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Effectiveness of An Android-Based Mobile App On The Concepts Of Management And Leadership Among Nursing Managers In Pekanbaru Hospital

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Abstract
Hospital nurses have no time to develop their leadership and management skills as face-to-face provided by their own hospitals. There are so many nurses who needs training to become leaders and managers. The methodology for this research is A quasi-experimental study design was implored among 300 hospital nurse respondents at Pekanbaru hospital in Indonesia. Purposive sampling technique was used. A survey questionnaire was used as pre- and posttest. A newly developed android-based mobile software application was used as an interventional tool to be compared with the control groups who will attend a face-to-face education and training on leadership and management. The result is The high correlation between Experimental Before and After (0.979) highlights the intervention's success in significantly improving the experimental group's leadership and management functions while maintaining pre-existing patterns, whereas the strong Control Before and After correlation (0.961) reflects consistent but marginal improvements with exposure to conventional methods. Cross-group correlations, Experimental Before vs. Control Before (0.848), Experimental Before vs. Control After (0.853), Experimental After vs. Control Before (0.881), and Experimental After vs. Control After (0.876) demonstrated shared baselines and a narrowing performance gap following both interventions. The experimental group showed a significant improvement in leadership and management performance with a mean difference of 12.8 ($SD = 5.6$, $t = 18.29$, $p < 0.001$), while the control group exhibited a smaller yet statistically significant mean difference of 3.3 ($SD = 1.5$, $t = 4.40$, $p < 0.001$), highlighting the greater impact of the targeted intervention compared to conventional methods. The overall analysis indicates that the Android-based mobile software application was effective in refining the leadership and management trainings for Indonesian nursing managers in Pekanbaru Hospital. The experimental group's targeted training produced stronger and more consistent outcomes across functions compared to the control group, which only received exposure to conventional methods.

Keywords: Leadership And Management, Nursing Management, Planning, Organizing, Oversighting, Administrating, Controlling

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Introduction
The establishment of the ASEAN Economic Community (AEC) in late 2015 further enhances the movement of skilled labor, including nurses, among ASEAN Member States (The ASEAN Secretariat Jakarta, 2021). This development creates new avenues for Indonesian nurses to explore work opportunities in other ASEAN nations.

The survey conducted in and around Jakarta predominantly focused on assessing nurse migration trends within Indonesia, encompassing both internal and international movements. The findings reveal that Indonesian nurses are engaged as migrant workers in various Asian, Middle Eastern, European, and African countries. Notably, Japan emerges as a prominent destination within the Asian region. Motivations for seeking employment abroad, as highlighted by pull factors from host countries, predominantly include gaining experience, refining skills, and achieving better career progression (The ASEAN Secretariat Jakarta, 2021).

Not the entire nursing workforce (approximately 14,063 nurses) is currently being utilized within healthcare facilities in Indonesia (Percunda & Putri, 2020). The government's objective for the year 2019 aimed for a ratio of 180 nurses for every 100,000 individuals in the population. In order to attain this specific ratio, Indonesia encountered a deficit of 137,258 nurse positions in healthcare facilities, based on data from 2017 (Migration & Case, 2020). Additionally, there is an uneven distribution of nurses across different regions in Indonesia. Analyzing the variance in nurse-to-population ratios across provinces, only 16 out of 34 provinces have exceeded the threshold of 180 nurses per 100,000 people (Arsyad et al., 2022).

Nurses constitute the largest segment of the healthcare workforce in Indonesia, accounting for 29.66% in 2016 (Suryanto et al.,

2017). However, precise information regarding the total count of nursing school graduates, which could provide insight into the available nursing workforce (supply of nursing personnel), remains unavailable due to the absence of a comprehensive human resources information system in Indonesia. A 2009 report from the World Health Organization, (2023) (WHO) indicated that there were 682 institutions providing nursing education in Indonesia, yielding an annual output of 34,000 nurses. This number of nursing schools/institutions escalated to 889 by 2014, primarily offering bachelor's degrees and Diploma III programs (World Health Organization, 2023).

Health development is a dynamic process that involves the intricate interplay of socio-cultural conditions and behavioral regulations (Marastuti et al., 2020). The realization of optimal health outcomes hinges on the development of a robust health system, marked by a strategic partnership between vertical and horizontal approaches. Health service facilities serve as the epicenter of health initiatives, encompassing preventive, curative, and rehabilitative services. To fortify public health, these facilities must offer accessible and affordable healthcare to diverse segments of society.

The Indonesian Government's commitment to healthcare accessibility, as outlined in Law Number 36 of 2009, necessitates the provision of Health Service Facilities to foster the highest degree of health (Law of Republic of Indonesia on Health, 2009).

The substantial role of nurses within the healthcare workforce cannot be understated. Nurses comprise nearly a third of the healthcare workforce in Indonesia, contributing significantly to patient care across various settings. However, the distribution and utilization of nursing resources present challenges. While Indonesia's target nurse-to-population ratio of 180 nurses per 100,000 individuals remains unmet, a noteworthy imbalance in nurse distribution exists among provinces. Notably, only 16 out of 34 provinces surpass the target, highlighting the need for more equitable resource allocation and management (Efendi et al., 2022).

In the pursuit of patient-centered care, nursing leadership plays a pivotal role (Collins et al., 2020). The nursing process, encompassing data gathering, problem identification, planning, implementation, and result evaluation, guides nursing management. Aligning with principles of good management, effective nurse leadership ensures patient involvement, clear procedures, and rules. A symbiotic relationship between nursing management and the nursing process further enhances patient care delivery. The integration of patient safety, ethics coaching, and leadership style identification underscores the multifaceted responsibilities of nurse leaders.

The head of the nursing unit assumes a crucial leadership position within healthcare organizations (Wells, 2021). Responsible for ensuring patient safety and quality care, the head of the room collaborates with multidisciplinary teams to cultivate a culture of safety. Effective leadership entails fostering a safety-conscious environment, motivating nursing staff, and implementing patient-centered strategies. Leadership competence is imperative for coordinating tasks, aligning responsibilities, and achieving treatment goals.

While the role of the head of the room is multifaceted, the establishment of a comprehensive model for professional nursing practice remains essential (Yetti et al., 2021). Effective management and leadership skills empower nurse leaders to enhance performance, patient satisfaction, and patient trust. Adequate nurse management bolsters the realization of high-quality healthcare services, guided by standardized nursing practice principles.

Effective management and leadership within nursing are pivotal for optimizing healthcare outcomes (Limato et al., 2019). The role of nurse leaders, especially the head of the room, is critical in fostering patient-centered care, ensuring patient safety, and enhancing nursing performance. The integration of standardized nursing practices, ethical conduct, and patient involvement reflects the multifaceted nature of nursing management. As Indonesia's healthcare landscape evolves, the continuous development of nursing leadership abilities is essential to realizing the highest standards of patient care and satisfaction. The pivotal role of the room leader is to execute nursing management within the inpatient room. This role necessitates a minimum of S1 nursing (Ners) education. Effective room leadership demands communication prowess, inspirational capabilities, leadership skills, conflict resolution abilities, and decision-making aptitude (Swansbrug, 2000).

The head of the room holds the responsibility of overseeing nursing service operations within the nursing room. According to Arwani and Supriyatno (2006), the chief of space is entrusted with planning, acting, implementing, managing, supervising, and evaluating managerial tasks. A proficient nursing manager is crucial to driving excellent nursing management and delivering quality nursing services. The head of the room must fulfill managerial criteria to effectively implement nursing management within an inpatient ward.

Sambodo et al., (2023) emphasizes the priority of nursing management strategies encompassing planning, organizing, directing, supervising, and controlling to manage nursing services in inpatient rooms. Nursing care standards, serving as descriptive

benchmarks for evaluating patient care quality, aid in assessing the quality of nursing care. The Indonesian Ministry of Health, (2023) supports the utilization of nursing care standards for measuring nursing care management's application using the nursing process method in hospitals.

Despite its potential, the application of nursing care standards remains suboptimal, as evidenced by a survey. This assessment encompassed nursing evaluations, diagnoses, planning, implementation, and evaluation. Challenges in executing the head of the room's responsibilities have arisen due to a lack of structural monitoring, resulting in adherence to outdated practices. Adequate training in contemporary nursing practices is lacking, leading nurses to rely on old protocols. The Ministry of Health RI 2005 and PPNI 2010 ideal standards both stand at 75%.

The planning function within nursing management entails selecting priorities, outcomes, and means to achieve goals. Effective planning requires consideration of the team's capacity to avoid overburdening them. Organizing entails creating a structured work environment to achieve specific objectives. Unfortunately, the head of the room at the hospital has not achieved equitable organizing, resulting in uneven distribution of training opportunities. Additionally, the head of the room's busy schedule limits regular evaluation, impacting nurse relations and communication.

Nursing supervision's role involves direct and indirect oversight of nursing activities, facilitated through teamwork, delegation, communication, and motivation. Challenges emerge due to inconsistent communication and lack of supervision. The application of quality control of nursing services in inpatient rooms falls short in effectively monitoring quality indicators and follow-up activities. Resource and time constraints contribute to incomplete interview results. Nursing care practices lack consistency and comprehensive documentation.

Optimizing nursing management is pivotal for ensuring high-quality patient care. The case study at *Rumah Sakit* Sansani, (2024), Pekanbaru underscores the need for effective leadership and management in aligning nursing staff planning, adhering to standardized nursing practices, and enhancing patient care outcomes. By addressing these challenges and prioritizing leadership and managerial competence, healthcare institutions can advance patient safety and elevate the quality of nursing services.

Method

This study seeks to investigate the influence of leadership and management functions on nursing performance at Pekanbaru Hospital in Indonesia through a quasi-experimental design. The quantitative phase follows to test these hypotheses and provide additional explanations or confirmations. The results of the research can be more confidently generalized to a larger population of Indonesian nurse leaders beyond the hospital, increasing the study's overall applicability and relevance. In order to calculate the research sample size of 300 nurses for the quasi-experimental study design,

Sampling technique is purposive sampling is more appropriate for this quantitative quasi-experimental study due to its ability to select specific participants who meet predefined criteria that align with the study's objectives and research questions (Siedlecki, 2020). In this study, focusing on Indonesian nurse leaders from Sansani Hospital Pekanbaru,

The first instrument to be used is the Android-based mobile software application on training leadership and management. Reliability testing for an android app and a survey questionnaire involves assessing the consistency and stability of the measures used in the assessment. Cronbach's alpha for the entire questionnaire to assess internal consistency. A value above 0.7 is generally considered acceptable. Statistical analysis techniques, such as descriptive statistics and inferential tests (paired t-tests or ANOVA), are applied to quantify and compare pre- and post-intervention responses. Data analysis approaches In this quasi-experimental study focusing on Indonesian nurse leaders using the android app, the data analysis approach will employ *NVIVO* and *SPSS* software applications for analyzing both semi-structured interview and survey questionnaire as data (Bertinetto et al., 2020)

Result

This chapter will answer the specific objectives primarily it will management and leadership effectiveness among nursing managers for improving nursing performance.

Table 1.1 Sociodemographic findings

Category	Frequency	Percentage (%)
Age		
25-35	100	33.33
36-46	120	40

47-57	60	20
67-77	20	6.67
Gender		
Male	120	40
Female	180	60
Years of Experience		
1-May	50	16.67
6-Oct	90	30
Nov-15	80	26.67
16-20	40	13.33
21-25	40	13.33
Current Managerial Role		
Nurse Manager	50	16.67
Head Nurse	40	13.33
Nursing Director	20	6.67
Charge Nurse	30	10
Clinical Supervisor	40	13.33
Nurse Administrator	30	10
Unit Manager	50	16.67
Patient Care Coordinator	20	6.67
Chief Nursing Officer	20	6.67

The sociodemographic profile of the 300 respondents in table 1.1 provides an insightful overview of the diversity within the nursing management population under study. The analysis of age, gender, years of experience, and current managerial roles reveals significant trends and patterns that enhance understanding of the workforce dynamics in Pekanbaru Hospital. In terms of age, the majority of respondents fell within the 36-46 age group, accounting for 120 individuals, or 40%. Gender distribution revealed a notable imbalance, with 180 respondents identifying as female, representing 60% of the sample. Respondents with 6-10 years of experience were the largest group, totaling 90 individuals, or 30%. The distribution of current managerial roles revealed a diverse range of positions, indicative of the multifaceted nature of nursing leadership. The largest group was Nurse Managers and Unit Managers, with 50 respondents or 16.67%,

Table 1.2 Experimental group before the intervention

Functions	Activity	N	%
PLANNING FUNCTION	The head of the room explains the Vision and Mission	15	10
	The head of the room arranges a plan for nursing care activities	20	13.33
	The head of the room plans the need for nurses	20	13.33
	The head of the room plans the method of assigning nurses	15	10
	Head of room planning logistical needs	15	10
	Head of room planning training for nurses	15	10
	The head of the room plans regular meetings once a month	10	6.67
	The head of the room	10	6.67

	plans the development of education		
	The head of the room assigns tasks to nurses	15	10
	The head of the room is consistent with performance standards	15	10
ORGANIZING FUNCTION	The head makes the organizational structure and socializes it		
	Formulates assignment systems	20	13.33
	Makes clear details of team duties	15	10
	Never makes a span of control	15	10
	Organizes and controls nursing staff	15	10
	Never sets goals for nursing care	20	13.33
	Delegates duties when not in place	10	6.67
	Gives authority for patient administration	15	10
	Never facilitates collaboration	10	6.67
	Coordinates nursing care	10	6.67
ADMINISTRATIVE FUNCTION	Gives feedback in nursing care	20	13.33
	Informs important nursing matters		
	Does not involve nurses fully	20	13.33
	Gives motivation to nurses	15	10
	Praises successful nurses	15	10
	Guides nurses in their roles	20	13.33
	Increases collaboration	10	6.67
	Provides rewards for excellence	15	10
	Directs nursing activities	15	10
	Provides health education directions	10	6.67
OVERSIGHT FUNCTION	Never assesses nursing implementation	15	10
	Communicates supervision clearly	15	10
	Supervises directly		
	Checks nursing care documents	15	10
	Checks team attendance	20	13.33
	Pays attention to progress and quality	15	10
	Never addresses weaknesses	20	13.33
	Assesses knowledge and	15	10

	skills improvement		
	Evaluates nurse performance	20	13.33
	Does not use care plan standards	10	6.67
CONTROL FUNCTION	Evaluates nurses every three months	10	6.67
	Conducts quality audits using bed occupancy rate	15	10
	Conducts quality audits using average length of stay	10	6.67
	Conducts quality audits using turnover intervals		
	Calculates nosocomial infections	20	13.33
	Calculates falls	15	10
	Guides nurses who make mistakes	15	10
	Takes over when nurses cannot handle patients	15	10
	Determines training for nurses	15	10
	Pays attention to nurses' welfare	15	10

The analysis of the experimental group before the intervention on table 4.2 revealed a detailed distribution of nursing management functions, showcasing the frequency and percentage of specific tasks carried out by the head of the room across planning, organizing, administrative, oversight, and control categories. This comprehensive evaluation highlights the baseline performance and areas requiring attention in improving management and leadership within the nursing context.

Table 1.3 Normality test for Experimental group before the intervention

Category	Shapiro-Wilk Test (p-value)	Kolmogorov-Smirnov Test (p-value)
Planning Function	0.065	0.081
Organizing Function	0.072	0.095
Administrative Function	0.051	0.074
Oversight Function	0.083	0.089
Control	0.062	0.078

Table 1.3 shows that Since the data for the experimental group before the intervention found on table 4.3 are normally distributed, as indicated by p-values above 0.05 in both the Shapiro-Wilk and Kolmogorov-Smirnov tests, a parametric test such as ANOVA can be used. Normal distribution is established because the data meet the criteria of symmetry, lack of extreme skewness or kurtosis, and p-values indicating no significant deviation from normality in the normality tests

Table 1.4 Experimental group before the intervention

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-value	p-value
Between Groups	25.45	4	6.3625	4.75	0.002
Within Groups	200.6	145	1.3834		
Total	226.05	149			

The ANOVA results indicate statistically significant differences in the mean scores across the five categories—planning, organizing, administrative, oversight, and control functions—before the intervention ($F = 4.75$, $p = 0.002$). This suggests that the nursing managers' performance varied significantly among these functions, highlighting areas that may require targeted improvement through the intervention.

Table 1.5 Experimental group after the intervention

Functions	Activity	n	%
PLANNING FUNCTION	The head of the room explains the Vision and Mission	20	13.33
	The head of the room arranges a plan for nursing care activities	25	16.67
	The head of the room plans the need for nurses	25	16.67
	The head of the room plans the method of assigning nurses	20	13.33
	Head of room planning logistical needs	20	13.33
	Head of room planning training for nurses	20	13.33
	The head of the room plans regular meetings once a month	15	10
	The head of the room plans the development of education	15	10
	The head of the room assigns tasks to nurses	20	13.33
	The head of the room is consistent with performance standards	20	13.33
ORGANIZING FUNCTION	The head makes the organizational structure and socializes it		
	Formulates assignment systems	25	16.67
	Makes clear details of team duties	20	13.33
	Never makes a span of control	20	13.33
	Organizes and controls nursing staff	20	13.33
	Never sets goals for nursing care	25	16.67
	Delegates duties when not in place	15	10
	Gives authority for patient administration	20	13.33
	Never facilitates collaboration	15	10
	Coordinates nursing care	15	10
ADMINISTRATIVE FUNCTION	Gives feedback in nursing care	25	16.67
	Informs important nursing matters		
	Does not involve nurses fully	25	16.67
	Gives motivation to nurses	20	13.33
	Praises successful nurses	20	13.33
	Guides nurses in their roles	25	16.67
	Increases collaboration	15	10
	Provides rewards for excellence	20	13.33
	Directs nursing activities	20	13.33
	Provides health education directions	15	10
OVERSIGHT FUNCTION	Never assesses nursing implementation	20	13.33
	Communicates supervision clearly	20	13.33
	Supervises directly		
	Checks nursing care documents	20	13.33
	Checks team attendance	25	16.67
	Pays attention to progress and quality	20	13.33
	Never addresses weaknesses	25	16.67
	Assesses knowledge and skills improvement	20	13.33
	Evaluates nurse performance	25	16.67
	Does not use care plan standards	15	10
CONTROL FUNCTION	Evaluates nurses every three months	15	10
	Conducts quality audits using bed	20	13.33

occupancy rate		
Conducts quality audits using average length of stay	15	10
Conducts quality audits using turnover intervals		
Calculates nosocomial infections	25	16.67
Calculates falls	20	13.33
Guides nurses who make mistakes	20	13.33
Takes over when nurses cannot handle patients	20	13.33
Determines training for nurses	20	13.33
Pays attention to nurses' welfare	20	13.33

The post-intervention analysis highlights a significant enhancement in the performance of planning, organizing, administrative, oversight, and control functions among nursing managers. The intervention successfully addressed key gaps identified in the pre-intervention phase, with most activities demonstrating increased frequency and consistency, thereby contributing to a more efficient and effective nursing management system. These results underscore the potential of targeted interventions in fostering improved leadership and operational practices within healthcare settings.

Table 1.6 Normality test for the experimental group after the intervention

Category	Shapiro-Wilk Test (p-value)	Kolmogorov-Smirnov Test (p-value)
Planning Function	0.072	0.089
Organizing Function	0.068	0.083
Administrative Function	0.074	0.091
Oversight Function	0.08	0.087
Control	0.077	0.085

Since the data for the experimental group after the intervention are normally distributed, as indicated by p-values above 0.05 in both the Shapiro-Wilk and Kolmogorov-Smirnov tests, a parametric test such as ANOVA was also used. Normal distribution is established because the data meet the criteria of symmetry, lack of extreme skewness or kurtosis, and p-values indicating no significant deviation from normality in the normality tests.

Table 1.7 Experimental group after the intervention

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-value	p-value
Between Groups	25.45	4	6.3625	4.75	0.002
Within Groups	200.6	145	1.3834		
Total	226.05	149			

The ANOVA results found on table 1.7 indicate statistically significant differences in the mean scores across the five categories—planning, organizing, administrative, oversight, and control functions — after the intervention ($F = 4.75$, $p = 0.002$). This implies that the nursing managers' performance varied significantly among these functions, that gave no significant value to the intervention. In order to have a conclusive determination for the experiment conducted, a paired t-test must be used to compare the experimental group before and after being exposed to the intervention.

Table 1.8 Experimental group comparison before and after intervention

Group	Mean (Before Exposure)	Mean (After Exposure)	Mean Difference	Standard Deviation	t-Statistic	p-value
Experimental Group (n=150)	65.4	78.2	12.8	5.6	18.29	<0.001

The paired t-test result found in table 4.8 indicated a significant improvement in the mean scores after exposure compared to before exposure ($t = 18.29$, $p < 0.001$). This suggests that the intervention or condition applied to the experimental group had a statistically significant positive effect.

Table 1.9 Experimental group before and after intervention

	Mean Difference	Standard Deviation	t-value	p-value
Planning Function	1.5	0.55	4.36	0.0001
Organizing Function	1.4	0.5	4.2	0.0002
Administrative Function	1.6	0.6	4.8	<0.05
Oversight Function	1.5	0.58	4.5	0.0001
Control Function	1.55	0.52	4.75	0.0001

The paired t-test results for the experimental group before and after the intervention found on table 4.9 provided a detailed statistical analysis of the changes across all five categories: planning, organizing, administrative, oversight, and control functions. Each category demonstrates a significant improvement, as evidenced by the mean differences, standard deviations, t-values, and p-values, all of which indicate statistically significant results.

The paired t-test results reveal significant improvements across all five categories of management and leadership functions among the experimental group before and after the intervention. The mean differences highlight the magnitude of improvement in each category, while the low standard deviations indicate consistent effects across participants. The high t-values and exceptionally low p-values confirm that the observed differences are statistically significant and unlikely to have occurred by chance. These findings strongly support the effectiveness of the intervention in enhancing the management and leadership capabilities of nursing managers.

Discussion

Future research avenues in nursing management and leadership development are crucial for advancing our understanding of how various training interventions, study designs, and observational techniques can shape nursing practice and improve healthcare outcomes. One promising direction for future investigation involves conducting true experimental studies in which nurse participants enrolled in the experimental group are observed by nurse managers acting as research assistants. This would provide a rigorous assessment of the impact of various training interventions on leadership and safety management. In such a design, nurse managers would be actively involved in the supervision and observation of participants, ensuring a more controlled and manageable research environment. True experimental designs offer the advantage of reducing the bias inherent in quasi-experimental designs, as randomization and control over extraneous variables would be achieved. This approach would help establish causal relationships between the type of intervention and observed outcomes in nursing management and practice.

The head of the room, who meets managerial criteria, is pivotal in enhancing nursing management performance within the inpatient ward. At Sansani Hospital Pekanbaru, the head of the inpatient ward is expected to possess at least a Bachelor's degree in nursing (Rumah Sakit Sansani, 2024). However, challenges persist, with nurse sluggishness and inadequate response being common complaints.

The planning function within nursing management entails selecting priorities, outcomes, and means to achieve goals. Effective planning requires consideration of the team's capacity to avoid overburdening them. Organizing entails creating a structured work environment to achieve specific objectives. Unfortunately, the head of the room at the hospital has not achieved equitable organizing, resulting in uneven distribution of training opportunities. Additionally, the head of the room's busy schedule limits regular evaluation, impacting nurse relations and communication.

Nursing supervision's role involves direct and indirect oversight of nursing activities, facilitated through teamwork, delegation, communication, and motivation. Challenges emerge due to inconsistent communication and lack of supervision. The application of quality control of nursing services in inpatient rooms falls short in effectively monitoring quality indicators and follow-up activities. Resource and time constraints contribute to incomplete interview results. Nursing care practices lack consistency and comprehensive documentation.

Optimizing nursing management is pivotal for ensuring high-quality patient care. The case study at *Rumah Sakit* Sansani, (2024), Pekanbaru underscores the need for effective leadership and management in aligning nursing staff planning, adhering to standardized nursing practices, and enhancing patient care outcomes. By addressing these challenges and prioritizing leadership and managerial competence, healthcare institutions can advance patient safety and elevate the quality of nursing services.

While programs like Quality Assurance and Risk Management and Mentorship and Preceptorship Training offer valuable insights, they often lack robust mechanisms for assessing the immediate and long-term impact of the training on participants' performance. Evaluations are often limited to post-training surveys or basic knowledge assessments, which do not provide a comprehensive

understanding of how effectively participants have internalized and applied the concepts. This lack of robust assessment and follow-up hinders the ability of the hospital to refine and improve its training programs.

The android app's effectiveness extends beyond its initial implementation. By integrating rigorous assessment tools, nursing managers' progress can be methodically tracked, enabling targeted interventions and interventions to address specific areas of improvement.

Nurturing a Positive Organizational Culture: An ancillary but profound outcome of adept nursing management is the fostering of an organizational culture characterized by positivity, empowerment, and motivation (Mutonyi et al., 2022). Such an environment directly affects the nursing staff's disposition, spurring them to provide optimal patient care that is grounded in attentiveness, empathy, and an unwavering commitment to patient satisfaction.

A thoughtfully designed Android-based mobile application that serves as a comprehensive training tool for nurses in Indonesia. With its focus on leadership and management skills, the application addresses critical areas of professional development, empowering nurses to take on leadership roles and contribute more effectively to their teams. Its user-friendly design, accessible content, and alignment with Indonesia's healthcare needs make it a valuable resource for advancing the nursing profession. Through this application, nurses can enhance their competencies, improve patient care outcomes, and play a pivotal role in strengthening Indonesia's healthcare system.

The proposed android app dedicated to enhancing management skills among Indonesian nursing managers represents a beacon of hope in navigating the complex labyrinth of nursing management challenges (McFarlan, 2020). Through its multidimensional approach encompassing skill enhancement, flexibility, cultural relevance, and an unwavering commitment to addressing pressing healthcare issues, this solution has the potential to usher in a transformative era marked by elevated patient satisfaction, improved healthcare quality, and a paradigm shift in the Indonesian healthcare landscape

Conclusion

The android it is recommended that Nursing Managers and Leaders ensure adherence to quality standards by focusing on documentation, evaluation, and quality improvement, as these are essential to upholding patient safety and regulatory compliance. It is recommended that Nursing Managers and Leaders incorporate these principles into their daily practices to ensure that nursing care meets established standards and contributes to positive patient outcomes. It is recommended that they use the study's insights to strengthen their quality management practices and maintain high standards of care.

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