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ANALYSIS OF HEALTH HUMAN RESOURCES PERFORMANCE WITH HR SCORECARD AND AHP

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ABSTRACT
Human resource performance is essential for ensuring hospital service quality and organisational sustainability. At the Islamic Hospital of Lumajang, several key performance indicators, including training budget realisation, new patient acquisition, medical record completeness, and medication dispensing timeliness, remained below organisational targets, highlighting the need for a comprehensive performance measurement system. Objective: To analyse healthcare human resource performance using the Human Resource Scorecard (HRSC) integrated with the Analytical Hierarchy Process (AHP). A descriptive evaluative study was conducted using the HRSC framework across four perspectives: financial, customer, internal business process, and learning and growth. Indicator priorities were weighted through AHP based on assessments from six hospital managers. Secondary KPI data from 2023–2024 were analysed to generate weighted performance scores. The learning and growth perspective received the highest priority weight (0.53), followed by internal business process (0.27), financial (0.14), and customer (0.06). The overall weighted human resource performance score increased from 4.23 in 2023 to 4.43 in 2024, both categorised as very good. High-performing indicators included compliance with the Six Patient Safety Goals, a 100% competency examination pass rate, prompt complaint handling, and effective interprofessional clinical coordination. Lower-performing indicators were training budget realisation, new patient acquisition, medication preparation timeliness, and medical record completeness. Human resource performance was categorised as very good. However, strengthening staff development, medical record documentation, medication service efficiency, and patient acquisition strategies remains necessary to sustain hospital service quality.

Keywords: analytical hierarchy process; healthcare workforce; hospital performance; human resource scorecard; key performance indicator; strategic management

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INTRODUCTION

Healthcare organisations rely heavily on human resources (HR) to achieve high-quality, safe, and sustainable healthcare services. Unlike other industries, hospital performance is largely determined by the competence, commitment, and productivity of healthcare professionals who directly influence clinical outcomes and patient satisfaction. Therefore, an effective human resource performance measurement system has become an essential component of hospital management to ensure that organisational objectives are achieved while maintaining service quality and patient safety (Al-Dossary, 2022; Anggraeni et al., 2023).

Traditionally, human resource performance in many hospitals has been evaluated using administrative indicators such as attendance, discipline, and productivity. Although these indicators remain important, they are insufficient to describe employees' strategic contribution to organisational performance. Modern healthcare management requires a more comprehensive performance measurement approach that incorporates financial efficiency, patient satisfaction, internal business processes, and continuous learning and growth. The Human Resource Scorecard (HRSC), adapted from the Balanced Scorecard framework, enables organisations to evaluate human

resources from multiple strategic perspectives and align employee performance with organisational goals (Anggraeni et al., 2023; Becker et al., 2001).

Several studies have demonstrated that HRSC improves organisational performance by integrating financial and non-financial indicators into strategic decision-making. HRSC has been reported to support service quality improvement, employee competency development, operational efficiency, and patient satisfaction across healthcare organisations (Alrashidi et al., 2023; Betto et al., 2022). Furthermore, the framework facilitates identification of organisational strengths and weaknesses, allowing managers to formulate evidence-based strategies for sustainable human resource development.

Despite these advantages, implementation of HRSC in Indonesian hospitals remains limited. Human resource evaluation is still predominantly focused on operational indicators, while strategic dimensions such as organisational learning, internal process effectiveness, and customer perspectives receive less attention. This limitation is particularly evident in medium-sized private hospitals, where comprehensive strategic performance measurement systems have not been widely adopted. Consequently, management often lacks objective information regarding the contribution of human resources to organisational performance and long-term strategic achievement.

The Islamic Hospital of Lumajang reflects this situation. Hospital performance reports for 2023–2024 indicate that several key performance indicators did not achieve institutional targets, including training budget realisation, new patient acquisition, medical record completeness, and medication dispensing timeliness. Although competency examination results reached optimal levels and employee attendance improved, these achievements have not been accompanied by proportional improvements in several strategic organisational outcomes. The current performance appraisal system primarily emphasises attendance and productivity through a 360-degree evaluation approach, while strategic indicators related to service quality, patient satisfaction, organisational learning, and internal processes remain inadequately integrated into the overall evaluation system.
Another challenge in implementing HRSC is determining the relative importance of numerous performance indicators. Since each indicator contributes differently to organisational success, assigning equal importance may produce biased evaluations. The Analytical Hierarchy Process (AHP) provides a systematic multi-criteria decision-making method to determine indicator priorities through pairwise comparisons, thereby improving the objectivity of performance measurement and supporting strategic managerial decision-making.

Therefore, this study evaluated human resource performance at the Islamic Hospital of Lumajang using the Human Resource Scorecard integrated with the Analytical Hierarchy Process. By combining these approaches, the study provides a comprehensive assessment of human resource performance while identifying priority strategic indicators that can support evidence-based human resource management and continuous organisational improvement in hospital settings.

METHOD

This descriptive evaluative study was conducted at the Islamic Hospital of Lumajang, East Java, Indonesia, using the Human Resource Scorecard (HRSC) framework integrated with the Analytical Hierarchy Process (AHP). The HRSC evaluated human resource performance across four strategic perspectives: financial, customer, internal business process, and learning and growth. Secondary data were obtained from the hospital's Key Performance Indicators (KPIs) for the 2023–2024 period, while primary data were collected through pairwise comparison questionnaires completed by six structural managers who were purposively selected based on their authority and experience in hospital human resource management. These respondents consisted of hospital leaders responsible for strategic planning and performance evaluation. The AHP method was used to determine the relative priority of the four HRSC perspectives and their performance indicators. Pairwise

comparison matrices were constructed and analysed to obtain priority weights, and consistency was evaluated using the Consistency Ratio (CR). A CR value of less than 0.10 was considered acceptable, indicating consistent judgments. Human resource performance scores were calculated by multiplying the achievement score of each indicator by its corresponding AHP weight. The weighted scores of all indicators were then aggregated to obtain performance scores for each HRSC perspective and the overall organisational performance. Performance categories were interpreted according to the predetermined hospital performance criteria, ranging from poor to very good. The study used organisational performance data without involving patients or clinical interventions. Permission to access hospital performance data was obtained from the management of the Islamic Hospital of Lumajang before data collection.

RESULT

Measurement for Each Perspective

The following is a summary of the measurement results for 2023 and 2024 for each KPI across the four perspectives presented in Table 1.

Table 1.
Human Resource Scorecard Perspective Measurement

Perspective	Objective Strategy	Key Performance Indicator	Measurement of Results (%)	
			2023	2024
Financial	Improve the efficiency of clinical and non-clinical human resource costs	Labor Cost Ratio (%)	53.32	54.39
Customer	Optimize the training budget for healthcare personnel	Training Budget Realization Rate (%)	38.32	21.09
	Ensure fair and performance-based employee welfare	Percentage of remuneration aligned with performance scores	93.9	96.6
	Enhance healthcare personnel accountability in patient care	Percentage of timely responses to patient complaints	100	100
	Increase patient loyalty and trust in healthcare services	Patient Retention Rate (%)	80.20	80.01
	Increase the attractiveness of services for new patients	New Patient Acquisition Rate (%)	19.80	19.88
	Improving patient satisfaction and experience in hospital services	Percentage of outpatient satisfaction.	87.12	89.66
		Percentage of inpatient satisfaction	90.45	78.69
Internal Business Processes	Strengthen interprofessional collaboration and teamwork	Frequency of interdisciplinary clinical coordination meetings (%)	88.89	109.52
	Improve compliance with clinical SOPs and patient safety goals	Compliance with the Six International Patient Safety Goals (IPSGs) (%)	98.27	99.11
		Clinical Pathway SOP Compliance Rate (%)	89.52	82.69
	Strengthen the timeliness and accuracy of clinical and pharmaceutical services	Percentage of compounded medication dispensing delays exceeding 60 minutes for outpatients	1.5	2.55
		Percentage of incomplete patient medical records	36.18	38.65
Learning and Growth	Improve work discipline and attendance compliance	Attendance Compliance Rate (ACR) (%)	80.08	85.33
	Reduce healthcare workforce turnover	Turnover Rate of Healthcare Personnel and Supporting Units (%)	5.17	4.67
	Identify and develop employee competencies	Percentage of employees passing the three-year competency/basic skills assessment	100	100

Scoring Key Performance Indicators for Each Perspective

After completing the calculation process for each Key Performance Indicator (KPI), the next step is to assign a score to each KPI across the four perspectives of the Human Resource Scorecard. This scoring is based on company assessment standards and agreements reached through a brainstorming process with RSI Lumajang management. The assigned score is then adjusted based on the results of the previous KPI calculations. Employee performance assessment categories use a 1–5 scale, with a score of 1 indicating very poor performance, a score of 2 indicating poor, a score of 3 indicating average, a score of 4 indicating good, and a score of 5 indicating excellent performance. A comparison of scores for each KPI across each Human Resource Scorecard perspective for 2023-2024 is presented in Table 2 below.

Table 2.
Summary of RSIL KPI Scores for each Perspective

Perspective	Key Performance Indicator (KPI)	2023 Measurement Result	Score	2024 Measurement Result	Score
Financial	Labor Cost Ratio	53.32%	4	54.39%	4
	Training Budget Realization Rate	38.32%	1	21.09%	1
	Percentage of Remuneration Aligned with Performance Scores	93.9%	4	96.6%	5
Customer	Timely Response Rate to Patient Complaints	100%	5	100%	5
	Patient Retention Rate	80.20%	4	80.01%	4
	New Patient Acquisition Rate	19.80%	2	19.88	2
	Outpatient Satisfaction Rate	87.12%	4	89.66%	4
	Inpatient Satisfaction Rate	90.45%	5	78.69%	3
Internal Business Process	Frequency of Interprofessional Clinical Coordination Meetings	88,98%	4	109,52%	5
	Compliance with the Six International Patient Safety Goals (6 IPSGs)	98.27%	5	99,11%	5
	Compliance with Clinical SOPs and Clinical Pathways	89.52%	4	82.69	4
	Percentage of Delayed Dispensing of Compounded Medications for Outpatients (>60 minutes)	1,5%	4	2.55%	4
	Percentage of Incomplete Patient Medical Records	36.18%	2	38.65%	2
Learning and Growth	Attendance Compliance Rate (ACR)	80.08%	3	85.33%	4
	Healthcare Staff and Supporting Unit Turnover Rate	5.17%	3	4.67%	4
	Percentage of Staff Passing the Three-Year Competency/Basic Skills Assessment	100%	5	100%	5

Weighting with AHP

The weighting of Key Performance Indicators (KPIs) in this study used the Analytical Hierarchy Process (AHP) method. The weighting process was conducted through an inter-evaluation of importance by the management of RSI Lumjang, namely the Hospital Director, Head of Human Resources, Head of Finance and Accounting, Head of Medical Services & Health Insurance, Head of General and Equipment, Head of Medical Services, and Head of Nursing at RSI Lumajang. This assessment was used to determine the importance of each perspective in the Human Resource Scorecard (HRSC). The pairwise comparison results were then normalized to obtain the weights for each perspective. A consistency test was then conducted to ensure that respondents' assessments were consistent. The calculation results showed a Consistency Ratio (CR) of 0.017, which is lower than the maximum limit of 0.10, thus confirming the consistency of the pairwise comparison matrix. The results of the weighting of RSIL's HR performance based on the HRSC perspective are presented in Table 3 below.

Table 3.
Results of RSIL HR Performance Weighting Based on HRSC Perspective

KPI Group	Weight
Financial Perspective	0.14
Customer Perspective	0.06
Internal Business Process Perspective	0.27
Learning and Growth Perspective	0.53
Total	1.00
Consistency Ratio (CR)	0.017

Summary of RSIL Human Resource Performance Measurement by Perspective

RSIL's HR performance measurement by perspective is performed by multiplying each perspective's score by the HRSC perspective weight to obtain a weighted perspective score and an overall RSIL HR performance score. The RSIL HRSC perspective weights are calculated using the results in Table 3. The following is a summary of RSIL's HR performance measurement by perspective, presented in Table 4.

Table 4.
Recapitulation of RSIL Human Resource Performance Measurement by Balanced Scorecard Perspective, 2023–2024

Perspective	Weight	2023 Score	2023 Weighted Score	2024 Score	2024 Weighted Score
Financial	0.14	3.67	0.51	4.30	0.60
Customer	0.06	4.51	0.27	3.51	0.21
Internal Business Process	0.27	4.12	1.11	4.21	1.12
Learning and Growth	0.53	4.44	2.35	4.72	2.50
Total Weighted Score	1.00	–	4.24	–	4.43

Based on table 4, the performance of healthcare human resources at Lumajang Islamic Hospital in 2023 obtained a weighted score of 4.24, which is included in the very good category, and experienced an increase in 2024 with a weighted score reaching 4.43. The perspective that made the largest contribution to the total score was Learning and Growth, followed by Internal Business Processes, which indicates that strengthening HR competencies and clinical governance are the main drivers of HR performance at RSIL, while the Customer aspect still has room for improvement, particularly in inpatient satisfaction and new patient acquisition.

DISCUSSION

The HRSC analysis showed that, from the financial perspective, Lumajang Islamic Hospital (RSIL) demonstrated relatively stable performance with noticeable improvement over the past two years. The Labor Cost Ratio indicator remained in the good category, reflecting efficient workforce utilization, considering that human resource costs in hospitals generally account for 40–60% of total operating expenses (American Hospital Association, 2024). The remuneration-performance alignment indicator also improved from 93.9% in 2023 to 96.6% in 2024, placing it in the excellent category and indicating a more effective performance-based compensation system that contributes to employee retention and healthcare worker satisfaction (Lohana et al., 2021). However, the training budget realization remained very low, indicating insufficient investment in human resource competency development, which may hinder improvements in service quality and patient safety (Aisyah, 2023; Herawati et al., 2025). Overall, the financial perspective highlights strengths in cost efficiency and remuneration systems but reveals weaknesses in investment for workforce competency development.

From the customer perspective, RSIL demonstrated good performance, particularly in the complaint response time indicator, which consistently achieved 100% over the two-year period, reflecting a highly responsive complaint management system. Patient retention also remained in the good category, indicating patients' trust in the professionalism of healthcare personnel (Anggraeni et al.,

2023). However, the New Patient Acquisition Rate recorded the lowest performance, with a score of 2 in both 2023 and 2024, indicating weaknesses in marketing strategies and the expansion of new patient outreach, despite patient acquisition being a major source of hospital revenue growth (Puji et al., 2022). In addition, outpatient satisfaction remained in the good category, whereas inpatient satisfaction declined substantially from 90.45% in 2023 to 78.69% in 2024. This decline may be associated with factors such as ward comfort, nursing responsiveness, and medication dispensing timeliness, which are closely related to internal business processes. Overall, the customer perspective demonstrates strengths in complaint handling and patient retention but identifies weaknesses in new patient acquisition and declining inpatient satisfaction.

The internal business process perspective reflects the operational quality of clinical services at RSIL through indicators measuring workforce compliance with established standards and procedures. The frequency of interprofessional clinical coordination meetings increased from 88.98% in 2023 to 109.52% in 2024, indicating enhanced interprofessional collaboration in healthcare delivery (Becker et al., 2001). Compliance with the Six Patient Safety Goals (6 PSGs) also consistently achieved an excellent level in accordance with hospital accreditation standards. However, the rate of delayed compounded medication dispensing increased from 1.5% to 2.55%, while medical record incompleteness remained in the very poor category for two consecutive years. These findings indicate persistent inefficiencies in clinical service workflows, as incomplete medical records may contribute to delays in medication services, increased clinical risks, and reduced patient satisfaction (Heltiani et al., 2022). Overall, this perspective demonstrates strengths in clinical collaboration and patient safety but reveals weaknesses in medical documentation and pharmaceutical service management.

The learning and growth perspective was the most influential dimension in the RSIL Human Resource Scorecard, receiving the highest AHP weight (0.53), and demonstrated excellent performance throughout 2023–2024. The Attendance Compliance Rate (ACR) improved from a score of 3 to 4, reflecting better attendance discipline among healthcare personnel, an essential factor supporting operational continuity and daily service quality (Alhikma et al., 2021). The Turnover Rate also improved, decreasing from 5.17% to 4.67%, indicating greater workforce stability, which helps the hospital retain organizational competencies while reducing recruitment costs. The strongest indicator was the percentage of employees passing the competency examination, which consistently reached 100% in both years, demonstrating workforce readiness to meet clinical competency standards required by regulations and hospital accreditation. Overall, after multiplying each perspective score by its respective AHP weight (Financial = 0.14; Customer = 0.06; Internal Business Process = 0.27; Learning and Growth = 0.53), the overall human resource performance at RSIL was classified as excellent, with a weighted score of 4.24 in 2023, increasing to 4.43 in 2024. These findings indicate strong organizational capacity, particularly in workforce competency, patient safety, and clinical collaboration, although several areas still require improvement, including training budget realization, new patient acquisition, medical record completeness, and pharmaceutical services. These results are consistent with the Human Resource Scorecard framework, which posits that improvements in the Learning and Growth perspective drive enhancements in Internal Business Processes, ultimately influencing customer satisfaction and organizational financial performance (Becker et al., 2001).

CONCLUSION

The Human Resource Scorecard (HRSC) combined with the Analytical Hierarchy Process (AHP) demonstrated that human resource performance at Lumajang Islamic Hospital was generally in the good category. The Learning and Growth perspective received the highest priority, indicating that competency development is the main driver of sustainable organizational performance. The Financial perspective showed good efficiency in labor costs and performance-based remuneration, although training budget realization remained low. The Customer perspective performed well in

patient satisfaction and retention but requires improvement in new patient acquisition and inpatient satisfaction. Meanwhile, the Internal Business Process perspective contributed positively through patient safety, clinical pathway implementation, and interprofessional collaboration, despite weaknesses in medical record management and pharmacy service timeliness. These findings indicate that strengthening human resource development while improving training investment and service processes is essential for enhancing hospital performance.

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