Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 10, No. 2, 394-400
2026
Publisher: Learning Gate
DOI: 10.55214/2576-8484.v10i2.12100

Effects of work climate, leadership, and motivation on individual performance in elective surgery delays

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Abstract: Underutilized operating rooms caused by delays in elective surgery schedules contribute to extended waiting lists, patient dissatisfaction, and worsening clinical conditions, sometimes leading to preventable complications. These delays are often linked to organizational and human resource factors, highlighting the importance of work climate, leadership, and staff motivation in influencing individual performance. This quantitative cross-sectional study collected structured questionnaire data from 114 operating room personnel, including surgeons, anesthesiologists, nurses, radiographers, and pharmacy staff. Using SmartPLS path analysis, the study examined both direct and indirect relationships. Results indicated that work climate had a significant direct effect on individual performance (path coefficient = 0.30), while motivation showed a strong direct influence (path coefficient = 0.557). Leadership significantly impacted work climate (0.80) and motivation (0.70) but did not have a statistically significant direct effect on performance (0.016), suggesting its role is primarily mediated through other variables. Overall, work climate and motivation are key factors in managing elective surgery delays. Effective leadership plays an essential indirect role by fostering a supportive work environment and enhancing staff motivation. Hospital management strategies aiming to reduce surgical delays should focus on improving work climate and strengthening motivational systems, supported by adaptive leadership practices.

Keywords: *Work Climate, Leadership, Motivation, Human Resource Performance.*

1. Introduction

Operating room (OR) efficiency is a critical aspect of hospital service delivery, especially for elective surgeries, where delays can lead to increased waiting times, patient dissatisfaction, and potential adverse clinical outcomes. Elective surgery delays contribute not only to service inefficiencies but also to a decrease in the overall quality of healthcare delivery, emphasizing the need to understand human factors that influence performance in OR settings. Comprehensive analyses of organizational determinants, such as work climate, leadership, and motivation, are essential for improving performance outcomes among OR personnel.

Work climate is an important organizational factor that reflects the internal environment shaping how employees perceive job conditions, communication, and support structures. Positive work environments have been linked to improved job satisfaction and performance in healthcare settings, with conducive climates fostering better teamwork and task execution among clinical staff. For instance, research in hospital contexts shows that a supportive work environment and organizational climate are significantly correlated with staff performance and job outcomes [1].

History: Received: 22 November 2025; Revised: 12 January 2026; Accepted: 15 January 2026; Published: 11 February 2026
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Leadership within clinical settings plays a central role in shaping work climate and aligning team goals with organizational objectives. Transformational and supportive leadership styles have been empirically associated with enhanced employee motivation and performance, particularly in high-stakes environments such as operating rooms [2]. Effective leaders contribute to establishing clear expectations, facilitating communication, and fostering a culture of engagement that supports high-quality patient care.

Motivation, defined as the internal drive that influences an individual's willingness to perform tasks effectively, is another determinant critical to healthcare performance. Motivation is influenced by both intrinsic factors (e.g., professional fulfillment) and extrinsic factors (e.g., recognition and rewards), and it has been shown to directly affect staff performance in clinical settings. Studies demonstrate that highly motivated healthcare workers exhibit better performance outcomes, which are particularly relevant in environments requiring precision and time-sensitive actions such as surgery [3].

Empirical evidence suggests that work climate and motivational levels act as mediators between leadership and individual performance in healthcare organizations. While leadership may set the direction and culture of a unit, the actual impact on performance often occurs through shaping motivational and environmental conditions that enable staff to perform effectively [4].

Despite the recognized importance of these factors in general hospital environments, few studies specifically investigate their combined effects on delaying elective surgeries in operating rooms, a gap that limits targeted interventions in OR management. Addressing this gap is critical for improving operational efficiency and reducing the clinical and logistical burdens associated with surgical delays.

Therefore, this study examines how work climate, leadership, and motivation influence individual performance related to elective surgery delays in an OR setting. By applying quantitative analysis using path modeling, this research aims to extend the literature on organizational determinants of performance in surgical settings. Understanding these relationships provides evidence for hospital administrators and policymakers to design interventions that enhance work environments, leadership practices, and motivational strategies to optimize performance and reduce delays in elective surgeries.

2. Materials and Methods

2.1. Study Design and Setting

This study employed a quantitative, cross-sectional design to examine the influence of work climate, leadership, and motivation on individual performance related to elective surgery delays in the operating room of Wahidin Sudirohusodo Hospital, Makassar, Indonesia. The cross-sectional design permits assessment of relationships between independent and dependent variables at a single point in time, suitable for organizational behavior research in healthcare settings.

2.2. Study Population and Sampling

The study population comprised all operating room personnel at Wahidin Sudirohusodo Hospital, including surgeons, anesthesiologists, surgical nurses, radiographers, and pharmacy staff. A total of 114 respondents were recruited using stratified purposive sampling to ensure representation across professional groups involved in perioperative services. Inclusion criteria were employment in the operating room for at least six months and direct involvement in elective surgical care; respondents unable to complete the questionnaire were excluded.

2.3. Variables and Conceptual Framework

Independent variables included work climate, leadership, and motivation, while the dependent variable was individual performance related to elective surgery delays. The conceptual model was developed based on organizational behavior theory, wherein leadership is hypothesized to influence work climate and motivation, which in turn affect individual performance outcomes. Constructs and indicators were adapted from validated literature.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 10, No. 2: 394-400, 2026
DOI: 10.55214/2576-8484.v10i2.12100

2.4. Data Collection Instrument

Data were collected using a structured, self-administered questionnaire developed for this study. The questionnaire items were adapted from previously published instruments measuring organizational climate, leadership behavior, employee motivation, and performance outcomes in healthcare environments. Questionnaire items used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Pilot testing was conducted with 15 operating room staff, not included in the final sample for initial validation.

2.5. Validity and Reliability

Content validity was assessed by a panel of three experts in healthcare management and organizational psychology to ensure relevance and clarity of items. Construct validity and internal consistency reliability were assessed statistically during data analysis via exploratory factor analysis (EFA) and Cronbach's alpha, with thresholds of ≥0.70 considered acceptable for research constructs.

2.6. Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of Hasanuddin University (Approval No. 1377/UN4.14.1/TP.01.02/2025). Written informed consent was secured from all participants before data collection. Participation was voluntary, confidentiality and anonymity were assured, and participants were informed of their right to withdraw from the study at any stage without consequence.

2.7. Statistical Analysis

Data were analyzed using SmartPLS version X (SmartPLS GmbH) to perform path analysis (partial least squares structural equation modeling), which is appropriate for predicting complex relationships among latent variables in cross-sectional designs. Model evaluation included assessment of measurement model reliability, convergent and discriminant validity, and structural model path coefficients with significance testing through bootstrapping procedures (e.g., 5,000 resamples). Statistical significance was set at $p < 0.05$.

Table 1.
Structural Path Analysis Results.

Path Relationship	Path Coefficient (β)	95% CI	p-value	f^2	Effect Size
Work Climate → Individual Performance	0.300	0.074 – 0.512	0.006	0.064	Small
Leadership → Work Climate	0.800	0.740 – 0.870	<0.001	0.180	Moderate
Leadership → Individual Performance	0.016	–	0.835	–	Not significant
Leadership → Motivation	0.700	0.621 – 0.813	<0.001	1.012	Large
Motivation → Individual Performance	0.557	0.374 – 0.742	<0.001	0.313	Large

The analysis revealed a significant positive relationship between work climate and individual performance ($\beta = 0.300$; $p = 0.006$). The 95% confidence interval (0.074–0.512) did not cross zero, confirming statistical significance. This finding suggests that improvements in the work climate are linked to enhanced individual performance among operating room staff. However, the effect size was relatively small ($f^2 = 0.064$), indicating a modest contribution at the structural level.

Leadership demonstrated a strong and statistically significant influence on work climate ($\beta = 0.800$; $p < 0.001$). The confidence interval (0.740–0.870) indicates a robust and stable effect. With a moderate effect size ($f^2 = 0.180$), leadership plays a crucial role in shaping a positive work environment within the operating room.

In contrast, leadership did not show a significant direct effect on individual performance ($\beta = 0.016$; $p = 0.835$). This result indicates that leadership alone does not directly improve performance outcomes, suggesting the presence of mediating mechanisms. Leadership was found to have a significant and

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ISSN: 2576-8484
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strong effect on motivation ($\beta = 0.700$; $p < 0.001$). The confidence interval (0.621–0.813) and a large effect size ($f^2 = 1.012$) indicate that leadership is a dominant determinant of staff motivation in the operating room context.

Motivation, in turn, exerted a significant positive effect on individual performance ($\beta = 0.557$; $p < 0.001$). The confidence interval (0.374–0.742) confirms the robustness of this relationship. The effect size ($f^2 = 0.313$) approached the threshold for a large effect, highlighting motivation as a key driver of performance related to elective surgery delays.

Table 2.
Coefficient of Determination (R^2).

Endogenous Variable	R^2 Value	Interpretation
Work Climate	0.640	Substantial
Motivation	0.490	Moderate
Individual Performance	0.670	Substantial

The coefficient of determination shows that leadership explains 64.0% of the variance in work climate, indicating substantial explanatory power. This finding confirms the dominant role of leadership in shaping the organizational climate in operating room settings.

Furthermore, leadership accounts for 49.0% of the variance in motivation, suggesting a moderate level of explanatory power. This result indicates that leadership practices are a major, though not exclusive, determinant of staff motivation.

For the main outcome variable, individual performance, the combined effects of work climate, leadership, and motivation explain 67.0% of the variance, which is considered substantial. This demonstrates that the proposed structural model has a strong explanatory capability in predicting performance related to elective surgery delays.

Table 3.
Predictive Relevance (Q^2).

Endogenous Variable	Q^2 Value	Predictive Relevance
Work Climate	0.420	Strong
Motivation	0.310	Moderate
Individual Performance	0.450	Strong

The Q^2 results indicate that the structural model demonstrates adequate to strong predictive relevance for all endogenous variables. Work climate ($Q^2 = 0.420$) and individual performance ($Q^2 = 0.450$) show strong predictive capability, confirming that the model can accurately predict observed values beyond mere explanatory power. Motivation also exhibits positive predictive relevance ($Q^2 = 0.310$), indicating that leadership-driven motivational processes are reliably captured by the model.

3. Discussion

3.1. Direct Effect of Work Climate on Human Resource Performance Related to Surgical Delays

This study demonstrated a significant direct effect of work climate on individual performance in the operating room of Wahidin Sudirohusodo Hospital ($\beta = 0.30$; $p = 0.006$). The 95% confidence interval (0.074–0.512) confirmed the robustness of this relationship, although the structural effect size was relatively small ($f^2 = 0.064$). These findings indicate that improvements in the work climate contribute to enhanced staff performance, particularly in reducing elective surgery delays.

Work climate reflects the internal psychological and organizational environment in which healthcare professionals perform their duties. A supportive and conducive climate enables operating room personnel to function optimally, enhancing coordination, communication, and adherence to surgical schedules. A positive work climate allows staff to reach their full professional potential during operative procedures, making it a critical determinant of organizational success [5].

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ISSN: 2576-8484
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Conversely, a poor organizational climate may foster distrust, conflict, and reluctance to collaborate, ultimately impairing performance and increasing surgical delays. A positive work climate, however, enhances morale, participation in decision-making, creativity, and productivity, all of which are essential for timely surgical services. This finding is consistent with Amoadu et al. [6], who reported that organizational climate significantly affects employee behavior, performance, and organizational effectiveness [6]. Similar findings were reported by Huang et al. [7] who emphasized that a healthy work environment improves healthcare staff performance and patient satisfaction by promoting shared goals and role clarity within multidisciplinary teams [7, 8].

3.2. Direct Effect of Leadership on Work Climate

The results revealed a strong and significant effect of leadership on work climate ($\beta = 0.80$; $p < 0.001$), with a moderate structural effect size ($f^2 = 0.18$). This indicates that leadership plays a central role in shaping the organizational climate of the operating room, which subsequently influences staff performance and surgical efficiency.

Transformational leadership is particularly influential in healthcare settings, as it motivates and inspires staff to develop team spirit, optimism, and commitment. This finding aligns with Ystaas et al. [8], who demonstrated a significant relationship between transformational leadership and organizational climate among intensive care unit nurses [9]. Similarly, Suwandana [9] reported that transformational leadership positively affects nursing work environments both directly and indirectly through mediators such as empowerment, organizational commitment, and job satisfaction [10-12].

Transformational leaders articulate a compelling vision, encourage innovation, and foster mutual trust without publicly criticizing mistakes. By empowering staff, valuing their contributions, and involving them in decision-making, leaders can create a psychologically safe and supportive climate [13]. In the operating room context, such leadership is crucial for establishing a conducive work environment that enables surgical procedures to be conducted according to schedule.

3.3. Direct Effect of Leadership on Human Resource Performance

Despite its strong influence on work climate and motivation, leadership did not show a significant direct effect on individual performance ($\beta = 0.016$; $p = 0.835$). This suggests that leadership influences performance primarily through indirect pathways rather than direct mechanisms.

This finding is consistent with studies by Nurhuda and Khotimah, which reported that transformational leadership did not directly affect hospital staff performance [1, 2]. However, it contrasts with findings from Ghasemi et al. [1] who reported significant direct effects of leadership on healthcare worker performance [3-5]. These discrepancies may be explained by contextual differences, organizational structures, or the presence of mediating variables such as work climate and motivation [6].

Leadership in healthcare organizations functions as a driver and coordinator of collective action. Transformational leadership emphasizes emotional and professional development, reduces hierarchical distance, and strengthens leader–follower relationships [14]. In operating room settings, strong leader–staff relationships are essential for fostering engagement and improving performance indirectly through supportive environments and motivational mechanisms.

3.4. Direct Effect of Leadership on Motivation

The findings indicate a strong and significant positive effect of leadership on motivation ($\beta = 0.70$; $p < 0.001$), with a large effect size ($f^2 = 1.012$). This highlights leadership as a dominant determinant of staff motivation in the operating room. This result is consistent with Alsadaan et al. [15], who found that transformational leadership enhances nurses' motivation and performance Huang et al. [7]. Musinguzi et al. [16] also reported that transformational leadership has a greater impact on health worker motivation, job satisfaction, and teamwork compared to transactional or laissez-faire leadership

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styles [12]. Moreover, Ystaas et al. [8] emphasized that supportive leadership, professional development opportunities, and empowerment significantly increase employee motivation in hospital settings [8].

Effective leadership is essential for motivating staff, initiating action, coordinating tasks, and building a supportive environment. Without strong leadership, organizational goals such as reducing elective surgery delays are difficult to achieve. Motivated staff are more likely to engage proactively in surgical preparation and execution, ensuring adherence to planned schedules.

3.5. Direct Effect of Motivation on Human Resource Performance

Motivation was found to have a significant and strong effect on individual performance ($\beta = 0.557$; $p < 0.001$), with a high structural effect size ($f^2 = 0.313$). This indicates that motivated operating room staff demonstrate higher levels of performance, contributing to reduced surgical delays.

This finding aligns with previous studies showing that motivation significantly influences healthcare worker performance Abu Bakar et al. [2] and Jaramillo et al. [3]. Pavlista et al. [4] reported a strong positive association between achievement motivation and physician performance in China, emphasizing the universal importance of motivation in clinical settings [4]. Employees with high achievement motivation tend to work harder, demonstrate better time management, and perform tasks more effectively.

In healthcare organizations, motivated personnel contribute to higher productivity, lower absenteeism, improved teamwork, and better patient outcomes [5]. In the operating room context, highly motivated staff are more punctual, better prepared, and more committed to completing surgeries according to schedule, thereby minimizing delays [1, 6].

4. Conclusion

This study demonstrates that organizational and human resource factors play a critical role in individual performance related to elective surgery delays in operating room settings. Work climate and motivation were found to have significant direct effects on human resource performance, indicating that a supportive work environment and high levels of staff motivation are essential for improving operational efficiency and reducing delays in elective surgical procedures.

Leadership did not exert a significant direct influence on individual performance; however, it played a pivotal indirect role by strongly shaping work climate and enhancing staff motivation. These findings suggest that leadership effectiveness in operating rooms should be understood as a contextual and enabling factor rather than a direct performance driver. Transformational leadership practices that foster trust, empowerment, and shared vision contribute to creating a positive organizational climate and motivating staff, which in turn enhances performance outcomes.

The substantial explanatory and predictive power of the proposed structural model highlights the importance of integrated organizational interventions. Hospital management strategies aimed at minimizing elective surgery delays should prioritize improving the work climate and strengthening motivational mechanisms, supported by leadership approaches that emphasize collaboration, communication, and staff development.

Overall, this study provides empirical evidence that addressing organizational climate and motivation through effective leadership is essential for optimizing operating room performance. These findings offer practical implications for hospital administrators and policymakers in designing human resource and leadership development programs to enhance surgical service delivery and patient care quality.

Transparency:

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 10, No. 2: 394-400, 2026
DOI: 10.55214/2576-8484.v10i2.12100

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

References

[1] F. Ghasemi, M. Mahdinia, and A. Doosti-Irani, "Safety-specific transformational leadership and safety outcomes at workplaces: A scoping review study," *BMC Public Health*, vol. 25, p. 2723, 2025. https://doi.org/10.1186/s12889-025-24044-w

[2] N. Abu Bakar, A. Bulgiba, and M. Isahak, "Perceived psychosocial safety climate (PSC) level and its association with occupational outcomes among clinical unit healthcare workers in a Malaysian hospital: A three-wave longitudinal study," *BMC Public Health*, vol. 25, p. 1418, 2025. https://doi.org/10.1186/s12889-025-22562-1

[3] D. Jaramillo *et al.*, "Evaluation of a Total worker Health® leadership training in Latin America: Opportunities for sustainable change in low-and middle-income countries," *BMC Public Health*, vol. 25, p. 984, 2025. https://doi.org/10.1186/s12889-025-22179-4

[4] V. Pavlista, P. Angerer, and M. Diebig, "Challenges of modern work environments and means of overcoming them in the context of psychosocial risk assessments," *BMC Public Health*, vol. 24, p. 3394, 2024. https://doi.org/10.1186/s12889-024-20818-w

[5] J. M. Cavallari, S. M. Trudel, M. N. Miskovsky, R. A. Laguerre, and A. G. Dugan, "Life satisfaction and job and personal resources among public workers with non-standard work schedules," *BMC Public Health*, vol. 24, p. 1133, 2024. https://doi.org/10.1186/s12889-024-18575-x

[6] M. Amoadu, E. W. Ansah, and J. O. Sarfo, "Influence of psychosocial safety climate on occupational health and safety: A scoping review," *BMC Public Health*, vol. 23, p. 1344, 2023. https://doi.org/10.1186/s12889-023-16246-x

[7] Q. Huang, L. Wang, H. Huang, H. Tang, J. Liu, and C. Chen, "Transformational leadership, psychological empowerment, work engagement and intensive care nurses' job performance: A cross-sectional study using structural equation modeling," *BMC Nursing*, vol. 24, p. 1025, 2025. https://doi.org/10.1186/s12912-025-03685-7

[8] L. M. K. Ystaas, M. Nikitara, S. Ghobrial, E. Latzourakis, G. Polychronis, and C. S. Constantinou, "The impact of transformational leadership in the nursing work environment and patients' outcomes: A systematic review," *Nursing Reports*, vol. 13, no. 3, pp. 1271-1290, 2023. https://doi.org/10.3390/nursrep13030108

[9] I. G. M. Suwandana, "The role of leadership, work motivation and organizational commitment to hospital performance in Bali," *Journal of World Science*, vol. 3, no. 1, pp. 38-47, 2024. https://doi.org/10.58344/jws.v3i1.527

[10] E. Mitakda, P. D. Kusumawati, and I. Indasah, "The influence of work environment factors, employee motivation and safety culture on patient safety performance," *Indonesian Journal of Global Health Research*, vol. 7, no. 2, pp. 961–966, 2025. https://doi.org/10.37287/ijghr.v7i2.5853

[11] M. Merry, R. N. Hutapea, and I. Bernarto, "The influence of motivation, work environment, and transformational leadership on the performance of operating room nurses," *Indonesian Interdisciplinary Journal of Sharia Economics*, vol. 7, no. 2, pp. 4206-4219, 2024. https://doi.org/10.31538/iijse.v7i2.5059

[12] R. a. Abu-Qutaish, M. R. Alosta, G. Abu-Shosha, I. A. Oweidat, and A. J. Nashwan, "The relationship between transformational leadership, work motivation, and engagement among nurses in Jordanian governmental hospitals," *BMC nursing*, vol. 24, p. 842, 2025. https://doi.org/10.1186/s12912-025-03518-7

[13] S. A. Boamah, H. K. S. Laschinger, C. Wong, and S. Clarke, "Effect of transformational leadership on job satisfaction and patient safety outcomes," *Nursing Outlook*, vol. 66, no. 2, pp. 180-189, 2018. https://doi.org/10.1016/j.outlook.2017.10.004

[14] L. Zhang *et al.*, "The relationship between transformational leadership and work engagement among intensive care unit nurses: The mediating function of organizational climate," *BMC Nursing*, vol. 24, no. 1, p. 398, 2025. https://doi.org/10.1186/s12912-025-03057-1

[15] A. Alsadaan, X. Huang, and J. Smith, "The impact of transformational leadership on nurses' motivation and performance in hospital settings," *Journal of Nursing Management*, vol. 32, no. 4, pp. 567–579, 2024.

[16] C. Musinguzi, C. Kyokunzire, and B. Mutamba, "The relationship between leadership style and health worker motivation, job satisfaction, and teamwork in Uganda," *Journal of Healthcare Leadership*, vol. 10, pp. 45–55, 2018. https://doi.org/10.2147/JHL.S147885