Department of Digital Business
Journal of Artificial Intelligence and Digital Business (RIGGS)
Homepage: https://journal.ilmudata.co.id/index.php/RIGGS
Vol. 4 No. 4 (2025) pp: 2969-2980
P-ISSN: 2963-9298, e-ISSN: 2963-914X

Effectiveness and Efficiency of Medical Check-Up Service Quality With The Use of Terra (Survey Study at Harapan Keluarga Hospital, Mataram City)

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Abstract

Periodic health checks represent a key behavioral pattern among both health service users and health providers within a healthcare facility. These routine examinations play an essential role in early detection, prevention, and continuous monitoring of individual health conditions. The present study aims to analyze the effectiveness and efficiency of Medical Check Up (MCU) service quality using the TERRA framework—Tangibles, Empathy, Reliability, Responsiveness, and Assurance—at Harapan Keluarga Mataram Hospital, one of the leading private hospitals in Mataram City. This research employed a descriptive qualitative design, in which data were collected through direct observation, in-depth interviews, documentation reviews, and the study of relevant literature. Informants included hospital directors, physicians, nurses, patients, and subject-matter experts selected to provide comprehensive insights into the MCU service process. Data analysis was conducted using NVivo12 software through Matrix Coding and Project Map Node visualization to identify dominant factors influencing service performance. The findings indicate that reliability, empathy, and assurance constitute the most influential dimensions in determining the effectiveness and efficiency of MCU service quality. These factors strongly shape patient trust, perceived professionalism, and overall satisfaction. Conversely, the dimensions of tangibles and responsiveness were found to have an influence, but their contribution was relatively less significant compared to the other three dimensions. Based on these results, efforts to improve MCU service quality should prioritize sustaining high levels of reliability, empathy, and assurance, as these components form the core determinants of service excellence. At the same time, enhancements in tangibles—such as facilities, equipment, and physical appearance—and responsiveness—particularly staff promptness and communication—are still required. Strengthening all five dimensions collectively is essential because the TERRA framework functions as an integrated set of complementary elements that jointly support optimal healthcare service delivery.

Keywords: MCU, TERRA Analysis, Health Services.

1. Introduction

Health is a state of health, both physically, mentally and spiritually and socially that allows everyone to live a productive life socially and economically. The health that a person currently has is not permanent. Health problems can arise due to changes in lifestyle, food factors, environmental influences and even hereditary influences also contribute to health problems in a person. Some diseases that can arise from changes in lifestyle and the environment are hypertension, diabetes mellitus, cancer and other non-communicable diseases. Non-communicable diseases (NCDs) in Indonesia are one of the main focuses in controlling and preventing disease. According to the NCD management guidebook, there has been an increase since 2019 [1, 2].

1. Prevalence of hypertension in the population over 18 years of age from 25.8% to 34.1%,
2. Prevalence of obesity from 14.8% to 21.8%,
3. Smoking prevalence in the population under 18 years old increased from 7.2% to 9.1%.
4. The prevalence of asthma in the population of all ages decreased from 4.5% to 2.4%,
5. Cancer prevalence increased from 1.4% to 1.8%, 6.The prevalence of diabetes mellitus in the general population over 15 years old increased from 6.9% to 10.9%.

The increase in the prevalence of NCDs is associated with good and correct lifestyle habits, including an increase in:

1. Prevalence of physical inactivity in people over 10 years old from 26.1% to 33.5% and
2. The prevalence of insufficient fruit and vegetable consumption in the population over 5 years old increased from 93.% to 95.5%.

The significant increase in NCD cases is expected to increase the burden on the community and government, because the handling requires burden on society and the government, because handling them requires a large amount of money.

This is the basis for the importance of regular health checks (Medical Check Up). Medical Check Up (MCU) is a comprehensive health examination including laboratory examinations, physical examinations and other supporting examinations needed and aims to determine health conditions and diagnose and early detection of disease symptoms found. MCU examination until now is still paid so that it is expected to be directly proportional to the quality of services and examinations carried out at a hospital. Good service quality must pay attention to effectiveness and efficiency factors, where effectiveness must be measurable service time for each examination, both the process and the results of the MCU [3, 4, 5]. Today's society is very critical of services, price is no longer a problem, because the quality of service is the expectation of the community [6]. This is also reflected in the MCU service at Harapan Keluarga Mataram Hospital. In brief, it can be seen that the waiting room of Harapan Keluarga Hospital is clean, tidy and large so that it can create comfort for patients who conduct MCU examinations. According to the hospital management, every patient who conducts an MCU examination is always prioritized for examination, and is always accompanied until the examination results are received by the patient [7, 8, 9]. However, the quality of this service needs to be ensured by conducting further research on Harapan Keluarga Mataram Hospital, which is one of the private hospitals in West Nusa tenggara (NTB), by paying attention to Tangibles, Realibility, Responsiveness, Assurance and Emphaty so that it can assess quality. Terra Analysis stands for Tangibles, Emphaty, Reliability, Responsiveness, and Assurance [13, 14]. Tangibles (direct evidence) is a condition that pays attention to the equipment of physical facilities. Emphaty (empathy) is the sincere and personal attention given to patients by trying to understand the patient's wishes. Reability (reliability) is the ability to provide services promptly, accurately, and satisfactorily as promised [11, 12]. Responsiveness is the readiness of hospital staff to assist patients in providing the best possible service. Assurance (guarantee) which is the ability of hospital staff to foster patient trust in the hospital [4, 10].

There are several objectives of this research to find out and analyze:

1. Effectiveness and efficiency of the quality of Medical Check examination services Up (MCU) from the physical evidence approach.
2. Effectiveness and efficiency of the quality of Medical Check Up examination services (MCU) from a sincere service approach (empathy)
3. Effectiveness and efficiency of the quality of Medical Check Up examination services (MCU) from the reliability approach in service.
4. Effectiveness and efficiency of the quality of Medical Check Up examination services (MCU) from the responsiveness approach to service.
5. Effectiveness and efficiency of the quality of Medical Check Up examination services (MCU) from the assurance approach in service

2. Research Methods

This research method is descriptive qualitative research with the selection of informants and expert opinions from different hospitals. This research uses purposive sampling, answers from each informant are obtained observationally using a literature study approach, where researchers will carry out direct observations and interviews during the examination. MCU to 6 informants and 2 expert opinions to analyze the effectiveness and efficiency of implementing the quality of Medical Check Up examinations using TERRA Analysis at Harapan Keluarga Mataram Hospital in December 2023. This research was analyzed using Nvivo 12 plus software and is located at Harapan Keluarga Hospital Mataram.

DOI: https://doi.org/10.31004/riggs.v4i4.4028

3. Results and Discussions

1. Hierarchy chart (World Cloud)

Figure 1. The Hierarchy Chart or World Cloud of Medical Check-Up.

In the hierarchy chart it shows the words "examination" and "MCU", the shape of the letter is larger than the other letters. This means that informants give the same opinion about “MCU inspection” being important. This shows that the research was carried out at MCU as an examination unit at Harapan Keluarga Mataram Hospital.

2. Matrix Coding

a) Matric Coding of Hospital Director Informant

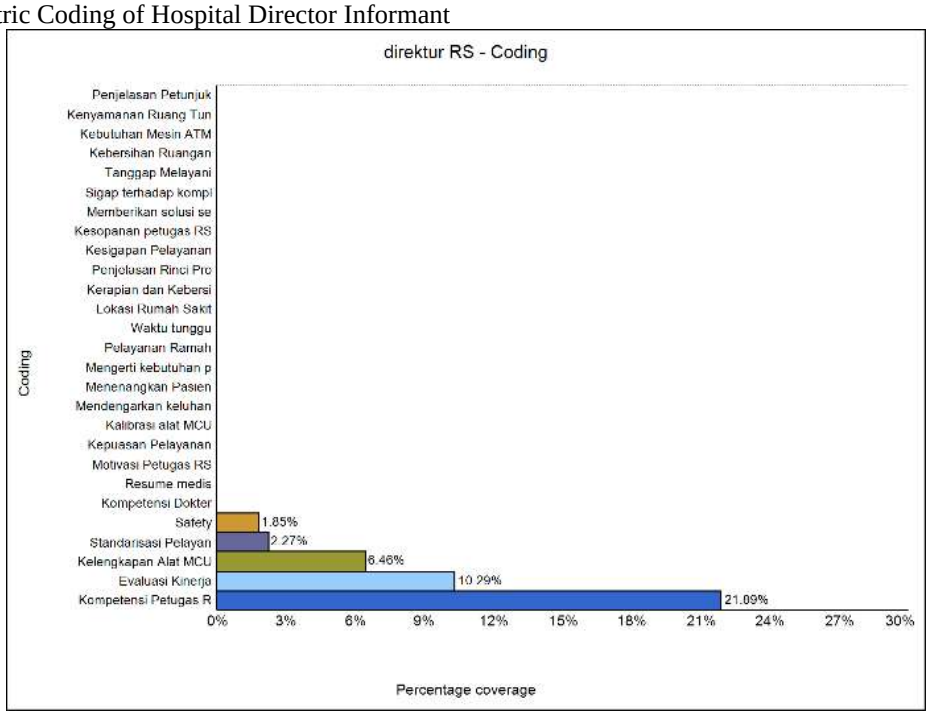

Figure 2. The Informant Coding Director of Harapan Keluarga Mataram Hospital.

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From the results of the interview, there are three factors determining the quality of MCU examination services, namely reliability which is seen from the competency factor of hospital staff by 21.89%, assurance which is seen from the performance evaluation factor of 10.29% and tangibles which is seen from the completeness of the MCU equipment by 6.46%. From the results of coding based on the informant director of Harapan Keluarga Mataram Hospital, the reliability factor is the most important factor that supports the quality of MCU examination services. Performance appraisal is a control of employee performance that is evaluated according to the standards in each hospital, performance appraisal is carried out effectively to produce high quality services. Evaluation of the performance of each hospital officer is an important factor, because by evaluating performance, it can also find the shortcomings that occur so that it is always improved continuously. In addition, with the performance evaluation, it can be done to motivate each employee.

b) Matrix Coding of Management Doctor

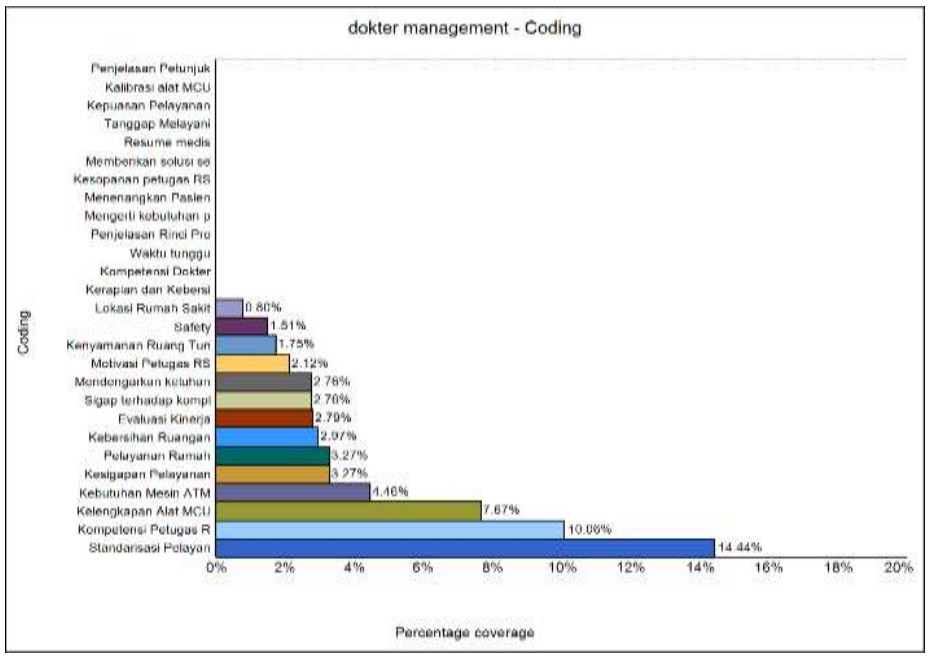

Figure 3. Matrix Coding of Management Doctor.

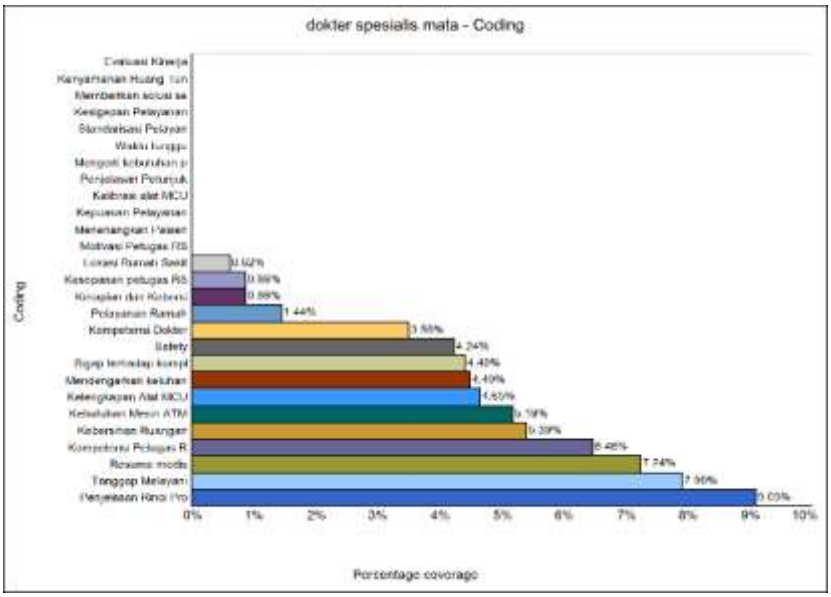

Figure 4. Matric Coding of Ophthalmologist Informant.

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The results of interviews with doctors in the Management of Harapan Keluarga Mataram Hospital about the quality of MCU examination services and from the results of coding obtained the factors that best support the quality of MCU examination services are reliability factors which can be seen from the standardization of services by 14.44% and the competence of hospital staff by 10.06% and tangibles factors seen from the completeness of MCU equipment by 7.67%. Of the three factors obtained from the interview results, it can be concluded that reliability is an important factor in the quality of MCU examination services.

c) Matric Coding of Ophthalmologist Informant

Figure 4 shows the results of interviews with ophthalmologists at MCU Harapan Keluarga Mataram Hospital about the quality of MCU examination services and the results are reliability which is seen from the explanation of the details of the examination procedure by 9.09%, followed by the responsiveness factor which is seen from the responsiveness of serving by 7.90% and the assurance factor which is seen from the medical resume by 7.24%. From the results of interviews with ophthalmologist informants, it was found that reliability, responsiveness and assurance are the three determining factors for the quality of MCU examination services at Harapan Keluarga Mataram Hospital.

d) Matric Coding of Laboratory Officer Informant

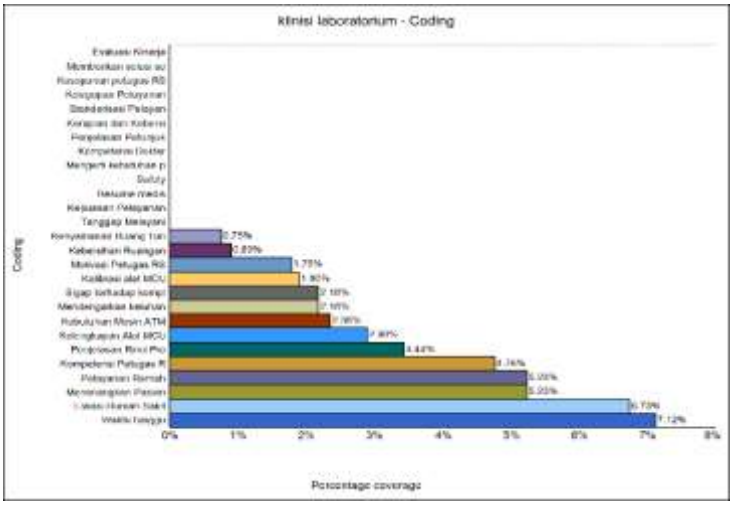

Figure 5. Matric Coding of Laboratory Officer.

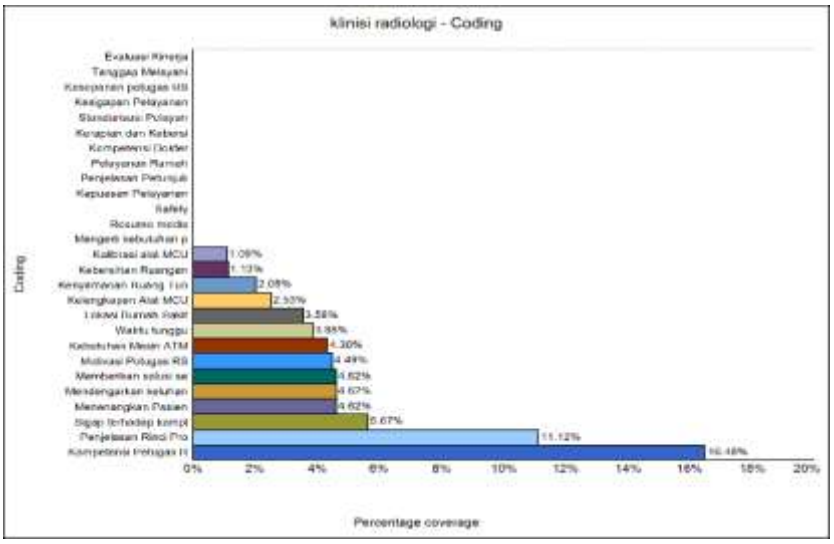

Figure 6. Matric Coding of Radiology Oficcer Informant.

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Figure 5 shows matric coding of laboratory officer informant. The results of interviews with employees in laboratory clinics at MCU Harapan Keluarga Mataram Hospital about the quality of MCU examination services obtained the most related factor is the empathy factor seen from waiting time by 7.12%, then followed by the tangibles factor seen from the location of the Hospital by 6.73% and the empathy factor seen from calming patients by 5.23%.

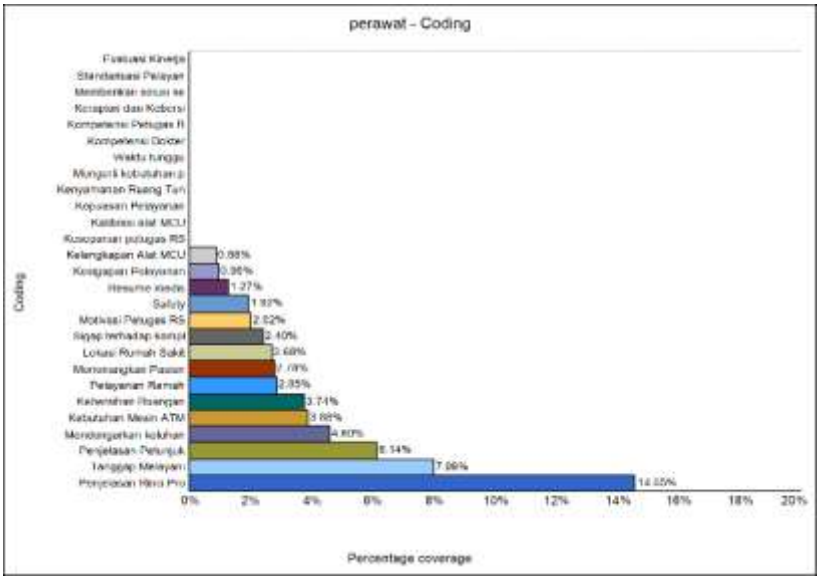

Figure 7. Matric Coding of Nurse Informant.

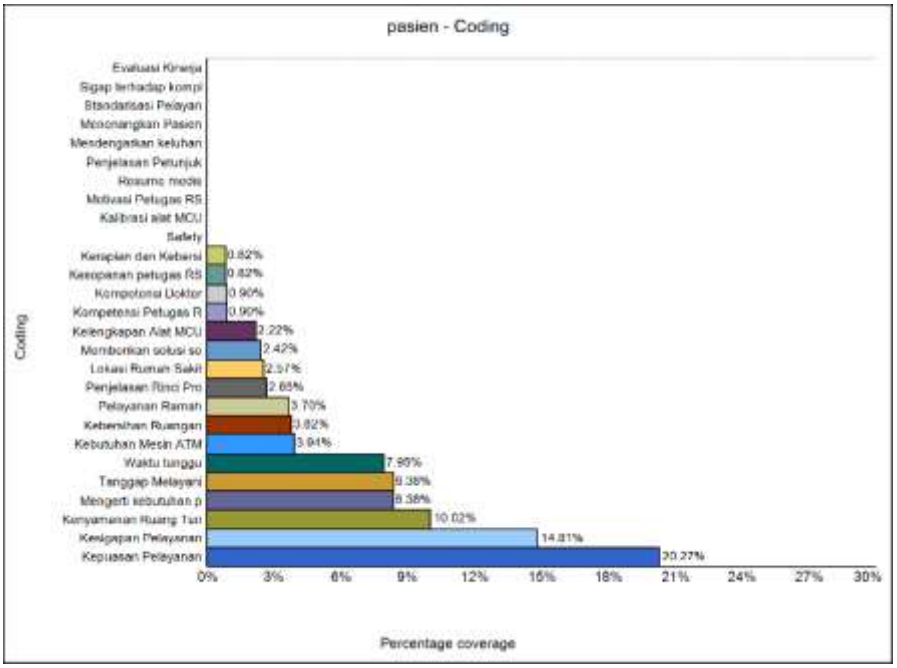

Figure 8. Matric Coding of Patient Informant.

e) Matric Coding of Radiology Oficcer Informant

Figure 6 shows matric coding of radiology oficcer informant. The results of interviews with employees in radiology clinics in the MCU of Harapan Keluarga Mataram Hospital about the quality of MCU examination services and the results were 16.48% of the competence of hospital staff and 11.12% of detailed explanations of hospital staff included in the reliability factor, and 5.67% of responsiveness to complaints

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included in the responsiveness factor. The reliability factor has a considerable influence on the quality of MCU examination services, especially in the field of radiology clinicians,

f) Matric Coding of Nurse Informant

Figure 7 shows matric coding of nurse informant. The results of interviews with nurses at MCU Harapan Keluarga Mataram Hospital about the quality of MCU examination services and the results are 14.55% of the detailed explanation of examination procedures which is a factor of reliability followed by responsiveness of 7.99% which is a factor of responsiveness and 6.14% of the explanation of instructions for taking medication which is a factor of reliability.

g) Matric Coding of Patient Informant

Figure 8 shows Matric Coding of Patient Informant. The results of interviews with patients at MCU Harapan Keluarga Mataram Hospital about the quality of MCU examination services and the results are 20.27% of service satisfaction which is an assurance factor followed by service readiness of 14.81% which is a responsiveness factor and 10.02% of waiting room comfort which is a tangibles factor. is an assurance factor seen from the quality of service of 14.81% and the comfort of the waiting room of 10.02% and the empathy factor seen from understanding the needs of patients by 8.38%.

3. Nodes by Project Map

a) Tangibels

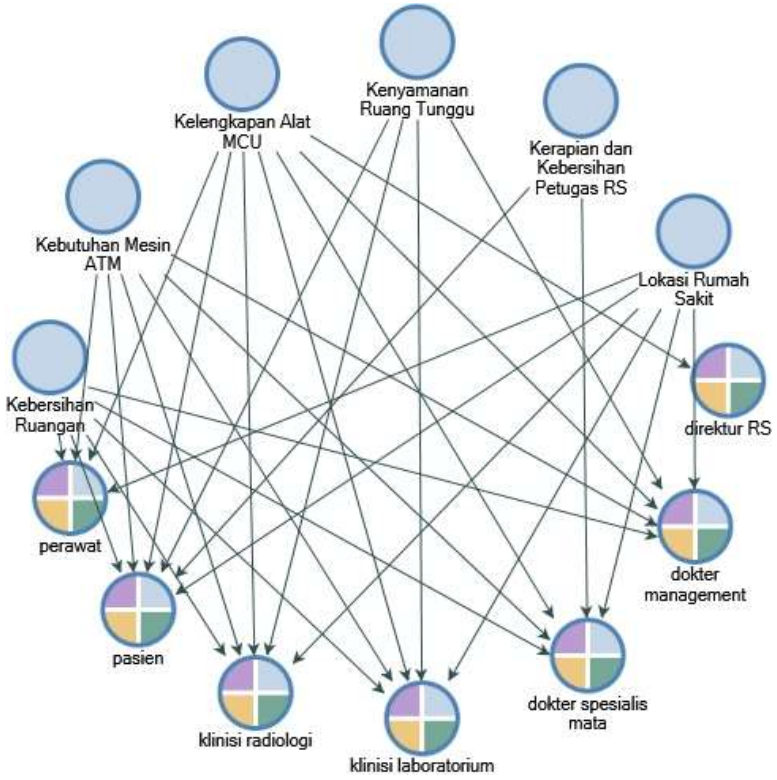

Figure 9. Nodes of Tangibels.

The diagram illustrates a multidimensional influence network representing the relationship between various healthcare service quality attributes and the stakeholders within a hospital environment. The service attributes shown—Room Cleanliness, Availability of ATM Machines, Completeness of Medical Check-Up (MCU) Equipment, Waiting Room Comfort, Neatness and Cleanliness of Hospital Staff, and Hospital Location—form the upper tier of the diagram. These elements interact with and influence several stakeholder groups depicted in the lower tier, namely Nurses, Patients, Radiology Clinicians, Laboratory Clinicians, Ophthalmology Specialists, Medical Management, and the Hospital Director. The numerous directional arrows connecting service attributes to stakeholder groups indicate the extent to which each attribute affects

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different actors within the healthcare system. For example, factors such as room cleanliness, waiting room comfort, and staff hygiene exert broad influences across both clinical staff and patients, shaping their perceptions of service quality and operational effectiveness. Similarly, the completeness of MCU equipment has a direct effect on diagnostic personnel, including radiology and laboratory clinicians, as well as medical specialists, as it determines the precision and reliability of clinical evaluations. Meanwhile, the hospital location contributes to strategic decision-making processes involving medical management and the hospital director, while also influencing patient accessibility and convenience. Overall, the diagram underscores the interconnected and systemic nature of hospital service quality, demonstrating that improvements in any single attribute can generate significant positive impacts across multiple stakeholder groups. This network-based representation thus facilitates a comprehensive understanding of service quality dynamics in healthcare settings and supports more effective planning, evaluation, and decision-making. From this analysis, it was found that the completeness of the MCU equipment was considered complete and was the most important factor for tangibles according to all informants.

b) Emphaty

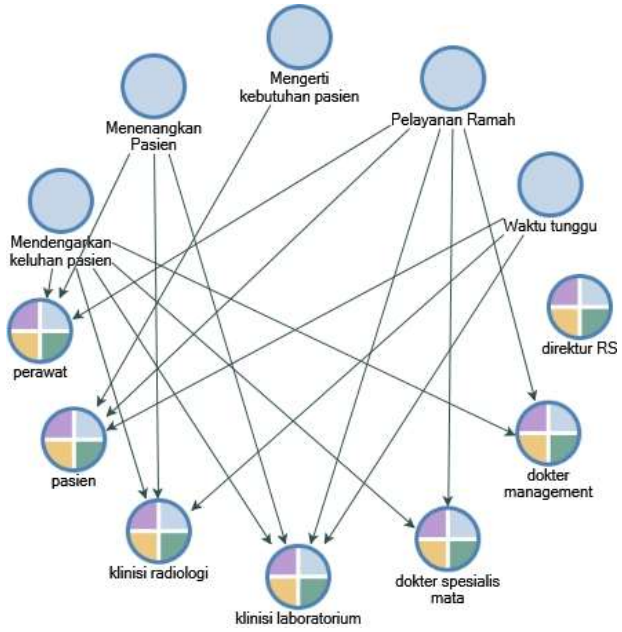

Figure 10. Nodes of Emphaty.

The diagram presents a stakeholder influence network that illustrates how several interpersonal and service-related attributes within a healthcare setting affect various professional and patient groups. The upper tier of the diagram consists of five key service attributes: Listening to Patient Complaints, Calming Patients, Understanding Patient Needs, Friendly Service, and Waiting Time. These attributes are shown to influence multiple stakeholders positioned in the lower tier, namely Nurses, Patients, Radiology Clinicians, Laboratory Clinicians, Ophthalmology Specialists, Medical Management, and the Hospital Director. The directional arrows demonstrate the extent to which each service attribute contributes to stakeholder perceptions, satisfaction, and operational performance. For instance, interpersonal qualities such as listening to patient complaints, calming patients, and understanding patient needs exert strong influence on nurses, clinicians, and specialists, as these competencies are essential for effective communication, patient-centered care, and clinical decision-making. Likewise, friendly service and waiting time significantly impact both patients and managerial personnel, with the former shaping patient experience and the latter affecting hospital workflow efficiency and administrative oversight. The interconnected pattern of relationships depicted in the diagram underscores the systemic nature of service quality in healthcare environments, where improvements in interpersonal communication, emotional support, and service responsiveness can generate positive outcomes across diverse stakeholder groups. Overall, the network visualization provides a comprehensive understanding of how patient-centered service attributes interact with clinical and managerial components of hospital operations, thereby supporting more informed evaluation and enhancement of healthcare service quality.From this analysis, it was found that all informants agreed that the services provided for MCU examinations were considered friendly and all hospital staff could listen to patient complaints well.

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c) Reliability

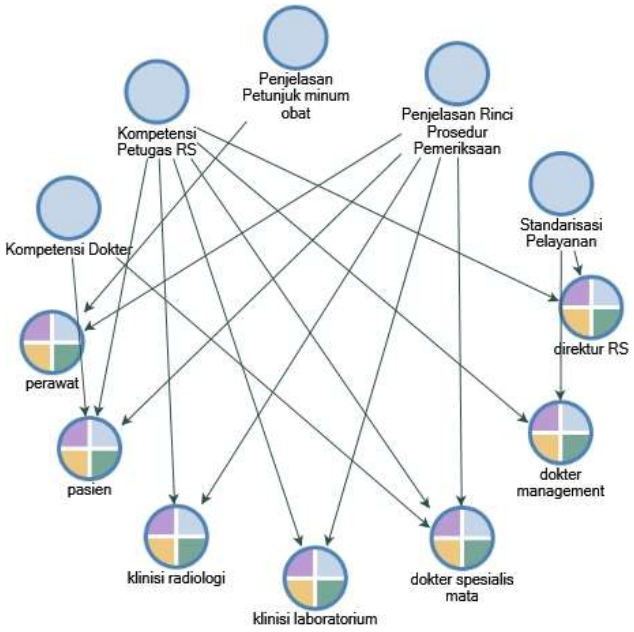

Figure 11. Nodes of Reliability.

The diagram illustrates a structured influence network that maps the relationships between several dimensions of healthcare service quality and the key stakeholder groups within a hospital setting. The upper tier of the diagram consists of five principal service attributes: Doctor Competence, Staff Competence, Explanation of Medication Instructions, Detailed Explanation of Examination Procedures, and Service Standardization. These attributes are shown to exert varying degrees of influence on multiple stakeholders situated in the lower tier, including Nurses, Patients, Radiology Clinicians, Laboratory Clinicians, Ophthalmology Specialists, Medical Management, and the Hospital Director. The directional arrows indicate how each service attribute contributes to shaping stakeholder perceptions, performance, and decision-making processes. For example, competencies of doctors and hospital staff significantly influence clinical personnel and patients, as these competencies directly determine the accuracy of diagnoses, the quality of care, and overall patient safety. Similarly, clear explanations of medication instructions and detailed explanations of examination procedures play a crucial role in enhancing patient understanding, supporting informed consent, and strengthening communication between clinicians and patients. Furthermore, service standardization affects managerial stakeholders—particularly medical management and the hospital director—by informing strategic oversight, compliance with regulations, and the consistency of service delivery. The interconnected pattern of influence depicted in the diagram highlights the systemic nature of hospital service quality, demonstrating that improvements in professional competence, communication clarity, and standardized procedures can yield multidimensional benefits across both clinical and administrative domains. Overall, this network visualization provides a comprehensive perspective on how key service attributes interact with stakeholders, thereby supporting more effective evaluation and continuous improvement of healthcare service quality. From this analysis, it is found that the competence of all inspection service officers is considered to have worked with their respective competencies.

d) Responsiveness

The diagram depicts an influence network that illustrates the interrelationships between several dimensions of service responsiveness in a healthcare setting and the various stakeholder groups affected by them. The upper tier of the diagram comprises four key service attributes: Politeness of Hospital Staff, Readiness of Service, Providing Solutions According to Patient Needs, Responsiveness to Complaints, and Attentiveness in Serving. These attributes are connected through directional arrows to the stakeholders positioned in the lower tier, namely Nurses, Patients, Radiology Clinicians, Laboratory Clinicians, Ophthalmology Specialists, Medical Management, and the Hospital Director. The arrows indicate the extent to which each service attribute influences stakeholder perceptions, operational performance, and the overall patient experience. For example, the politeness of hospital staff and readiness of service exert considerable

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influence on both nurses and patients, as these qualities directly contribute to service comfort, communication effectiveness, and trust-building in clinical settings.

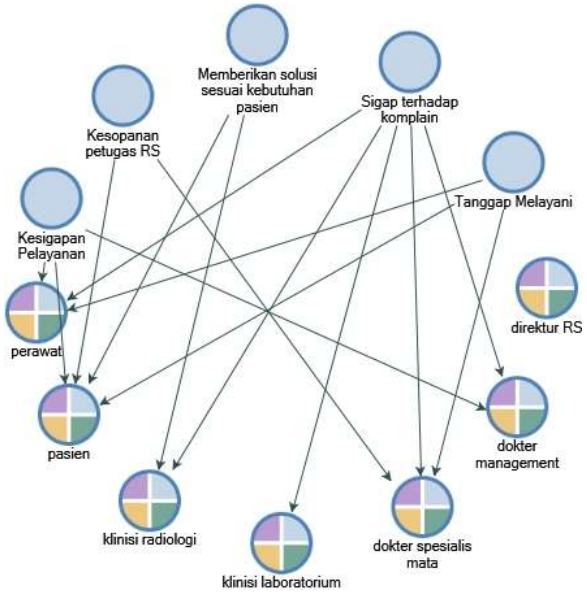

Figure 12. Nodes of Responsiveness.

Similarly, the ability to provide solutions tailored to patient needs and responsiveness to complaints strongly affects clinical personnel, including radiology and laboratory clinicians, by enhancing coordination, reducing service barriers, and supporting patient-centered care. Meanwhile, attentiveness in serving has notable implications for managerial actors, including medical management and the hospital director, as it reflects institutional commitment to service quality and operational consistency. The interconnected structure of the diagram highlights the multi-layered and systemic nature of service responsiveness in hospitals, demonstrating how improvements in staff behavior, communication, and responsiveness can lead to widespread positive effects across diverse stakeholder groups. Overall, the visualization provides a comprehensive understanding of how service-related behavioral attributes shape stakeholder interactions and contribute to the continuous enhancement of healthcare service quality. From this analysis, it is found that all MCU examination service officers are always alert to complaints.

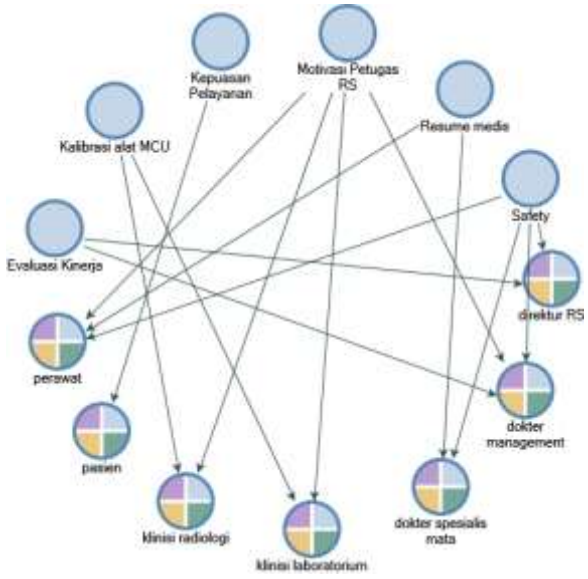

Figure 13. Nodes of Assurance.

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e) Assurance

The diagram presents a multidimensional influence network illustrating how various operational and quality-related attributes within a healthcare system affect key stakeholder groups. The upper tier of the diagram consists of six primary service and performance attributes: Performance Evaluation, MCU Equipment Calibration, Service Satisfaction, Hospital Staff Motivation, Medical Resume, and Safety. These attributes are connected through directional arrows to the stakeholder groups positioned in the lower tier, namely Nurses, Patients, Radiology Clinicians, Laboratory Clinicians, Ophthalmology Specialists, Medical Management, and the Hospital Director. The arrows represent the degree and direction of influence each attribute exerts on the respective stakeholders. For example, performance evaluation and MCU equipment calibration are shown to significantly influence nurses, patients, and radiology clinicians, as these attributes relate directly to the accuracy, consistency, and reliability of clinical processes. Service satisfaction and hospital staff motivation affect a broad range of clinical personnel by shaping workplace performance, patient interaction quality, and organizational culture. Meanwhile, the availability and accuracy of a medical resume, along with adherence to safety protocols, exert strong influence on managerial stakeholders, including medical management and the hospital director, as these elements play a crucial role in clinical governance, regulatory compliance, and institutional decision-making. The interconnected nature of the arrows underscores the systemic interdependence of quality assurance, clinical performance, and patient safety within healthcare services. Overall, the diagram provides a comprehensive visualization of how operational, motivational, and safety-related factors interact with multiple stakeholder groups, reinforcing the importance of integrated and continuous improvement in hospital service quality.from the analysis, it is found that patients already feel comfortable and protected in the examination

4. Conclusion

In accordance with the research objectives, it was found that the factors that influence the effectiveness and efficiency of the quality of MCU examination services at the Harapan Mataram Family Hospital are reliability, assurance and empathy.

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