diagram

c) Hipotesis simultan

Summary Annova Matris	Sum Square	df	Mean Square	F	P value
Total	1659,909	175	0,000	0,000	0,000
Error	667,840	173	3,918	0,000	0,000
Regression	987,069	2	491,035	125,323	0,999

Tabel 4.1 F-test results

The results of statistical research show that there is a significant relationship between workload and basic competency simultaneously on nurse performance

Path Analysis & Uji Hipotesis (p-value)	Original sample (O)	P-value	Keterangan
Workload -> Nurse performance	0,244	0,003	H2 accepted
Competence -> Nurse performance	0,631	0,000	H3 accepted
Workload -> Supervision	0,205	0,027	H4 accepted
Competence -> Supervision	0,574	0,000	H5 accepted
Supervision x Workload -> Nurse performance	0,035	0,646	H6 rejected
Supervision x Competence -> Nurse performance	0,158	0,404	H7 rejected
Supervision -> Nurse performance	-0,057	0,717	H8 rejected

Tabel 4.2 Analisis Path Coefficient

Based on tabel , The hypothesis testing results revealed that Hipotesis dua (2) was accepted, indicating that workload had a positive and significant effect on nurse performance, with a coefficient of 0.244 and a p-value of 0.003 (<0.05). This finding suggests that an increase in workload contributes positively to nurse performance. Similarly, Hipotesis tiga (3) was accepted, showing that nurse competence had a strong positive and significant effect on nurse performance, with a coefficient of 0.631 and a p-value of 0.000 (<0.05). This means that higher basic competence among nurses is associated with better performance outcomes.

Hipotesis empat (4), the results confirmed that workload had a positive and significant effect on supervision, with a coefficient of 0.205 and a p-value of 0.027 (<0.05). This indicates that supervision

tends to increase along with higher workload as a form of oversight or support. Hipotesis lima (5)was accepted, demonstrating that nurse competence had a positive and significant effect on supervision, with a coefficient of 0.574 and a p-value of 0.000 (<0.05). This implies that competent nurses are more likely to receive higher-quality or more frequent supervision.

Hipotesis enam (6) was rejected because supervision did not significantly moderate the relationship between workload and nurse performance. The coefficient was 0.035 with a p-value of 0.646 (>0.05), indicating that supervision does not alter the effect of workload on performance. Similarly, Hipotesis tujuh (7**)** was also rejected, as supervision did not moderate the relationship between nurse competence and performance, with a coefficient of 0.158 and a p-value of 0.404 (>0.05). This result suggests that the influence of competence on performance remains unchanged regardless of the level of supervision.

Hipotesis delapan (8) was rejected, as supervision did not have a significant direct effect on nurse performance. The coefficient was -0.057 with a p-value of 0.717 (>0.05), even showing a negative but very weak and statistically insignificant relationship. Thus, it can be concluded that supervision in this study did not exert a direct significant effect on nurse performance, although it may serve as a supporting factor in other variable relationships.

5. Discussion

This study explores the influence of nurses' workload and competencies on their performance, while also assessing whether supervision moderates this relationship. The results revealed that both workload and competence have a significant and direct effect on nurses' performance, both simultaneously and individually. This finding reinforces the importance of managing workload effectively and continuously improving nurse competencies to ensure optimal performance in healthcare services.

The simultaneous test (F-test) confirmed that workload and competence together significantly influence nurse performance. In highly dynamic hospital settings, achieving high-quality nursing care cannot rely solely on reducing workload or enhancing competencies individually. These two variables must be addressed together to produce meaningful improvements in performance outcomes.

Workload was found to be a significant individual predictor of performance. With an average workload index falling into the moderate category, the lowest dimension was mental workload. This suggests that while physical demands are manageable, psychological strain needs careful attention. Managing mental workload is crucial in preventing burnout, ensuring emotional resilience, and maintaining clinical decision-making capabilities.

Nurse competence, on the other hand, had a notably stronger influence. With high scores in most dimensions—particularly in applying INOS principles—competence was a critical factor in enhancing the effectiveness and efficiency of nursing care. These findings emphasize the need for continuous professional development programs, targeted training, and clinical refreshers to ensure nurses can adapt to the evolving healthcare environment.

Interestingly, although supervision was hypothesized to play a moderating role between workload and performance, and between competence and performance, the results showed otherwise. Supervision did not significantly moderate either of these relationships. The interaction terms were statistically insignificant, indicating that the presence or intensity of supervision did not amplify or reduce the impact of workload or competence on nurse performance.

Despite this, supervision was found to have a significant direct relationship with both workload and competence. Increased workload was associated with more frequent or intense supervision, likely as an organizational response to manage the risks associated with high demands. Similarly, more competent nurses appeared to attract greater supervisory attention, possibly due to their openness to feedback and professional interactions.

However, the direct effect of supervision on performance was not significant. Even though the overall supervision index was high, it did not directly translate into improved nurse performance. This may be due to the nature of supervisory practices in the hospital, which are often administrative and lack the mentoring or developmental aspects needed to enhance performance effectively.

The findings call into question the current supervisory approach in the hospital. While supervision is present, its effectiveness in contributing to performance remains limited. This may be rooted in inconsistent leadership styles, lack of follow-up training, or the absence of feedback mechanisms. There is a clear need to reorient supervision towards a more supportive, coaching-based model.

Despite the shortcomings in supervision, overall nurse performance was rated high. The strongest aspect was task performance, while adaptive performance scored slightly lower. This suggests that while nurses are effective in routine tasks, they may require more support in adjusting to changes, such as technological advancements or unexpected clinical scenarios.

From a theoretical perspective, the findings diverge from frameworks such as Path-Goal Theory and the Job Demand-Resource Model, which posit that leadership and support (like supervision) should buffer stress and enhance performance. In this case, supervision neither strengthened nor weakened performance outcomes, highlighting a potential mismatch between theory and the practical realities of the workplace.

These results imply that simply having supervision in place is not sufficient to enhance performance. What matters more is how supervision is implemented—whether it is participative, developmental, and aligned with nurses' needs. Without this, its potential to influence performance remains underutilized.

Overall, the study concludes that the most effective way to enhance nurse performance is through managing workload realistically and fostering continuous competency development. While supervision should not be disregarded, it must be redesigned to function as a supportive and empowering tool, rather than a mere administrative function.

These insights provide valuable direction for hospital administrators and nursing leaders to re-evaluate their human resource strategies. Investing in structured training, competency-based evaluations, and reformed supervisory systems may significantly contribute to improving the quality of patient care and overall organizational outcomes.

6. Conclusion

The findings of this study provide empirical evidence that both workload and competence exert significant and direct effects on nurse performance, whether examined simultaneously or individually. Excessive workload was shown to compromise performance due to physical, mental, and emotional strain, whereas higher levels of competence enhanced the ability of nurses to deliver effective and safe care. Although workload and competence were positively associated with supervision, the role of supervision was neither significant as a direct determinant of performance nor as a moderating variable. This indicates that the influence of workload and competence on performance operates independently of supervisory practices.

In conclusion, nurse performance in this context is primarily shaped by workload management and competence development rather than the level of supervision provided. These findings suggest important implications for healthcare organizations, emphasizing the need to implement strategies that optimize workload distribution and invest in continuous competence enhancement through structured training and professional development. By prioritizing these factors, healthcare institutions can strengthen nurse performance and, ultimately, improve the quality and safety of patient care.

7. Implications

Theoretical Implication

This study contributes to the theoretical understanding of workload, competence, supervision, and nurse performance. The finding that workload has a positive relationship with performance supports the notion that an optimal level of workload can enhance efficiency and productivity, provided it is maintained within reasonable limits to avoid fatigue. Furthermore, the significant positive relationship between nurse competence and performance reinforces the theory that professional knowledge and skills are critical determinants in improving the quality of healthcare services

Conversely, the study reveals that supervision neither has a direct effect on performance nor functions as a moderating variable between workload, competence, and performance. This finding extends supervisory and leadership theories in healthcare by suggesting that current supervisory practices may not be effective in influencing performance outcomes. In particular, for highly competent nurses, supervision may have limited relevance, as they already possess the necessary knowledge and skills to work independently. These results underscore the need for further research that incorporates greater complexity, including leadership style, organizational culture, and nurse experience level, to better understand the contextual role of supervision in performance enhancement.

Managerial implication

The findings highlight the importance of effective workload management, particularly in addressing mental workload, to sustain high nurse performance while minimizing the risk of fatigue and burnout. Hospital management should ensure fair and balanced distribution of tasks and invest in continuous training programs, especially in specialized areas such as wound care, to strengthen nurses' clinical competence in line with evolving healthcare needs.

Furthermore, supervisory practices should shift toward a more participatory and supportive approach, particularly in empowering nurses' decision-making in clinical settings. Supervision that emphasizes guidance, encouragement, and collaborative problem-solving is more effective than merely monitoring performance. To foster adaptive performance, hospitals should promote continuous professional development, strengthen team collaboration and communication, facilitate the adoption of nursing technology and innovation, and create a supportive organizational culture that encourages self-learning and reflective practice.

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