



THE ROLE OF KAIZEN MEDIATION IN THE RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT AND SERVICE QUALITY FOR EMPLOYEES AT PRATAMA MANDHERE HOSPITAL, WEST NIAS REGENCY

Forman Halawa¹⁾, Eliyunus Waruwu²⁾, Marinus Gea³⁾

^{1,2} Management Major of Study, Faculty of Economy, Universitas Nias, North Sumatera, Indonesia.

^{2,3} Faculty of Economy and Business, Universitas Sumatera Utara, North Sumatera, Indonesia.

E-mail: ¹halawaforman07@gmail.com, ²eliyunuswaruwu@unias.ac.id, ³marinusgea3@gmail.com³

Correspondence: Forman Halawa

Abstract. *This study aims to investigate the influence of Total Quality Management (TQM) on service quality, mediated by Kaizen, at Pratama Mandrehe Hospital in Nias Barat Regency. The research method employed is quantitative, distributing questionnaires to 60 employees of Pratama Mandrehe Hospital in Nias Barat. The analysis method used is SEM PLS with a bootstrapping technique to test the proposed hypotheses. The results indicate that Kaizen has a positive and significant effect on service quality (coefficient = 0.399, $p < 0.05$), and TQM has a positive and significant effect on Kaizen (coefficient = 0.603, $p < 0.05$). Furthermore, the findings also demonstrate that TQM influences service quality mediated by Kaizen (coefficient = 0.241, $p < 0.05$). The practical implications of this study underscore the importance of implementing Kaizen strategies to enhance service quality in hospitals, as well as the need for integrating TQM and Kaizen in overall quality management. This research contributes to the development of quality management practices in the healthcare sector, particularly in the context of hospitals in developing areas.*

Keywords: *Kaizen, service quality, and total quality management.*

Abstrak. Penelitian ini bertujuan untuk menginvestigasi pengaruh *Total Quality Management (TQM)* terhadap kualitas pelayanan dengan dimediasi oleh Kaizen di Rumah Sakit Pratama Mandrehe Kabupaten Nias Barat. Metode penelitian ini adalah metode kuantitatif dengan mendistribusikan kuesioner kepada 60 pegawai Rumah Sakit Pratama Mandrehe Nias Barat. Metode analisis menggunakan SEM PLS dengan teknik bootstrapping untuk menguji hipotesis-hipotesis yang diajukan. Hasil pengujian menunjukkan bahwa Kaizen memiliki pengaruh positif dan signifikan terhadap kualitas pelayanan (koefisien = 0.399, $p < 0.05$), serta TQM memiliki pengaruh positif dan signifikan terhadap Kaizen (koefisien = 0.603, $p < 0.05$). Selain itu, temuan juga menunjukkan bahwa TQM berpengaruh terhadap kualitas pelayanan dengan dimediasi oleh Kaizen (koefisien = 0.241, $p < 0.05$). Implikasi praktis penelitian ini adalah pentingnya penerapan strategi Kaizen dalam meningkatkan kualitas pelayanan di rumah sakit, serta perlunya integrasi TQM dan Kaizen dalam manajemen kualitas secara keseluruhan. Penelitian ini memberikan kontribusi bagi pengembangan praktik manajemen kualitas di sektor layanan kesehatan, khususnya dalam konteks rumah sakit di daerah berkembang.

Kata Kunci: Kaizen, kualitas pelayanan, dan *total quality management*.

History Article Received: 28 February 2024

Revised: 02 May 2024

Accepted: 10 May 2024

INTRODUCTION

This study intends to investigate the influence of Kaizen as a mediator in the relationship between *Total Quality Management* (TQM) and service quality for employees at Pratama Mandrehe Hospital, West Nias Regency. In the context of healthcare services in Indonesia, particularly in hospitals, which play a crucial role in providing care, there are challenges in maintaining consistent service quality (Reinaldo et al., 2020). Initial observations have revealed variations in the quality of service provided by staff, with some patients expressing dissatisfaction with aspects such as lack of friendliness, delays in handling, and unclear communication (van Kemenade & Hardjono, 2019).

This research is significant as it addresses a gap in the literature concerning the application of Kaizen as a mediator between TQM and service quality in hospitals, especially in developing areas like West Nias. The uniqueness of this study lies in its focus on continuous improvement strategies (Kaizen) as a means to improve healthcare service quality. Therefore, this research not only seeks to understand the relationship between TQM and service quality but also aims to identify how Kaizen strategies can reinforce this relationship (Reinaldo et al., 2020).

Previous research has demonstrated that TQM performance provides a positive result on service quality across various sectors, including healthcare. Furthermore, studies have underscored the role of Kaizen as a continuous improvement strategy that can enhance the efficiency and effectiveness of work processes, particularly within hospital settings (Bouranta et al., 2019). TQM and Kaizen are interrelated concepts, with TQM providing a robust foundation for Kaizen practices by emphasizing overall quality improvement, while Kaizen offers a practical approach to applying TQM principles in daily operations (Durairatnam et al., 2021). Therefore, effective TQM implementation can foster successful Kaizen practices, ultimately contributing to improved service quality in hospitals (Kaur et al., 2019).

The observed phenomena, such as variations in service quality and patient complaints, indicate opportunities for enhancing how hospitals manage the quality of their services (Shayestehfar & Yazdani, 2019). Hence, this research will make a significant contribution to understanding how the adoption of Kaizen strategies within the TQM framework can enhance efficiency, effectiveness, and patient satisfaction with healthcare services offered by Mandrehe Pratama Hospital, West Nias. The study is expected to provide practical insights for hospitals and local governments in their efforts to enhance the quality of healthcare services in the region.

RESEARCH METHOD

This research was conducted using quantitative methods. Quantitative method research is research that aims to gather information regarding the condition of current symptoms according to the situation during which the research was conducted (Asnawi & Setyaningsih, 2020). This research was conducted from November 2023 to February 2024 at the Mandrehe Pratama Hospital, West Nias, located at Lologolu Village, Mandrehe District, West Nias Regency. The population in this study was 60 employees. The sample used is census data, meaning the number of samples is the same as the existing population (Ojekalu, Ojo,

Oladokun, Olabisi, et al., 2019). Data collection techniques through questionnaires and analysis techniques using SEM (Structural Equation Modeling) PLS (Kondasani et al., 2019).

RESULTS AND DISCUSSION

In this research there are four research hypotheses, namely as follows:

- H1 : Kaizen -> Service Quality
- H2 : Total Quality Management -> Kaizen
- H3 : Total Quality Management -> Service Quality
- H4 : Total Quality Management -> Kaizen -> Service Quality

The present study employs a rigorous methodology to test the hypotheses put forth. Specifically, the analysis centers on the examination of the image output and the values contained in the path coefficients output. The criteria for assessing the statistical significance of the hypothesized relationships are based on the widely accepted threshold of a p-value less than 0.05, indicating a significance level of 5%, and a T statistic value greater than 1.960. These established criteria are used to ascertain the presence of a significant influence of exogenous variables on endogenous variables under the scholarly literature (Reinaldo et al., 2020). The rigorous application of these criteria underscores the credibility of the study's findings and supports the validity of the proposed hypotheses.

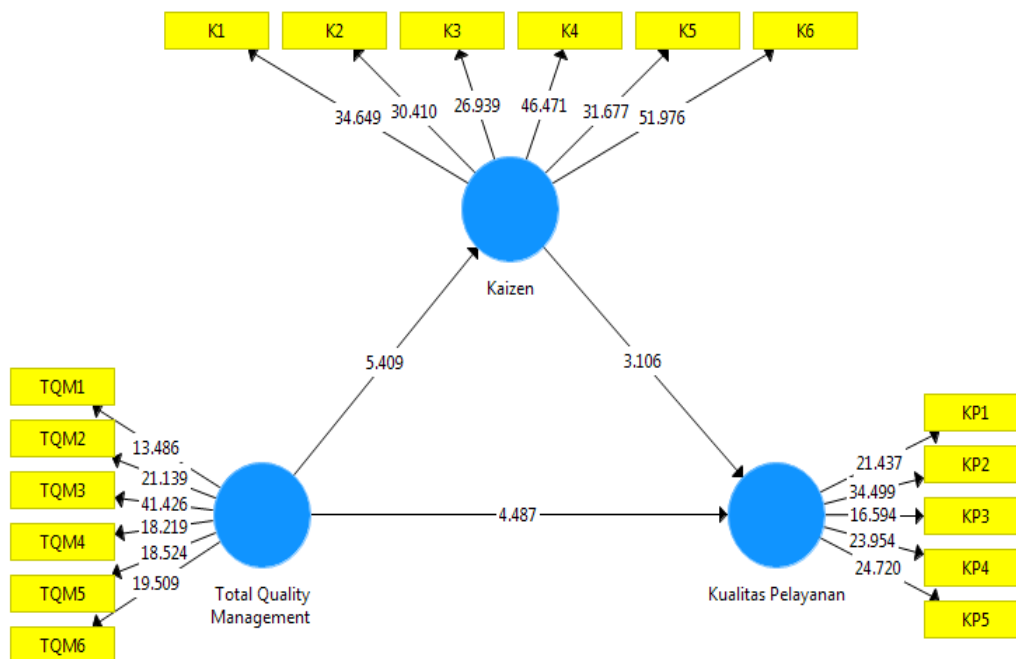


Figure 1. Hypothesis Testing
Source: SmartPLS Output Results (v.3.2.9)

Table 1. Hypothesis Testing

Variables	Original Sample (O)	T Statistic (O/STDEV)	P Values
Kaizen -> Service Quality	0.399	3.028	0.003

Total Quality Management -> Kaizen	0.603	5.823	0.000
Total Quality Management -> Service Quality	0.540	4.366	0.000
Total Quality Management -> Kaizen -> Service Quality	0.241	2.434	0.015

Source: SmartPLS Output Results (v.3.2.9)

In Partial Least Squares (PLS) analysis, simulation-based statistical testing of each hypothesized relationship is conducted using the bootstrapping method for the sample. The bootstrapping method allows for the creation of multiple sub-samples from the original data set, enabling the estimation of robust standard errors, confidence intervals, and p-values. The following are the results of the PL bootstrapping analysis:

1. Kaizen’s Effects on Service Quality.

The present study sought to examine the impact of Kaizen on service quality within the healthcare industry. Following a thorough analysis of the data collected, it was found that Kaizen exerted a significant influence on service quality, as evidenced by a coefficient value of 0.399, p-values of $0.003 < 0.05$, and t-statistics of $3,028 > 1.960$. These findings confirm the hypothesis that posited that "Kaizen has a positive and significant influence on service quality." The importance of continuous improvement strategies in enhancing the quality of healthcare services in hospitals has been highlighted in prior research (Vo et al., 2019), and the results of this study lend further support to this claim. The preliminary observation showed that there were variations in the service quality at Pratama Mandere Hospital, West Nias, for instance, complaints from the patients related to lack of efficiency, communication, and clarity in medical procedures,

The confirmation of the hypothesis that Kaizen has a significant and positive effect on service quality, this research provides a deeper understanding of the importance of Kaizen strategies in the context of Total Quality Management as a strategy that aims to increase efficiency, effectiveness, and patient satisfaction in health services. These results also provide empirical support for prior studies that emphasize Kaizen’s role in maximizing the quality of service in hospitals (Gandhi et al., 2019). Therefore, these results are not only academically relevant but also have major practical implications in improving service quality management in hospitals and possibly in other healthcare sectors.

2. Total Quality Management’s Effects on Kaizen.

The Effect of Total Quality Management on Kaizen hypothesis test shows a coefficient value of 0.603, p-values of $0.000 < 0.05$, and t-statistics of $5,823 > 1.960$. These results indicate that Total Quality Management influences Kaizen. Therefore, the hypothesis "Total Quality Management has a Positive and Significant Influence on Kaizen" can be regarded as acceptable. The findings are consistent with the research background which states that TQM strategies, which prioritize improving overall quality within an organization, are an important factor in facilitating the implementation of Kaizen (Franken et al., 2021).

In the context of a hospital environment, where efforts to continually improve service quality are essential, the application of TQM can help in building a strong foundation for Kaizen practices. TQM focuses on collaborative efforts to improve efficiency, effectiveness, and patient satisfaction, which are key aspects of the Kaizen approach (Ojekalu, Ojo, Oladokun, & Olabisi, 2019). Thus, these findings provide empirical support for the successful integration of TQM with Kaizen practices to further maximize health services quality at Pratama Mandrehe Hospital in West Nias.

The proof that TQM has a highly positive influence on Kaizen will also provide a broader view regarding how holistic quality management can form an organizational culture that supports innovation, continuous improvement, and superior service quality (Chiarini et al., 2018). Thus, these results emphasize the importance of investment in implementing TQM as one of the strategies in health services quality management, in line with aspirations to improve service quality at the Mandrehe Pratama Hospital, West Nias.

3. Total Quality Management's Effects towards Service Quality Mediated by Kaizen

Total Quality Management's Effects towards Service Quality hypothesis test shows a coefficient value of 0.540, p-values of $0.000 < 0.05$, and t-statistics of $4,366 > 1.960$. These results indicate that Total Quality Management influences service quality. Therefore, the hypothesis "Total Quality Management has a Positive and Significant Influence on Service Quality" is accepted. The relationships identified in the results of this hypothesis testing are under the research background presented previously. In the hospital context, TQM is one of the management approaches that focus on improving service quality by uniting all departments and work processes to achieve patient satisfaction (Álvarez-García et al., 2018). Preliminary observations indicate that the implementation of TQM can influence the quality of service in hospitals, and the results of hypothesis testing validate these findings.

These results reinforce the urgency of implementing TQM as a strategy for maximizing health services quality at West Nias Pratama Hospital. These findings imply that to improve service quality, hospitals can focus on developing and implementing more effective TQM practices, such as staff training, implementing clear standard operating procedures, and using performance monitoring systems to measure and improve service outcomes (Gonzalez-Aleu et al., 2018). Dengan demikian, rumah sakit dapat lebih efektif dalam memenuhi kebutuhan pasien dan membangun kepercayaan masyarakat terhadap sistem kesehatan secara keseluruhan.

In this way, hospitals can be more effective in meeting patient needs and building public trust in the health system as a whole.

4. Total Quality Management's Effect towards Service Quality Mediated by Kaizen

Total Quality Management's Effects towards Service Quality Mediated by Kaizen hypothesis test shows a coefficient value of 0.241, p-values of $0.015 < 0.05$, and t-statistics of $2,434 > 1.960$. These results indicate that Total Quality Management influences service quality mediated by Kaizen; therefore, the author accepts the hypothesis, which states that "Kaizen can mediate the influence of total quality management on service quality." This is in accordance with the background of the research, in which West Nias Pratama Hospital faces challenges in maintaining consistent service quality. The use of Kaizen strategies as a mediation between TQM and service quality provides a new understanding of how

continuous improvement efforts may improve the effectiveness of the health service system (Chung, 2018). Thus, following the suggestions in the background, these results provide empirical support for the argument that the application of Kaizen in the context of TQM improves the quality of hospital services.

Within a practical context, these findings show the importance of implementing Kaizen strategies to maximize service quality in hospitals. By understanding and implementing Kaizen principles, hospitals can continuously improve work processes, increase efficiency, and ensure that patient needs are fulfilled (Franken et al., 2021). Therefore, these results significantly contribute to hospital management and local government in improving the quality of health services in West Nias.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

A significant and positive influence is proven based on the hypothesis test of Kaizen on service quality at Pratama Mandrehe Hospital in West Nias. This finding is consistent with the research background that highlights the importance of continuous improvement strategies in improving the quality of health services in hospitals (Burka, 2020). Kaizen provides significant benefits in improving efficiency, effectiveness, and patient satisfaction. Furthermore, accepting this hypothesis provides a deeper understanding of the strategic role of Kaizen in the Total Quality Management field.

Furthermore, Total Quality Management is also proven to have a significant and positive influence on the implementation of Kaizen in hospitals. Research background which emphasizes that Total Quality management is an important factor in facilitating the implementation of Kaizen is in line with this research finding (Vo et al., 2019). The implementation of TQM helps build a strong foundation for Kaizen practices by focusing on collaborative efforts to improve efficiency, effectiveness, and patient satisfaction.

In addition, the results of this research's analysis show that: (1) Total Quality Management has a significant and positive effect in increasing the quality of services in hospitals; and (2) the application of Kaizen successfully mediates the quality of hospital's services and Total Quality Management's relationship (Kumar et al., 2020). This confirms that implementing the Kaizen strategy in the TQM context helps to improve the quality of service in hospitals. Therefore, these results provide empirical support for efforts to improve health services quality at Mandrehe Pratama Hospital, West Nias.

Recommendations

Hospital management is suggested to continuously implement Kaizen strategies as part of efforts to improve the quality of services provided based on this research's results. Adopting Kaizen practices in the hospital's operational processes, including the identification and elimination of unnecessary expenses, increasing efficiency, and empowering staff to continuously improve can be carried out as an effort to implement Kaizen strategies.

In addition, hospital management is also advised to further strengthen in implementing Total Quality Management as the basis for Kaizen practices. This involves establishing an organizational culture that supports innovation, collaboration, and a focus on

overall quality improvement. Staff training and development also need to be allocated to ensure that hospital staff understand TQM and Kaizen principles.

Furthermore, continuous monitoring and evaluation of Kaizen strategies and Total Quality Management implementations in hospitals is necessary. This involves the use of performance measurement methods and patient feedback to ensure that necessary improvements are identified and implemented effectively. Through this method, hospitals can continuously improve the quality of service and better meet patient needs.

AUTHORS CONTRIBUTION STATEMENT

In this research, the two authors divided the tasks into the following:

Forman Halawa (first author): research concept, methodology, writing original research text, data curation, data analysis, and supervision.

Eliyunus Waruwu (second author): research administration, writing the introduction, reviewing, and editing the research text.

Marinus Gea (third author): Editing the research text.

Both authors declare that this research article has not been published before and is not under consideration for publication in any journal. Both authors have consented to the publication of this research article, and if accepted, without the copyright owner's written consent, will not published anywhere else in any form or any other language.

REFERENCES

- Álvarez-García, J., Durán-Sánchez, A., & del Río-Rama, M. de la C. (2018). Systematic bibliometric analysis on Kaizen in scientific journals. *TQM Journal*, 30(4), 356–370. <https://doi.org/10.1108/TQM-12-2017-0171>
- Asnawi, N., & Setyaningsih, N. D. (2020). Perceived service quality in Indonesian Islamic higher education context: A test of Islamic higher education service quality (i-HESQUAL) model. *Journal of International Education in Business*, 13(1), 107–130. <https://doi.org/10.1108/JIEB-11-2019-0054>
- Bouranta, N., Psomas, E., Suárez-Barraza, M. F., & Jaca, C. (2019). The key factors of total quality management in the service sector: a cross-cultural study. *Benchmarking*, 26(3), 893–921. <https://doi.org/10.1108/BIJ-09-2017-0240>
- Burka, I. (2020). How managers in poland use the principles and instruments of the kaizen philosophy in their personal lives – the personal kaizen approach. *Quality Innovation Prosperity*, 24(2), 1–21. <https://doi.org/10.12776/QIP.V24I2.1396>
- Chiarini, A., Baccarani, C., & Mascherpa, V. (2018). Lean production, Toyota Production System and Kaizen philosophy: A conceptual analysis from the perspective of Zen Buddhism. *TQM Journal*, 30(4), 425–438. <https://doi.org/10.1108/TQM-12-2017-0178>
- Chung, C. H. (2018). The Kaizen Wheel – an integrated philosophical foundation for total continuous improvement. *TQM Journal*, 30(4), 409–424. <https://doi.org/10.1108/TQM-03-2018-0029>

- Durairatnam, S., Chong, S. C., Jusoh, M., & Dharmaratne, I. R. (2021). Does people-related total quality management “work” for people? An empirical study of the Sri Lankan apparel industry. *TQM Journal*, 33(6), 1183–1200. <https://doi.org/10.1108/TQM-06-2020-0140>
- Franken, J. C. M., van Dun, D. H., & Wilderom, C. P. M. (2021). Kaizen event process quality: towards a phase-based understanding of high-quality group problem-solving. *International Journal of Operations and Production Management*, 41(6), 962–990. <https://doi.org/10.1108/IJOPM-09-2020-0666>
- Gandhi, S. K., Sachdeva, A., & Gupta, A. (2019). Impact of service quality on satisfaction and loyalty at manufacturer-distributor dyad: Insights from Indian SMEs. *Journal of Advances in Management Research*, 16(1), 91–122. <https://doi.org/10.1108/JAMR-12-2017-0120>
- Gonzalez-Aleu, F., Van Aken, E. M., Cross, J., & Glover, W. J. (2018). Continuous improvement project within Kaizen: critical success factors in hospitals. *TQM Journal*, 30(4), 335–355. <https://doi.org/10.1108/TQM-12-2017-0175>
- Kaur, M., Singh, K., & Singh, D. (2019). Synergetic success factors of total quality management (TQM) and supply chain management (SCM): A literature review. *International Journal of Quality and Reliability Management*, 36(6), 842–863. <https://doi.org/10.1108/IJQRM-11-2017-0228>
- Kondasani, R. K. R., Panda, R. K., & Basu, R. (2019). Better healthcare setting for better healthcare service quality: An empirical analysis of Indian consumers’ perspective. *International Journal of Quality and Reliability Management*, 36(10), 1665–1682. <https://doi.org/10.1108/IJQRM-05-2018-0120>
- Kumar, V., Verma, P., Mangla, S. K., Mishra, A., Chowdhary, D., Chi Hsu, C. H., & Lai, K. K. (2020). Barriers to Total Quality Management for sustainability in Indian organizations. *International Journal of Quality and Reliability Management*, 37(6–7), 1007–1031. <https://doi.org/10.1108/IJQRM-10-2019-0312>
- Ojekalu, S. O., Ojo, O., Oladokun, T. T., & Olabisi, S. A. (2019). Effect of demographic characteristics on service quality perception: Evidence from occupiers of shopping complex in Ibadan, Nigeria. *Property Management*, 37(3), 418–431. <https://doi.org/10.1108/PM-07-2018-0040>
- Ojekalu, S. O., Ojo, O., Oladokun, T. T., Olabisi, S. A., & Omoniyi, S. S. (2019). Service quality of property managers of shopping complexes in Ibadan, Nigeria: Empirical evidence. *Property Management*, 37(3), 310–326. <https://doi.org/10.1108/PM-04-2018-0029>
- Reinaldo, L. da S. P., Vieira Neto, J., Goyannes Gusmão Caiado, R., & Gonçalves Quelhas, O. L. (2020). Critical factors for total quality management implementation in the Brazilian construction industry. *TQM Journal*, 33(5), 1001–1019. <https://doi.org/10.1108/TQM-05-2020-0108>
- Shayestehfar, R., & Yazdani, B. (2019). Bank service quality: A comparison of service quality between BSI branches in Isfahan and Dubai. *TQM Journal*, 31(1), 28–51. <https://doi.org/10.1108/TQM-04-2018-0052>
- van Kemenade, E., & Hardjono, T. W. (2019). Twenty-first century Total Quality

Management: the Emergence Paradigm. *TQM Journal*, 31(2), 150–166.
<https://doi.org/10.1108/TQM-04-2018-0045>

Vo, B., Kongar, E., & Suárez Barraza, M. F. (2019). Kaizen event approach: a case study in the packaging industry. *International Journal of Productivity and Performance Management*, 68(7), 1343–1372. <https://doi.org/10.1108/IJPPM-07-2018-0282>