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The Influence of Hospital Management Information System Utilization and Facilities on Health Worker Performance at Rumkitalmar Ewa Pangalila in Supporting Marine Soldier Combat Readiness

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Abstract

Background : The performance of health workers at Rumkitalmar Ewa Pangalila has not been optimal due to challenges in the utilization of technology and limitations in physical facilities that support hospital operations. Effective implementation of the Hospital Management Information System (SIMRS) and adequate facilities are essential to improve operational efficiency and healthcare service quality. **Objective :** This study aims to analyze the effect of the Hospital Management Information System (SIMRS) and physical facilities on the performance of health workers at Rumkitalmar Ewa Pangalila. Specifically, it examines the individual and simultaneous influence of SIMRS (X1) and facilities (X2) on health worker performance (Y). **Methods :** This study employed a quantitative research design with a positivistic approach. A simple random sampling technique was used to select 37 respondents. Data were collected through questionnaires that underwent validity and reliability testing. The data were analyzed using multiple linear regression and classical assumption tests to determine the relationships among variables. **Results :** The findings revealed that SIMRS had a positive and significant effect on health worker performance ($t = 4.736$; $p < 0.05$). Facilities also showed a positive and significant influence on performance ($t = 3.278$; $p < 0.05$). Simultaneously, SIMRS and facilities significantly affected health worker performance ($F = 41.681$; $p < 0.05$). The coefficient of determination (R^2) was 0.710, indicating that 71% of the variation in health worker performance could be explained by SIMRS utilization and facilities. **Conclusion :** The study concludes that optimizing the use of SIMRS and improving hospital physical facilities are crucial for enhancing health worker performance. These improvements can increase operational efficiency and healthcare service quality, ultimately supporting the physical and mental readiness of marine soldiers. Therefore, continuous training for health personnel and the improvement and upgrading of hospital facilities are recommended.

Keywords: Hospital Management Information System (SIMRS); Health Worker Performance; Facilities; Operational Efficiency; Rumkitalmar Ewa Pangalila.

Introduction

The Indonesian Navy Marine Hospital, Ewa Pangalila Marine Hospital (Rumkitalmar Ewa Pangalila), plays an important role in maintaining the health of Marine soldiers and their families while also providing health services to the general public. The hospital is responsible for ensuring that soldiers remain in optimal physical and mental condition, which directly supports combat readiness. The physical and psychological health of soldiers influences their ability to carry out military missions, respond to operational demands, and remain resilient under pressure. Therefore, the provision of high-quality, fast, accurate, and well-organized health services is essential to maintain the readiness of Marine soldiers in

facing various duties and operational challenges.[1,2]

The use of a Hospital Management Information System (HMIS/SIMRS) at Rumkitalmar Ewa Pangalila is essential for supporting hospital operational efficiency. SIMRS enables integration of administrative and clinical processes into one centralized digital system, including patient registration, medical record management, medical service scheduling, reporting, and management of other health service resources. Through SIMRS, patient data can be accessed in real time by authorized health workers, thereby accelerating clinical decision-making, reducing duplication of work, improving data accuracy, and strengthening the quality of services provided to patients.[3,4]

Rumkitalmar Ewa Pangalila faces considerable challenges in ensuring soldier readiness through optimal medical services. SIMRS is not only used to manage patients from military personnel and their families, but also to serve civilian patients in accordance with applicable legal and institutional regulations. The system supports coordination across hospital units, minimizes administrative errors, improves communication between service units, and strengthens the continuity of care. In the context of a military hospital, reliable information systems are particularly important because delays, inaccurate records, or fragmented service flow may affect both patient safety and the operational readiness of personnel who depend on hospital services.[5,6]

The implementation of SIMRS is not without challenges, especially in relation to human resource readiness. Not all medical and administrative personnel have sufficient skills in using digital technology. Regular and continuous training is therefore necessary to optimize the use of SIMRS. In addition, SIMRS implementation requires adequate technological infrastructure, including reliable internet networks, sufficient hardware, user-friendly software, and secure systems to protect patient data from potential leakage or misuse. Alongside technological challenges, Rumkitalmar Ewa Pangalila also faces limitations in physical facilities that may affect the work efficiency of health personnel. Limited registration space, damaged medical equipment, and infrastructure problems can slow service processes, reduce staff comfort, and decrease the quality of care. Improvement of hospital facilities is therefore urgently needed so that health workers can perform their duties in a safer, more comfortable, and more supportive environment.[7,8]

Effective implementation of SIMRS can improve hospital operational efficiency, but optimal results can only be achieved when the digital system is supported by adequate physical facilities. Information technology and hospital infrastructure should not be viewed as separate components. A digital system may accelerate documentation and coordination, but health workers still require appropriate rooms, functional equipment, reliable supporting facilities, and a conducive work environment to translate digital efficiency into better clinical service. Therefore, the implementation of SIMRS should be accompanied by continuous improvement of hospital facilities to ensure that health personnel can work more effectively and provide better services.[9,10]

The workload of health workers at Rumkitalmar Ewa Pangalila also influences the quality of services provided. Several work units, such as the Kesla Subdivision and Wat Subdivision, reportedly had a very high Workload Index, reaching more than 147%. This condition indicates that health personnel face a heavy volume of work, which may reduce concentration, limit the time available for patient care, and affect service quality.

Excessive workload may also increase fatigue, reduce motivation, and contribute to administrative delays. Therefore, evaluation of SIMRS utilization and hospital facility management is important to reduce excessive administrative burden on health workers. If physical facilities and technological infrastructure are inadequate, the performance of health personnel may decline further. Conversely, when SIMRS is optimized and supported by adequate facilities, health workers can provide faster, more accurate, and better-organized services. Their performance is directly related to the combat readiness of Marine soldiers because high-quality medical care supports not only physical recovery but also mental well-being. Trained health personnel, reliable systems, and adequate facilities can therefore contribute significantly to maintaining military readiness.[11,12]

Considering the important role of technology and hospital infrastructure, Rumkitalmar Ewa Pangalila must optimize health service delivery by strengthening both the Hospital Management Information System (SIMRS) and hospital facilities. These improvements are expected to enhance health worker performance and support the operational readiness of Marine personnel. Therefore, this study examines the effects of SIMRS, hospital facilities, and their combined influence on the performance of health workers at Rumkitalmar Ewa Pangalila.[13,14]

Materials and Methods

Study Design

This study used a quantitative research methodology based on the positivist paradigm, emphasizing objective observation, measurable variables, and the ability to generalize findings from the study population. The research was designed to obtain a measurable understanding of the observed phenomenon and to draw objective conclusions based on statistical analysis of collected data. Data were obtained directly from the study population using a structured instrument, namely a questionnaire designed to measure the use of SIMRS, hospital facilities, and health worker performance. The hypotheses formulated in this study were tested using statistical analysis to determine both partial and simultaneous effects of the independent variables on the dependent variable.[15]

Sample

The inclusion criteria in this study were health workers at Rumkitalmar Ewa Pangalila who were hospital staff aged 18–50 years, had at least a Diploma III educational background, and were willing to complete the questionnaire. The exclusion criterion was health workers at Rumkitalmar Ewa Pangalila who did not complete the questionnaire fully. The total number of staff at Rumkitalmar Ewa Pangalila was 251 people, of whom 35 were non-health personnel and therefore did not meet the inclusion criteria. Thus, the eligible population consisted of 216 health workers. Each individual in the population had an equal opportunity to be selected as a sample through a simple random sampling technique. This sampling method was used to reduce selection bias and to ensure that the selected respondents could represent the study population proportionally.[15,16]

Data Collection Technique

The data source used in this study was a questionnaire distributed through a Google Form containing closed-ended questions. The questionnaire consisted of two main sections. The first section collected demographic information from participants, while the second section contained a series of closed questions related to SIMRS utilization, hospital facilities, and health worker performance. Respondents

were asked to select one of five available response options using a Likert-scale format. This format was chosen because it allows respondents' perceptions to be measured quantitatively and enables statistical testing of relationships among variables.[17]

Data Analysis Technique

The research hypotheses were tested by statistically analyzing the data collected through the questionnaire. The data analysis process included validity testing, reliability testing, normality testing, autocorrelation testing, multicollinearity testing, heteroscedasticity testing, t-tests, and F-tests. These procedures were used to ensure that the research instrument was appropriate, the regression model met the required assumptions, and the relationship between SIMRS, facilities, and health worker performance could be interpreted accurately.[18]

Validity testing was used to determine whether the measurement instrument appropriately measured the intended variables. Reliability referred to the extent to which measurement results remained consistent when the same phenomenon was measured repeatedly using a similar instrument. Cronbach's Alpha was used to assess item reliability, and an alpha value greater than 0.6 indicated that the item was reliable. Normality testing was conducted to determine whether the dependent and independent variables in the regression model were normally distributed. Autocorrelation testing was used to identify whether there was a relationship among observations arranged by time series or cross-sectional order. Multicollinearity testing examined whether correlations existed among independent variables in the regression model. Heteroscedasticity testing assessed whether the residual variance differed across observations. The t-test was used to determine whether SIMRS and facilities separately or partially influenced health worker performance, while the F-test was used to determine whether both independent variables simultaneously influenced the dependent variable. The decision was based on probability significance values, where a significance value greater than 0.05 indicated that the null hypothesis was accepted, while a value below 0.05 indicated that the null hypothesis was rejected and the alternative hypothesis was accepted.[18,19]

Ethical Consideration

This study was conducted by observing the principles of research ethics. All respondents received information regarding the purpose, procedures, and benefits of the study before participating. Participation was voluntary and was indicated by the respondents' willingness to complete the questionnaire. The identities and confidentiality of respondents' data were protected and used only for research purposes. The study was also conducted after obtaining permission from Rumkitalmar Ewa Pangalila, and, when required according to institutional regulations, approval from the relevant health research ethics committee. The study upheld respect for autonomy, beneficence, non-maleficence, confidentiality, and fairness throughout the research process.[20]

Results

Validity testing showed that all instruments for the SIMRS, facilities, and health worker performance variables had correlation coefficient values greater than the r-table value of 0.325; therefore, all instrument items were declared valid. Reliability testing showed that all variables had Cronbach's Alpha values greater than 0.80, indicating that the instruments used were highly reliable because the values exceeded the minimum reliability threshold of 0.6. These findings indicate that the questionnaire was appropriate for

measuring the study variables and could be used for further statistical analysis.

Classical assumption testing, including normality, linearity, multicollinearity, heteroscedasticity, and autocorrelation tests, showed results that met the required criteria. The normality test showed p-values for the Hospital Management Information System, facilities, and health worker performance variables of 0.000, 0.002, and 0.000, respectively. These values were interpreted in the study as supporting the distribution requirements for subsequent analysis. The overall assumption testing process was conducted to ensure that the regression model could be used to examine the influence of SIMRS and facilities on health worker performance.

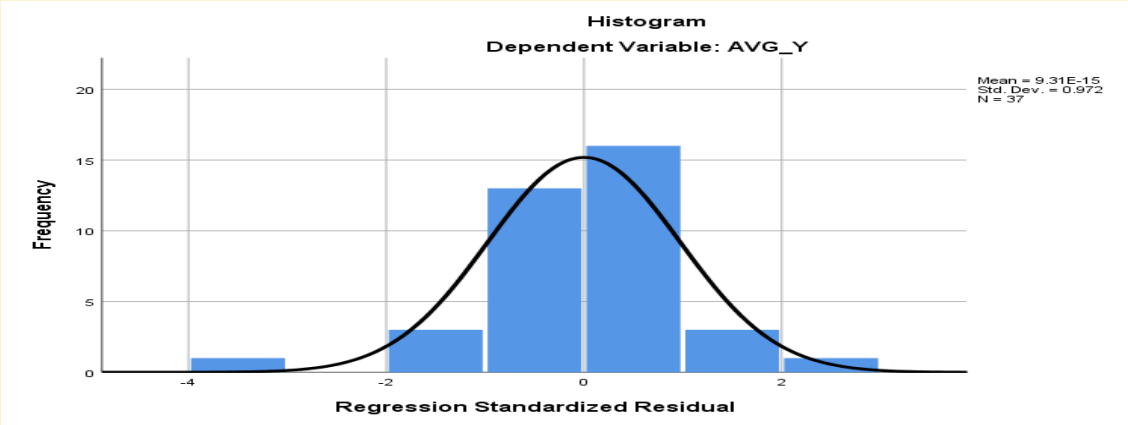

Figure 1. Normality Histogram

The linearity test showed a linearity significance value below 0.05, indicating a linear relationship between the independent and dependent variables. The multicollinearity test showed a tolerance value of 0.626, which was greater than 0.10, and a variance inflation factor (VIF) value of 1.598, which was below 10. These results indicate that there was no multicollinearity problem between the independent variables. The heteroscedasticity test using a scatterplot also did not show a significant problem, indicating that the residual variance was acceptable for the regression model.

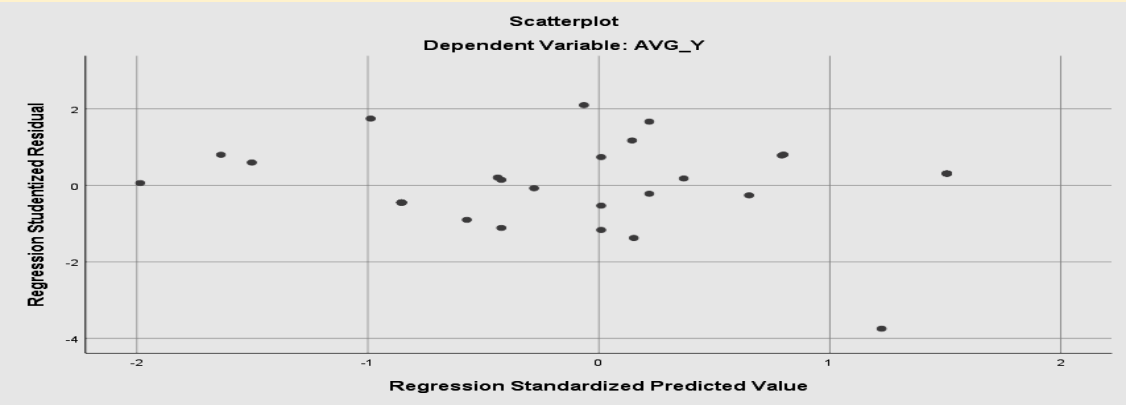

Figure 2. Scatterplot

The autocorrelation test showed a Durbin-Watson value of 1.903, which was greater than the upper limit value (dU = 1.5904) and lower than 4-dU = 2.4096; therefore, the regression model was free from autocorrelation. Multiple regression analysis showed that SIMRS and facilities partially had positive and significant effects on health worker performance. This was indicated by the t-value for SIMRS of 4.736 and the t-value for facilities of 3.278, both of which were greater than the t-table value of 2.03224. Thus, the first and second hypotheses were accepted, meaning that optimal use of SIMRS and adequate facilities improved health worker performance. Simultaneously, the F-test produced an F-count value of 41.681, which was greater than the F-table value of 2.88. This indicates that the two variables simultaneously had a significant effect on health worker performance, and their combination produced a stronger influence on performance outcomes.

The coefficient of determination (R^2) was 0.710, indicating that 71% of the variation in health worker performance could be explained by SIMRS and facilities, while the remaining 29% was influenced by other factors not examined in this study. This finding confirms the importance of integrating the Hospital Management Information System and adequate physical facilities to improve operational efficiency and the quality of health services in the hospital.

Discussion

This study investigated how the performance of health workers at Rumkitalmar Ewa Pangalila was influenced by the use of the Hospital Management Information System (SIMRS) and hospital facilities. The findings show that both factors play important roles in supporting health worker performance, either separately or simultaneously.

The Influence of the Hospital Management Information System (SIMRS) on Health Worker Performance

The partial t-test result, with a t-count value of 4.736 greater than the t-table value of 2.03224, showed that SIMRS had a significant effect on health worker performance. This finding can be explained by the quality of information produced by SIMRS. Accurate, complete, timely, and relevant information helps health workers make clinical decisions more quickly and appropriately, thereby supporting their performance. SIMRS also helps health workers manage patient data more effectively, accelerate services, and minimize administrative or medical errors. Previous studies support the view that the use of information technology in hospital management can improve service quality and operational efficiency. Therefore, when SIMRS is properly implemented at Rumkitalmar Ewa Pangalila, the performance of health workers becomes more optimal.[21,22]

Based on these findings, hospital management should strengthen the implementation of the Hospital Management Information System (SIMRS) through regular training and continuous capacity building for all health workers. Periodic evaluations of system utilization, together with the introduction of new features that improve workflow efficiency, are recommended. Competency development through workshops, simulations, and practical training can enhance users' ability to adapt to system updates and technological changes. The effectiveness of SIMRS depends not only on the availability of the system itself but also on user competence, organizational commitment, adequate infrastructure, and ongoing technical support. Strengthening these aspects is expected to improve health worker performance and the overall quality of hospital services[23,24].

The Influence of Facilities on Health Worker Performance

The next finding, with a t-count value of 3.278, showed that hospital facilities had a positive and significant effect on health worker performance. Adequate facilities support health workers in performing tasks with better focus, speed, and accuracy, thereby increasing productivity and service quality. Good facilities can also improve health worker satisfaction, and this satisfaction contributes to higher motivation and commitment to work. Previous research has shown that hospital facilities with good room quality and availability of medical equipment can improve work efficiency among health workers and the quality of services delivered to patients.[25,26]

Adequate hospital facilities make health workers feel more comfortable and encourage them to perform better. This condition is particularly important in a military hospital environment such as Rumkitalmar Ewa Pangalila, where health workers must provide fast and accurate services for military personnel, their families, and general patients. A supportive work environment reduces service barriers, improves coordination among units, and allows health workers to concentrate more fully on patient care.

The policy implication of this finding is that hospital management should prioritize greater budget allocation for improvement and maintenance of hospital facilities, including medical service rooms, equipment, and other supporting infrastructure. Strategies that can be applied include identifying rooms or facilities that most urgently require renovation and planning gradual facility upgrades based on priority. Periodic facility audits should also be conducted to assess feasibility and readiness, while health workers should be involved in determining which facilities most urgently need improvement.

The Simultaneous Influence of SIMRS and Facilities on Health Worker Performance

The simultaneous F-test showed that facilities and SIMRS significantly influenced health worker performance at Rumkitalmar Ewa Pangalila. With an F-count value of 41.681 greater than the F-table value of 2.88 and a significance value of 0.000 below 0.05, the findings indicate that both variables support each other and jointly influence health worker performance. SIMRS and facilities affect performance because they provide technological support and a work environment that enables health workers to work more efficiently, quickly, and accurately. Together, these factors increase job satisfaction, facilitate decision-making, smooth workflow, and improve health service delivery.[27]

Performance theory also supports the relationship between technology and physical facilities in improving health worker performance. This theory emphasizes that factors such as information system quality and working conditions directly influence performance outcomes. Therefore, hospitals that seek to improve service quality and operational efficiency must consider both aspects simultaneously. In practice, digital information systems can improve data flow and administrative efficiency, while adequate facilities ensure that services can be delivered safely, comfortably, and effectively. The integration of these two components has a direct impact on the quality of medical services provided to patients.[28]

The policy that can be taken is to formulate a long-term plan emphasizing integration between technology, particularly SIMRS, and the improvement of hospital physical facilities. The strategy should ensure that facility improvements are carried out together with information system strengthening, including the provision of hardware and software that

optimally support SIMRS. Efforts should include strict supervision of infrastructure improvement and SIMRS strengthening processes, as well as intensive training for medical personnel on the use of existing technology and facilities. Although this study shows that SIMRS and hospital facilities significantly affect health worker performance, implementation challenges must still be addressed. One of the greatest challenges is human resource readiness in facing technological change and facility development. Therefore, continuous mentoring and training are needed to ensure that hospital technology and facilities are used optimally by all health workers.[29]

In addition, routine evaluation of SIMRS and facilities is necessary to assess their effectiveness and identify areas requiring further improvement. Periodic monitoring of health worker performance should also be conducted to determine how changes in SIMRS and facilities influence service outcomes, both in terms of medical service quality and hospital operational efficiency. A continuous evaluation mechanism can help hospital management detect barriers earlier, adjust policies according to field conditions, and ensure that improvement programs remain aligned with the needs of health personnel and patients.[30]

Conclusion

Based on the results of this study, it can be concluded that SIMRS has a positive and significant effect on the performance of health workers at Rumkitalmar Ewa Pangalila, as shown by the t-count value of 4.736, which was greater than the t-table value of 2.03224, with a significance value below 0.05. This indicates that SIMRS facilitates health workers in making clinical decisions accurately and quickly while minimizing administrative and medical errors. Hospital facilities also have a positive and significant effect on health worker performance, as shown by the t-count value of 3.278, which was greater than the t-table value of 2.03224, with a significance value below 0.05. Adequate facilities support health workers in working with greater focus, speed, and accuracy, while also increasing motivation and commitment to work. Furthermore, SIMRS and facilities simultaneously influence health worker performance, as shown by the F-count value of 41.681, which was greater than the F-table value of 2.88, with a significance value of 0.000 below 0.05. These findings confirm that the integration of digital hospital management systems and adequate physical facilities is essential for improving health worker performance and supporting the combat readiness of Marine soldiers.

The study has several implications for theory, practice, policy, and future research. Theoretically, this study contributes to the development of knowledge in health information system management and health worker performance, particularly in the context of military hospitals. It strengthens the understanding that SIMRS can be examined quantitatively as a determinant of health worker performance. Practically, the implementation of SIMRS supported by adequate hospital facilities has been shown to improve the performance of health personnel by enabling them to work more quickly, accurately, and efficiently. From a policy perspective, these findings provide input for Indonesian Navy leadership and Rumkitalmar Ewa Pangalila management regarding the importance of strengthening SIMRS utilization and facility improvement as part of hospital development. For future research, this study opens opportunities for deeper investigation of additional factors not examined in the present study, such as leadership, organizational

culture, workload, digital literacy, user satisfaction, and patient safety outcomes.

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