

Enhancing Occupational Health and Safety Through Strategic Leadership: The Mediating Role of Total Quality Management in Hodeida Hospitals, Yemen

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Background: Occupational Health and Safety (OHS) is a critical concern in healthcare settings, particularly in resource-constrained environments where safety challenges often compromise staff well-being and patient care. Effective leadership and quality management are increasingly recognized as essential for addressing these challenges.

Objective: This study investigates the impact of Strategic Leadership (SL) on the Occupational Health and Safety System (OHS) in hospitals, with Total Quality Management (TQM) serving as a mediating factor. Utilizing a cross-sectional survey design.

Methodology: Data were collected from 323 healthcare professionals across six hospitals in Hodeida, Yemen, covering both medical and administrative roles. Partial Least-Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the data, examining both direct and indirect relationships among the study variables.

Results: The findings reveal that SL positively influences OHS directly and indirectly through TQM. Specifically, leadership practices that emphasize strategic direction, ethical conduct, and organizational control contribute to fostering a safer work environment. TQM enhances this effect by strengthening operational efficiencies and standardizing safety protocols. These results underscore the critical role of integrated leadership and quality management in advancing OHS practices in resource-constrained healthcare settings.

Conclusion: The study offers practical implications for hospital administrators seeking to improve safety and performance through a combined focus on leadership and quality management. Future research should explore these dynamics in different sectors and geographical contexts to validate and extend these findings.

Keywords: strategic leadership, occupational health and safety, total quality management, mediation analysis, Hodeidah Yemen

Introduction

Occupational Health and Safety (OHS) is integral to creating resilient healthcare systems that can protect both healthcare workers and patients. In hospitals, the intensity of the environment exposes healthcare workers to numerous occupational hazards, including physical, chemical, biological, and psychological risks.¹ These risks can range from accidental needle sticks to exposure to infectious diseases and burnout from long hours. In developing regions such as Hodeida, Yemen, the challenges are intensified by infrastructural limitations, economic instability, and ongoing social and political unrest.² Hospitals are often under-resourced, lacking the infrastructure, management practices, and strategic oversight necessary to implement effective OHS protocols.³ This complex context makes it essential to explore strategic approaches that can strengthen OHS practices in such environments, especially given the high stakes of healthcare delivery in crisis-affected areas.

Leadership plays a critical role in influencing workplace culture, operational standards, and employee behavior, which are all essential factors in effective OHS implementation.^{4,5} Strategic leadership (SL), characterized by its vision-driven approach to long-term objectives and holistic management, is particularly relevant for improving OHS in healthcare.⁶ By creating a clear direction, motivating employees, and aligning resources, strategic leaders can embed safety-focused practices into the organizational culture and operations of healthcare institutions.⁷ However, despite the recognized

importance of leadership in healthcare settings, there is a limited understanding of how SL directly impacts OHS, especially in low-resource environments. This study seeks to address this gap by examining how strategic leadership can foster improved OHS, specifically within the under-explored context of Yemeni hospitals.

Total Quality Management (TQM), a well-established framework for enhancing organizational performance through continuous improvement and stakeholder engagement, is also increasingly recognized as a mechanism for improving healthcare quality and safety.⁸ TQM emphasizes process standardization, error reduction, and a focus on stakeholder satisfaction—all of which are aligned with the goals of OHS.⁹ This study hypothesizes that TQM serves as a mediating factor, translating strategic leadership's overarching goals into concrete, safety-focused practices that can elevate OHS. When effectively implemented, TQM can institutionalize safety procedures and foster a culture of continuous improvement, making it a suitable framework to link SL with practical OHS.¹⁰ By introducing TQM as a mediating variable, this study explores a novel mechanism through which SL can influence OHS in a way that aligns with the operational realities of hospitals in Yemen.

This study contributes a unique perspective to the field of OHS research by examining the intersection of SL and TQM as it relates to occupational health and safety within a high-risk, low-resource healthcare setting. While existing research has separately linked TQM to healthcare quality improvement and underscored the importance of leadership in driving organizational safety, few studies have examined the specific role of TQM as a mediator between strategic leadership and OHS. This study's focus on TQM as an intermediary adds a new dimension to understanding how leadership can practically influence OHS, making it particularly relevant for healthcare environments where resources for dedicated OHS initiatives may be scarce.

Terms Definition

In this study, Strategic Leadership (SL) is defined as the hospital leaders' ability to determine the strategic orientation, exploit the hospital's core competencies, develop human capital, support organizational culture, encourage ethical practices, and implement balanced organizational control.

In this study, Total Quality Management (TQM) is defined as a comprehensive management approach implemented in hospitals that emphasizes top management commitment, customer focus, continuous improvement, and employee involvement.

In this study, the Occupational Health and Safety (OHS) System is defined as a comprehensive framework implemented in hospitals to safeguard employees' health and safety by addressing occupational risks, promoting a culture of safety, and ensuring compliance with safety standards.

Theoretical Underpinnings

To explain the relationships among the study variables, this research draws on strategic leadership theory, Total Quality Management (TQM) principles, and the safety climate framework. Together, these theories provide a robust foundation for examining how leadership and quality management influence occupational health and safety (OHS) in healthcare settings, particularly within resource-limited environments like Hodeida, Yemen. Strategic leadership theory posits that leaders with a strong, vision-driven focus can align organizational culture and processes to achieve specific goals, such as safety and quality.¹¹ In healthcare, this theory underscores the role of leaders in embedding a culture of safety by establishing OHS as a core organizational value and allocating resources to uphold it.^{12,13} Leaders who prioritize OHS create a shared commitment to safety among staff, which is crucial in complex, high-risk environments.^{14,15}

Total Quality Management (TQM) principles serve as a practical framework to translate leadership's safety-focused vision into measurable practices.¹⁶ Rooted in continuous improvement, TQM emphasizes process standardization, error reduction, and stakeholder satisfaction, all of which contribute directly to OHS by ensuring safer work environments and reducing incidents of harm.¹⁷ TQM theory suggests that organizations improve outcomes by fostering a culture of quality and involving all employees in quality and safety initiatives.^{18,19} In the context of healthcare, TQM supports the implementation of standardized safety protocols, regular training, and continuous monitoring, which directly align with OHS goals. The study posits TQM as a mediating factor, allowing strategic leadership to effectively shape OHS practices through structured, quality-oriented mechanisms.

Additionally, the safety climate framework complements these theories by highlighting how shared perceptions and attitudes toward safety are shaped within an organization.²⁰ A strong safety climate—characterized by clear, communicated safety policies and a leadership commitment to risk management—is essential for effective OHS.²¹ By embedding the safety climate into the strategic leadership and TQM model, this study seeks to provide a holistic view of how safety-focused leadership and quality practices collectively foster a safe workplace culture.

Literature Review and Hypotheses Development

SL and OHS

Leadership is increasingly being recognized as a significant aspect of organizational occupational safety.²² According to strategic leadership theory, leaders can have a big impact on the organizational practices, culture, and results by establishing long-term and vision-driven objectives. In healthcare, strategic leaders are tasked with aligning organizational objectives with the overarching goal of ensuring safe, high-quality care for both patients and employees.¹² In this study, the strategic leadership fosters a culture of safety by giving OHS policies top priorities, investing in safety measures and establishing corporate objectives that put workers' welfare first.²³ By fostering a shared commitment to safety and accountability, strategic leaders can establish a foundation for improved OHS practices.²⁴ However, whereas SL establishes the organization vision and prioritizes safety, it might not have the operational tools required to convert these objectives into routine procedures.²⁵ Consequently, TQM is presented as the operational framework which could help bridging the gap between SL objectives and the daily application of HOS procedures.

Strategic leadership is the preferred style for influencing safety systems due to its ability to combine long-term vision with a focus on fostering a safety-oriented culture.²⁶ In addition, strategic leaders prioritize safety as a core organizational value, embedding it into mission and objectives while effectively allocating resources to high-impact safety initiatives. They foster accountability, collaboration, and employee involvement, empowering staff to identify risks and engage in safety practices. By integrating safety into organizational strategy and adapting to changing environments, strategic leaders ensure alignment between productivity and safety goals.²⁷ Their focus on sustainability and continuous improvement further ensures that safety practices become deeply embedded in organizational operations, driving long-term safety outcomes.²⁸

SL and TQM

Strategic leadership is critical in embedding Total Quality Management (TQM) principles within an organization, as it drives a culture of continuous improvement, customer focus, and employee engagement. Leaders with a strategic orientation possess the vision and long-term focus needed to align organizational objectives with TQM practices, fostering innovation, teamwork, and operational excellence.⁷ By championing TQM, strategic leaders articulate its importance as a shared priority, empowering employees, promoting collaboration, and ensuring the allocation of necessary resources to sustain quality improvement efforts.²⁹

In healthcare, where operational complexity and patient outcomes are paramount, the integration of TQM under strategic leadership is particularly impactful. Leaders ensure that TQM becomes a core organizational philosophy by promoting standardized procedures, performance evaluations, and cross-departmental collaboration.¹² In resource-constrained settings, such as hospitals in developing regions, strategic leadership plays an even more vital role. By efficiently leveraging limited resources and aligning TQM initiatives with strategic goals, leaders can drive substantial improvements in safety, quality, and operational outcomes, even under challenging circumstances.³⁰

TQM and OHS

Total Quality Management (TQM) is a structured framework for continuous improvement, focusing on meeting stakeholder needs while ensuring organizational efficiency and safety. In healthcare, TQM's core principles—leadership commitment, employee involvement, customer focus, and continuous improvement—are crucial for strengthening Occupational Health and Safety (OHS) systems. Leadership commitment ensures whether OHS is prioritized at the strategic level, while employee involvement fosters accountability in safety practices. Continuous improvement aligns with the evolving nature of workplace hazards, requiring constant evaluation and adaptation.²⁹

In healthcare settings, TQM enhances OHS by introducing systematic processes for managing risks, such as standardized procedures for hazardous material handling, risk assessments, and emergency responses. This integration is vital in healthcare environments where employees face unique occupational hazards like exposure to infectious diseases and high stress levels. TQM also offers a cost-effective approach in resource-constrained settings by optimizing processes and reducing waste, allowing organizations to allocate limited resources efficiently while maintaining high safety standards. Employee participation and data-driven decisions further strengthen OHS systems in such environments.³⁰

SL, TQM, and OHS

Strategic leadership plays a critical role in shaping an organization's safety culture and achieving Occupational Health and Safety (OHS) objectives by prioritizing safety in long-term goals and allocating resources for safety initiatives. In healthcare, strategic leaders foster a culture where safety is embedded in organizational values, encouraging accountability, collaboration, and continuous improvement.^{31–33} However, to ensure consistent application of safety goals in daily operations, Total Quality Management (TQM) acts as the operational mechanism, providing a structured framework for continuous improvement, resource optimization, and the systematic implementation of safety protocols.³⁴

The integration of strategic leadership with TQM enables healthcare organizations to effectively address complex occupational hazards, such as exposure to infectious diseases and hazardous materials. TQM tools like process mapping and performance metrics help monitor and improve safety practices, ensuring alignment between leadership priorities and operational practices. This synergy is particularly valuable in resource-constrained environments, allowing leaders to maximize the impact of limited resources by prioritizing high-impact safety initiatives and empowering employees to contribute to safety improvements.

Total Quality Management (TQM) as a Mediator

This study positions Total Quality Management (TQM) as a mediating factor between strategic leadership and Occupational Health and Safety (OHS), providing a robust justification grounded in both theory and practical application. TQM theory emphasizes continuous improvement, process standardization, and systemic quality enhancement, which are critical for achieving consistent safety.³⁵ Within the healthcare context, TQM principles strongly align with OHS objectives by fostering structured approaches to risk management, reducing errors, and engaging employees in safety practices.³⁶ These principles establish clear protocols and processes that translate leadership's safety vision into actionable practices, ensuring that safety priorities are consistently implemented at every organizational level.³⁷

Research further underscores the vital role of TQM frameworks in enhancing safety. By involving staff in quality and safety initiatives and ensuring alignment with leadership's strategic goals, TQM contributes to an improved safety climate.^{38,39} Strategic leadership alone, while crucial in setting the vision and prioritizing safety, may lack the operational mechanisms required to implement and sustain safety practices effectively. TQM bridges this gap, creating a culture of continuous safety improvement where strategic leadership's priorities are enacted systematically across the organization.⁴⁰ This integration not only enhances operational effectiveness but also builds accountability and staff ownership of safety initiatives, fostering a shared commitment to organizational safety goals.

The importance of TQM as a mediator becomes particularly evident in resource-constrained settings like Hodeida, Yemen, where operational budgets are limited, and safety challenges are pronounced. TQM provides a structured and cost-effective framework for optimizing resource allocation, prioritizing high-impact safety interventions, and driving incremental improvements in safety. By leveraging TQM principles, healthcare organizations can ensure that limited resources are used efficiently while simultaneously enhancing the safety and well-being of employees and patients. This structured approach empowers strategic leaders to achieve their vision for safety, even in challenging environments, by embedding a culture of quality and safety into the organization's operational fabric.

Hypotheses Development

SL and OHS

A growing body of literature has examined the relationship between leadership and occupational health and safety (OHS). The systematic review conducted by Bernabé Castaño et al⁴¹ revealed that the majority of studies have focused on industries such as construction, mining, catering, railways, and nuclear energy. This highlights a notable gap in the literature, as the healthcare sector remains relatively underexplored in this context. Furthermore, the review emphasized that transformational, transactional, and safety leadership was the most commonly analyzed styles, while strategic leadership has yet to receive significant scholarly attention. Additionally, the research has predominantly been conducted in Western contexts, with limited focus on underdeveloped countries, where resource constraints pose unique challenges to OHS implementation and leadership practices.

Strategic leadership, however, is critical for fostering a safety-oriented culture within organizations.¹³ Leaders with a strategic focus on safety establish clear objectives, allocate resources, and promote accountability, thereby embedding safety as a core component of organizational operations.¹² Empirical evidence supports the positive relationship between strategic leadership and improved safety outcomes, with behaviors such as prioritizing employee welfare, ethical decision-making, and long-term planning playing a key role.^{42,43} Sfantou et al¹² further highlight that leaders who demonstrate a strong commitment to safety inspire employees to adopt safe work practices and comply with OHS standards, ultimately enhancing overall safety performance. Based on this, the following hypothesis was developed:

H1: SL positively affects OHS in private hospitals in Hodeida, Yemen.

SL and TQM

The existing literature emphasizes the critical role of leadership in driving Total Quality Management (TQM), yet significant gaps remain. Research by Kharub et al⁴⁴ and Alanazi⁴⁵ focuses on manufacturing and service sectors, limiting generalizability to other industries. In healthcare, studies such as Brown⁴⁶ and Busari et al⁴⁷ offer valuable insights but primarily target Western contexts, leaving regions like Yemen, with its unique resource constraints, largely unexplored. A key gap is the underexplored role of strategic leadership in embedding TQM into organizational culture, as most studies emphasize transformational or transactional leadership styles.

Strategic leadership is crucial for implementing TQM, as it sets a clear vision, aligns processes with quality objectives, and allocates resources effectively.⁴⁸ Leaders committed to strategic goals can integrate TQM into daily operations, fostering a culture of continuous improvement.⁴⁹ Studies by Bouranta et al³⁴ and Khalfan et al⁵⁰ highlight the importance of leadership commitment in motivating employees and enhancing organizational performance. Given the gaps in the literature, particularly in underdeveloped contexts like Yemen, there is a pressing need for research focusing on private hospitals in Hodeida, Yemen, to understand how strategic leadership can address quality challenges in resource-constrained environments. Based on that, the following hypothesis was developed:

H2: SL positively influences TQM in private hospitals in Hodeida, Yemen.

TQM and OHS

The relationship between Total Quality Management (TQM) and Occupational Health and Safety (OHS) has been explored in various sectors, with studies like Aichouni et al³⁶ and Aksoy & Kahraman⁵¹ highlighting TQM's positive impact on OHS in Saudi Arabia and the construction sector, respectively. However, these findings focus on industries with distinct operational challenges, making them difficult to generalize to healthcare settings, particularly private hospitals. The dynamics in healthcare, such as patient safety, regulatory compliance, and organizational culture, differ significantly from those in manufacturing or construction. Additionally, Aljbour & Al Maaitah⁵² found that TQM, especially ethical principles, positively influences OHS in industrial laboratories, but these results may not be directly applicable to the healthcare sector, where safety challenges are more complex and patient-focused. Therefore, there is a pressing need for research on the impact of TQM on OHS in private hospitals, particularly in resource-constrained environments like Hodeida, Yemen. Existing studies do not address the unique challenges faced by hospitals in such

settings, such as limited resources, inadequate infrastructure, and inconsistent safety standards based on that the following hypothesis was developed:

H3: TQM positively influences OHS in private hospitals in Hodeida, Yemen.

SL, TQM and OHS

TQM serves as a critical operational framework that bridges the gap between strategic leadership's vision and measurable safety.⁵³ While strategic leadership provides the direction and prioritization of safety, TQM offers the structured processes and tools required to translate these priorities into actionable practices. Research by Hidayah et al⁵⁴ demonstrates that TQM mediates the relationship between leadership and safety by fostering a culture of continuous improvement and ensuring alignment between organizational objectives and daily practices. Similarly, Nwabueze⁴⁰ highlights that TQM's structured approach to risk management and process standardization amplifies the impact of leadership on safety performance.

H4: TQM mediates the relationship between SL and OHS in private hospitals in Hodeida, Yemen.

This integrative theoretical model is expected to contribute new insights into the combined impact of leadership and quality management on OHS outcomes, particularly within challenging healthcare environments like Hodeida. It aims to validate TQM's mediating role and provide a practical framework for enhancing safety through leadership-driven quality practices. Figure 1 shows the study model.

Study Methods

Study Design, Participants, and Data Collection

This study employed a quantitative approach to investigate the relationships between Strategic Leadership (SL), Total Quality Management (TQM), and the Occupational Health and Safety System (OHS) in healthcare settings. Using a cross-sectional survey design, data were collected through a structured questionnaire developed based on an extensive literature review to ensure the use of well-established scales for measuring SL, TQM, and OHS as shown in [appendix \(1\)](#). To enhance the survey's relevance and clarity, a panel of five healthcare management and occupational safety experts reviewed the items, offering feedback to refine the content for the context of resource-constrained hospitals. A pre-test involving 25 healthcare professionals from a hospital outside the main study further ensured the clarity, readability, and contextual appropriateness of the survey, leading to minor adjustments. The final survey underwent face validity, with experts confirming its alignment with the study's objectives and comprehensiveness. The target population consisted of approximately 5000 healthcare professionals working in these hospitals. The sample size was determined using the Krejcie and Morgen⁵⁵ table, which provides guidelines for selecting an adequate sample size based on the population

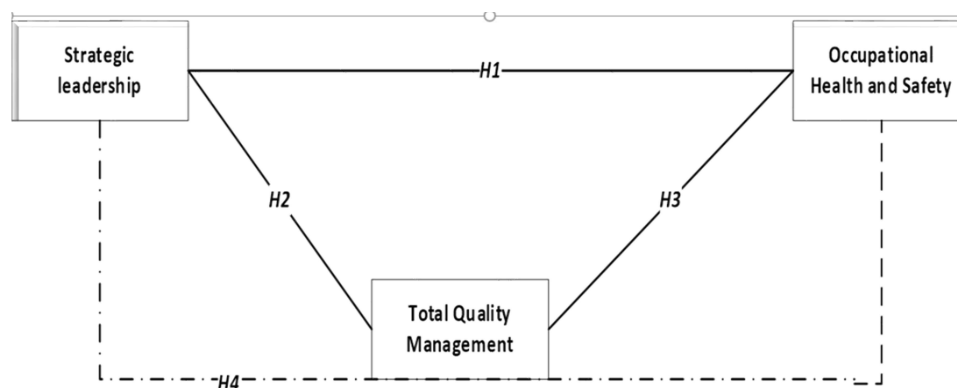


Figure 1 Conceptual Model of the Study. This figure presents the conceptual framework of the study, illustrating the relationship between Strategic Leadership (SL), Total Quality Management (TQM), and Occupational Health and Safety (OHS). The model highlights the direct influence of SL on OHS and the mediating role of TQM in this relationship. Arrows indicate hypothesized causal paths based on the study's theoretical foundations and empirical analysis.

size, ensuring statistical representativeness. According to the table, for a population of 5000, a minimum sample size of 357 participants is recommended. The survey was administered to healthcare professionals, including medical and administrative staff, across six hospitals in Hodeida, Yemen. The inclusion criteria for survey participants required them to be actively employed in one of the six hospitals in Hodeida, Yemen, with at least one year of professional experience. Both medical and administrative staff were included to ensure diverse perspectives, and participants had to consent voluntarily and possess basic knowledge of hospital policies, safety procedures, and quality management practices. The stratified sampling approach was adopted to ensure balanced representation of various job roles and experience levels across the hospitals. To account for potential non-responses, 384 questionnaires were distributed. Of these, 346 were returned, and after excluding responses with low engagement, missing values, and univariate or multivariate outliers, 323 valid responses were included in the final analysis with 90.4% response rate. Consistent with Collier's⁵⁶ recommendation, responses with standard deviations below 0.25 were excluded to ensure the dataset's robustness and reliability.

Data Analysis

Data were analyzed using SPSS version 28 and SmartPLS 4.0.9.5. Partial Least-Squares Structural Equation Modeling (PLS-SEM) was chosen for its ability to evaluate complex models with latent constructs and mediation effects, particularly in cases of smaller sample sizes and non-normal data distributions. A two-phase approach was adopted for the analysis. In the first phase, the measurement model was assessed for reliability and validity. Indicator reliability was confirmed with loadings above 0.708, and internal consistency was established through Cronbach's Alpha and Composite Reliability (CR), both exceeding 0.700. Convergent validity was verified through Average Variance Extracted (AVE) values greater than 0.500, while discriminant validity was established using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, with HTMT values below the 0.85 threshold.

In the second phase, the structural model was evaluated to analyze the relationships between SL, TQM, and OHS. The assessment included path coefficients, R^2 values, effect sizes (f^2), and predictive relevance (Q^2) to confirm the model's predictive accuracy and relevance. PLS-SEM's ability to test both direct and indirect effects simultaneously provided valuable insights into the mediating role of TQM in linking SL to OHS outcomes. The findings underscore the utility of this methodological approach in exploring complex relationships in resource-constrained healthcare settings, offering actionable insights for improving safety performance and organizational effectiveness.

Measurement of Variables

- Strategic Leadership (SL) was measured using six dimensions: Strategic Direction Determining (SDD), Core Competencies Exploiting (CCE), Human Capital Development (HCD), Organizational Culture Enhancing (OCE), Ethical Practices (EP), and Organizational Control (OC).⁵⁷
- Occupational Health and Safety (OHS) was assessed using four dimensions: Organizational Context (ORC), Planning (PL), Processes (PR), and Performance Assessment (PA).³⁶
- Total Quality Management (TQM) was measured through the dimensions of Top Management Commitment (TMC), Employee Involvement (EI), Customer Focus (CF), and Continuous Improvement (CI).^{58–60}

Common Method Bias

Common method bias (CMB) arises when systematic variation among variables is introduced due to the data collection method.⁶¹ To assess for CMB, Harman's single-factor test was conducted, yielding a single-factor contribution of 30.603%. According to Podsakoff et al (2012), if a single factor accounts for less than 50% of the total variance, it suggests that CMB does not significantly influence the study's results. Thus, the findings indicate that a common method bias is not present in this study.

In addition to Harman's single-factor test, a full collinearity test was conducted to provide a more robust assessment of common method bias (CMB) and confirm the reliability of the study's results. This test evaluates whether multicollinearity among variables is significant enough to suggest the presence of CMB. The full collinearity test involves calculating the variance inflation factor (VIF) for each construct, with a VIF value below the commonly accepted

threshold of 3.3 indicating that multicollinearity is not problematic and that CMB is unlikely to affect the findings.⁶² In this study, all VIF values were below the threshold, further validating that CMB did not significantly influence the results. By employing both Harman's single-factor test and the full collinearity test, the study ensures a comprehensive and rigorous evaluation of potential biases arising from the data collection method.

Ethical Approval

This study was conducted in accordance with ethical standards and received approval from the study's Hospitals Ethical committee. All necessary permissions and approvals were obtained prior to data collection to ensure the protection of participants' rights and confidentiality. The study was approved by ethics committee of (Sana'a University) and reg. no. 14990.

Informed Consent

This study involved human participants, and informed consent was obtained from all participants prior to data collection. Written consent was obtained from all participants in accordance with ethical guidelines. The study was conducted in compliance with the Declaration of Helsinki and approved by the relevant institutional ethics review board.

Results

Sample Characteristics

As shown in Table 1, the samples consist of 323 participants, with an even gender distribution: 48.6% male (n = 157) and 51.4% female (n = 166). Regarding age, the majority of respondents fall within the 30 to 40 age range (46.4%, n = 150), followed by those aged 41 to 50 (24.8%, n = 80), less than 30 (20.7%, n = 67), and over 50 (8.0%, n = 26). In terms of education, 51.1% (n = 165) of respondents hold a bachelor's degree, 32.5% (n = 105) have a Diploma, 8.0% (n = 26) hold a master's degree, and 2.8% (n = 9) have a PhD, while 5.6% (n = 18) completed High School. Regarding job position, the largest group consists of Heads of Medical Departments (42.4%, n = 137), followed by Heads of

Table 1 Demographic Characteristics of the Study Sample

		N	%
Gender	Male	157	48.6%
	Female	166	51.4%
Age	Less than 30	67	20.7%
	30 to 40	150	46.4%
	41 to 50	80	24.8%
	Over fifty	26	8.0%
Education	High school	18	5.6%
	Diploma	105	32.5%
	Bachelor's	165	51.1%
	Master's	26	8.0%
	PhD	9	2.8%
Position	General Manager	15	4.6%
	Deputy General Manager	12	3.7%
	Administration Manager	46	14.2%
	Deputy Administration Manager	23	7.1%
	Head of Medical Department	137	42.4%
	Head of Administrative Department	60	18.6%
	Public Health and Safety Specialist	30	9.3%
Experiences	Less than 5 years	50	15.5%
	5–10 years	76	23.5%
	10–15 years	91	28.2%
	Over 15 years	106	32.8%

Administrative Departments (18.6%, $n = 60$), Administration Managers (14.2%, $n = 46$), Public Health and Safety Specialists (9.3%, $n = 30$), Deputy Administration Managers (7.1%, $n = 23$), General Managers (4.6%, $n = 15$), and Deputy General Managers (3.7%, $n = 12$). Experience-wise, 32.8% ($n = 106$) of participants have over 15 years of experience, followed by 28.2% ($n = 91$) with 10–15 years, 23.5% ($n = 76$) with 5–10 years, and 15.5% ($n = 50$) with less than 5 years of experience.

Assessment of First-Order Measurement Constructs

As presented in Table 2, the measurement model assessment rigorously evaluates the reliability and validity of the study's constructs, including Occupational Health and Safety (OHS), Strategic Leadership (SL), and Total Quality Management (TQM), to ensure robust measurement integrity. Key metrics applied are Indicator Loadings, Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). Indicator loadings, above the threshold of 0.700, confirm that individual items effectively represent their respective constructs, demonstrating convergent validity. Cronbach's Alpha and CR values across all constructs exceed the acceptable benchmark of 0.700, underscoring strong internal consistency, while AVE values above 0.500 for most constructs indicate satisfactory convergent validity and that the constructs capture substantial variance in their items.

For OHS, subconstructs such as Organizational Context, Planning, Processes, and Performance Assessment demonstrate strong reliability, with Cronbach's Alpha values ranging from 0.736 to 0.797 and AVE values that support acceptable levels of convergent validity. The SL dimensions, including Strategic Direction Determination, Core Competencies Exploitation, and Human Capital Development, exhibit similarly high reliability and convergent validity, with Cronbach's Alpha values between 0.778 and 0.848. In the TQM domain, constructs such as Top Management Commitment, Employee Involvement, and Customer Focus report robust reliability, with Cronbach's Alpha scores between 0.788 and 0.856 and AVE values that further confirm the constructs' internal coherence.

Table 2 First Order Measurement Model Assessment (Reliability, Internal Consistency, and Convergent Validity)

	Indicator	loading	Cronbach Alpha	CR	AVE
Organizational health and Safety (OH) Organization Context (ORC)	ORC1	0.756	0.797	0.8	0.557
	ORC2	0.814			
	ORC3	0.806			
	ORC4	0.702			
	ORC5	0.637			
Planning (PL)	PL1	0.738	0.796	0.806	0.552
	PL2	0.795			
	PL3	0.799			
	PL4	0.738			
	PL5	0.634			
Processes (PR)	PR1	0.795	0.736	0.744	0.565
	PR2	0.808			
	PR3	0.795			
	PR4	0.588			
Performance Assessment (PA)	PA1	0.76	0.755	0.767	0.506
	PA2	0.702			
	PA3	0.739			
	PA4	0.743			
	PA5	0.602			

(Continued)

Table 2 (Continued).

	Indicator	loading	Cronbach Alpha	CR	AVE
Strategic Leadership (SL) Strategic Direction Determination (SDD)	SDD1	0.788	0.832	0.833	0.599
	SDD2	0.789			
	SDD3	0.768			
	SDD4	0.783			
	SDD5	0.74			
Core Competencies Exploitation (CCE)	CCE1	0.686	0.814	0.817	0.575
	CCE2	0.816			
	CCE3	0.799			
	CCE4	0.756			
	CCE5	0.727			
Human Capital Development (HCD)	HCD1	0.801	0.848	0.851	0.625
	HCD2	0.826			
	HCD3	0.834			
	HCD4	0.805			
	HCD5	0.676			
Organizational Culture Enhancement (OCE)	OCE1	0.624	0.783	0.794	0.538
	OCE2	0.722			
	OCE3	0.825			
	OCE4	0.774			
	OCE5	0.706			
Ethical Practices (EP)	EP1	0.655	0.778	0.783	0.532
	EP2	0.69			
	EP3	0.747			
	EP4	0.797			
	EP5	0.75			
Organizational Control (OC)	OC1	0.78	0.814	0.827	0.576
	OC2	0.816			
	OC3	0.813			
	OC4	0.75			
	OC5	0.618			
Total Quality Management (TQM) Top Management Commitment (TMC) Employee Involvement (EI) Customer Focus (CF) Continuous Improvement (CI)	TMC1	0.745	0.852	0.854	0.63
	TMC2	0.801			
	TMC3	0.855			
	TMC4	0.818			
	TMC5	0.742			
	EI 1	0.774	0.856	0.858	0.634
	EI 2	0.818			
	EI 3	0.792			
	EI 4	0.784			
	EI 5	0.813			
	CF1	0.844	0.837	0.842	0.672
	CF2	0.87			
	CF3	0.804			
	CF4	0.757			
	CI1	0.766	0.788	0.792	0.543
	CI2	0.757			
	CI3	0.79			
	CI4	0.622			
	CI5	0.739			

Abbreviations: Cr, Composite Reliability; AVE, Average Variance Extracted.

Discriminant Validity Using Heterotrait-Monotrait (HTMT) Criterion

The discriminant validity assessment using the Heterotrait-Monotrait (HTMT) ratio of correlations provides insight into the degree to which constructs are distinct from each other. HTMT values below the threshold of 0.85 indicate that the constructs are sufficiently discriminant, meaning they measure different concepts within the model (Henseler et al, 2015).

As presented in Table 3, most HTMT values fall below 0.85, confirming the discriminant validity among constructs. For example, Organizational Context (ORC) and Planning (PL) have an HTMT value of 0.747, and similarly, ORC and Processes (PR) have a value of 0.730, both of which are below the threshold. However, some values, such as the HTMT ratio between Organizational Culture Enhancement (OCE) and Ethical Practices (EP) at 0.821, approach the upper limit, indicating close conceptual association yet still within acceptable limits. Overall, the HTMT results demonstrate that the constructs maintain distinctiveness, supporting the structural integrity of the measurement model and allowing for meaningful interpretation of interconstruct relationships in subsequent analyses.

Discriminant Validity Using Fornell and Larcker (1981) Criterion

As presented in Table 4, the discriminant validity assessment using the Fornell-Larcker criterion demonstrates that each construct in the model is distinct from the others. According to this criterion, the square root of the Average Variance Extracted (AVE) for each construct should be greater than its correlations with other constructs. This criterion is met if the diagonal values (representing the square root of the AVE for each construct, highlighted in bold) are higher than the corresponding off-diagonal values in their respective rows and columns.

Assessment of Measurement Model (second Order) Formative

As shown in Table 5, the second-order formative measurement model assessment indicates that each dimension—within Occupational Health and Safety (OHS), Strategic Leadership (SL), and Total Quality Management (TQM) contributes uniquely to its construct. Dimensions such as Planning (PL) and Performance Assessment (PA) in OHS, Organizational Control (OC) in SL, and Top Management Commitment (TMC) in TQM display high outer weights and loadings, signifying strong influence within their constructs. All outer loadings exceed 0.5, and VIF values remain below 3.3, confirming both strong associations and acceptable multicollinearity levels. These results validate the structural integrity of the model, affirming that each dimension meaningfully represents its higher-order construct without redundancy.

Table 3 Discriminant Validity Using Heterotrait-Monotrait (HTMT) Criterion

	ORC	PL	PR	PA	SDD	CCE.	HCD	OCE	EP	OC.	TMC	EI	CF	CI
ORC														
PL	0.7470													
PR	0.7300	0.8450												
PA	0.4830	0.6910	0.6730											
SDD	0.5230	0.5190	0.5530	0.4170										
CCE.	0.5290	0.5780	0.6120	0.4660	0.7080									
HCD	0.4200	0.5570	0.5140	0.4830	0.6170	0.7140								
OCE	0.5380	0.6180	0.5650	0.6330	0.5240	0.7140	0.6490							
EP	0.6430	0.6530	0.6320	0.6880	0.5380	0.5800	0.6340	0.8210						
OC.	0.6310	0.7100	0.6780	0.7150	0.5020	0.5380	0.5760	0.6200	0.7180					
TMC	0.5750	0.7560	0.5650	0.6650	0.5180	0.4910	0.5940	0.5380	0.6320	0.6390				
EI	0.5610	0.6550	0.6730	0.6730	0.5030	0.4950	0.4210	0.6000	0.5970	0.6080	0.6120			
CF	0.6110	0.7630	0.7110	0.7530	0.4820	0.5340	0.5070	0.5540	0.5950	0.6490	0.5490	0.7580		
CI	0.499	0.603	0.645	0.647	0.533	0.435	0.47	0.566	0.546	0.593	0.648	0.633	0.755	

Abbreviations: ORC, Organizational Context; PL, Planning; PR, Processes; PA, Performance Assessment; SDD, Strategic Direction Determination; CCE, Core Competencies Exploitation; HCD, Human Capital Development; OCE, Organizational Culture Enhancement; EP, Ethical Practices; OC, Organizational Control; TMC, Top Management Commitment; EI, Employee Involvement; CF, Customer Focus; CI, Continuous Improvement.

Table 4 Discriminant Validity Using Fornell and Larcker Criterion

	ORC	PL	PR	PA	SDD	CCE.	HCD	OCE	EP	OC.	TMC	EI	CF	CI
ORC	0.746													
PL	0.600	0.743												
PR	0.556	0.646	0.752											
PA	0.382	0.550	0.507	0.711										
SDD	0.426	0.429	0.434	0.340	0.774									
CCE.	0.424	0.463	0.476	0.368	0.589	0.758								
HCD	0.347	0.458	0.403	0.391	0.520	0.594	0.790							
OCE	0.423	0.483	0.433	0.491	0.419	0.579	0.534	0.733						
EP	0.508	0.518	0.474	0.527	0.436	0.467	0.513	0.641	0.729					
OC.	0.509	0.569	0.525	0.564	0.420	0.445	0.483	0.504	0.584	0.759				
TMC	0.476	0.620	0.442	0.548	0.439	0.410	0.503	0.443	0.511	0.530	0.793			
EI	0.463	0.542	0.529	0.543	0.424	0.415	0.358	0.489	0.492	0.509	0.530	0.796		
CF	0.499	0.626	0.554	0.597	0.406	0.442	0.435	0.448	0.483	0.537	0.472	0.645	0.820	
CI	0.394	0.475	0.488	0.503	0.433	0.351	0.387	0.445	0.430	0.471	0.534	0.519	0.613	0.737

Abbreviations: ORC, Organizational Context; PL, Planning; PR, Processes; PA, Performance Assessment; SDD, Strategic Direction Determination; CCE, Core Competencies Exploitation; HCD, Human Capital Development; OCE, Organizational Culture Enhancement; EP, Ethical Practices; OC, Organizational Control; TMC, Top Management Commitment; EI, Employee Involvement; CF, Customer Focus; CI, Continuous Improvement.

Table 5 Second-Order Measurement Model Assessment

	Outer Weights	Outer loading	VIF
OHS			
ORC	0.264	0.741	1.691
PL	0.361	0.869	2.220
PR	0.167	0.770	1.959
PA	0.440	0.824	1.520
SL			
SDD	0.185	0.668	1.701
CCE.	0.098	0.683	2.102
HCD	0.077	0.686	1.888
OCE	0.160	0.749	2.114
EP	0.271	0.817	2.092
OC.	0.476	0.873	1.696
TQM			
TMC	0.444	0.828	1.600
EI	0.236	0.802	1.947
CF	0.425	0.854	2.099
CI	0.110	0.730	1.847

Abbreviations: ORC, Organizational Context; PL, Planning; PR, Processes; PA, Performance Assessment; SDD, Strategic Direction Determination; CCE, Core Competencies Exploitation; HCD, Human Capital Development; OCE, Organizational Culture Enhancement; EP, Ethical Practices; OC, Organizational Control; TMC, Top Management Commitment; EI, Employee Involvement; CF, Customer Focus; CI, Continuous Improvement; SL, Strategic leadership; OHS, Occupational Health and Safety; TQM, Total Quality Management).

Structural Model Assessment

Explanatory Power (R^2), Effect Size (f^2) and Predictive Relevance (Q^2)

As presented in Table 6, the structural model assessment reveals the explanatory power and predictive relevance of the constructs within the study. The R^2 values show that Total Quality Management (TQM) and Occupational Health and

Table 6 Explanatory Power (R^2), Effect Size (f^2) and Predictive Relevance (Q^2)

	R^2	f^2	Q^2
TQM	0.545	0.211	0.349
OHS	0.721	–	0.454
SL	–	0.489	–

Abbreviations: SL, Strategic leadership; OHS, Occupational Health and Safety; TQM, Total Quality Management.

Safety (OHS) are well explained by their predictors, with R^2 values of 0.545 for TQM and 0.721 for OHS, indicating that 54.5% of the variance in TQM is explained by SL and 72.1% of the variance in OHS is explained by SL and TQM. The f^2 effect size for Strategic Leadership (SL) is 0.489, showing a substantial effect of SL on the OH in comparison with the moderate effect of TQM ($f^2=0.211$). For predictive relevance (Q^2), the values of 0.349 for TQM and 0.454 for OHS are both above zero, suggesting that the model has good predictive relevance for these constructs. Overall, these indicators validate the model's strength in explaining and predicting TQM and OHS effectively.

Model Predictive Power ($PIS_{predict}$)

Table 7 shows the model's predictive power. The Model Predictive Power Assessment (PLSpredict) results, comparing the root mean square error (RMSE) values from Partial Least-Squares Structural Equation Modeling (PLS-SEM) and linear regression (LM), indicate the predictive accuracy of the model. For all indicators—Organizational Context (ORC), Planning (PL), Processes (PR), Performance Assessment (PA), Top Management Commitment (TMC), Employee Involvement (IE), Customer Focus (CF), and Continuous Improvement (CI)—the PLS-SEM RMSE values are lower than the LM RMSE values. Notably, ORC, PL, PR, PA, and TMC show slightly lower RMSE values under PLS-SEM (eg, ORC: 0.821 vs 0.835 in LM), suggesting the model's robustness in predicting outcomes for these indicators. These results demonstrate that the PLS-SEM model performs better than the linear model, affirming its predictive power and reliability in estimating the constructs out-of-sample.

Hypotheses Testing

Total Effects (H1, H2, H3)

Table 8 and Figure 2 show the total effect of the first three hypotheses testing.

Table 7 Predictive Power of the Model

	PLS-SEM _RMSE	LM_RMSE
ORC	0.821	0.835
PL	0.78	0.794
PR	0.808	0.82
PA	0.801	0.806
TMC	0.798	0.803
SP	0.815	0.821
CF	0.809	0.82
CI	0.841	0.859

Abbreviations: PLS SEM RMSE, Root Mean Square Error in Partial Least Squares Structural Equation Modeling; LM RMSE, Root Mean Square Error in Linear Modeling; ORC, Organizational Context, PL, Planning; PR, Processes; PA, Performance Assessment; SDD, TMC Top Management Commitment; EI, Employee Involvement; CF, Customer Focus; CI, Continuous Improvement.

Table 8 Hypotheses Testing (Total Effects H1, H2, H3)

	B	SD	T	P	Confidence Interval 95%	
					Lower	Upper
SL -> OHS	0.764	0.025	30.381	0.000	0.700	0.803
SL -> TQM	0.738	0.032	23.384	0.000	0.658	0.787
TQM -> OHS	0.548	0.043	12.690	0.000	0.464	0.635

Abbreviations: SL, Strategic leadership; OHS, Occupational Health and Safety; TQM, Total Quality Management.

H1: Strategic Leadership (SL) has an impact on Occupational Health and Safety System (OHS).

Hypothesis 1 (H1), Strategic Leadership (SL) was shown to have a significant positive effect on OHS (B = 0.764, t = 30.381; p < 0.001). The 95% confidence interval, ranging from 0.700 to 0.803, confirms the strength and consistency of SL’s direct influence on OHS, highlighting leadership’s critical role in cultivating a safer work environment.

H2: Strategic Leadership (SL) has an impact on Total Quality Management (TQM).

Hypothesis 2 (H2) establishes a robust positive relationship between SL and Total Quality Management (TQM) (B = 0.738, t = 23.384, p < 0.001). The confidence interval, between 0.658 and 0.787, underscores the strong and reliable impact of strategic leadership on quality management practices, emphasizing that effective leadership is foundational to driving TQM initiatives within healthcare settings.

H3: Total Quality Management (TQM) has an impact on Occupational Health and Safety System (OHS).

The findings of the study indicate that TQM has a significant positive impact on OHS (B = 0.548, SD = 0.043, T = 12.690, p < 0.001), supporting Hypothesis 3 (H3). The confidence interval, ranging from 0.464 to 0.635, further confirms this result, highlighting TQM’s critical role in improving occupational health and safety in the workplace.

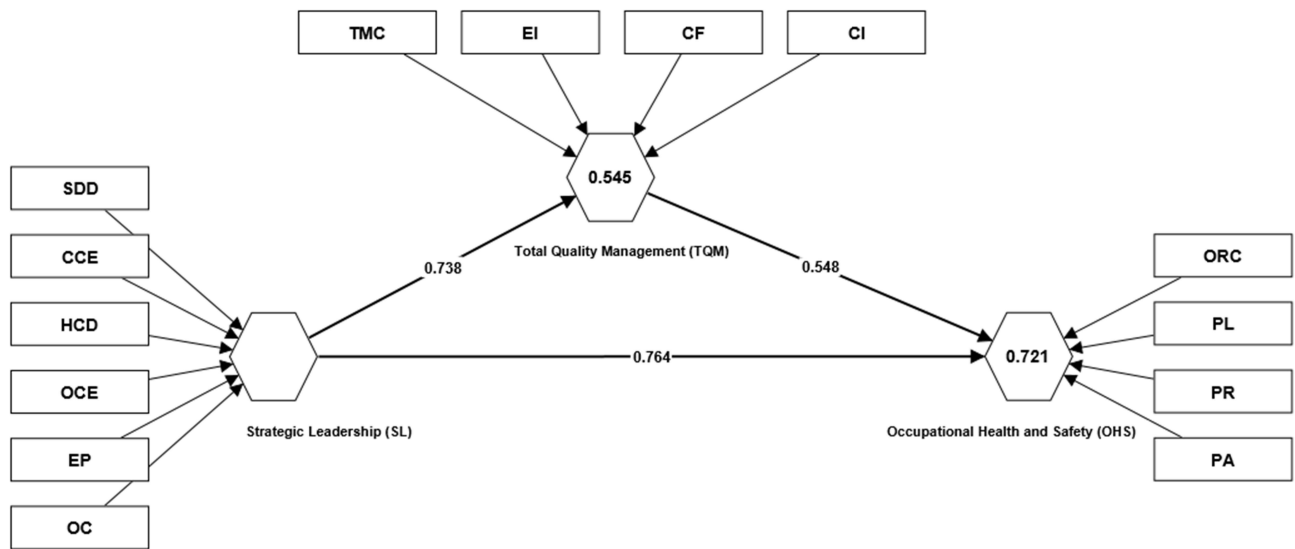


Figure 2 Illustrates the Statistical model depicting the relationships between Strategic Leadership (SL), Total Quality Management (TQM), and Occupational Health and Safety (OHS). SL is represented as a latent construct influenced by six factors: (SDD), (CCE), (HCD), (OCE), (EP), and (OC). TQM acts as a mediating factor, shaped by Top (TMC), (EI), (CF), and (CI). OHS, the outcome variable, is measured through (ORC), (PL), (PR), and (PA). The path coefficients indicate strong relationships, with SL positively impacting TQM (0.738) and OHS (0.764), while TQM also contributes to OHS (0.548). The model demonstrates strong explanatory power, with R² values of 0.545 for TQM and 0.721 for OHS.

Table 9 Hypotheses Testing (Mediation Analysis)

	B	SD	T	P	Confidence Interval 95%	
					Lower	Upper
SL -> TQM-> OHS	0.404	0.036	11.136	0.000	0.337	0.481

Abbreviations: SL, Strategic leadership; OHS, Occupational Health and Safety; TQM, Total Quality Management.

Mediation Analysis (Indirect Effect) H4

Table 9 and Figure 3 show the test of indirect effect in the study of the fourth hypothesis.

H4: Strategic Leadership (SL) impacts Occupational Health and Safety System (OHS) through Total Quality Management (TQM).

As shown in Table 9 and Figure 3, Hypothesis 4 (H4) investigates the mediating role of TQM in the relationship between SL and OHS. The indirect effect of SL on OHS through TQM is both positive and statistically significant ($B = 0.404$, $t = 11.136$; $p < 0.001$). The confidence interval, ranging from 0.337 to 0.481, further supports TQM's mediation effect, demonstrating that TQM plays a vital role in translating strategic leadership's priorities into concrete safety outcomes. This finding suggests that TQM mechanisms serve as an essential bridge between leadership vision and OHS.

Discussions, Implications, Limitations and Future Directions and Conclusion

Discussion

The findings of this study provide significant insights into the role of Strategic Leadership (SL) in enhancing the Occupational Health and Safety System (OHS) in hospitals, with Total Quality Management (TQM) playing a mediating role. The results demonstrate that SL significantly influences both OHS and TQM and that TQM mediates the relationship between SL and OHS. These findings are consistent with previous research, which highlights the pivotal role of leadership in shaping organizational safety culture and fostering continuous improvement through effective management practices.^{63,64}

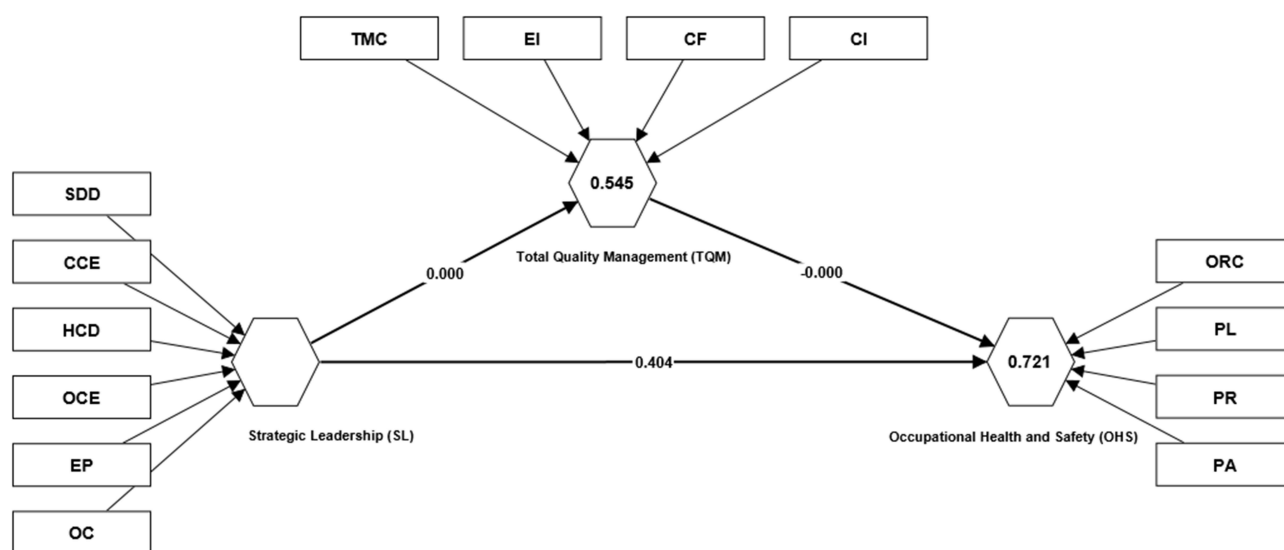


Figure 3 Presents the statistical model examining the relationships between Strategic Leadership (SL), and Occupational Health and Safety (OHS) mediated by Total Quality Management (TQM). The path analysis results indicate that SL has an indirect positive impact on OHS (0.404) through TQM.

The positive relationship between Strategic Leadership and OHS suggests that leaders who provide clear strategic direction, foster a supportive organizational culture, and prioritize ethical practices create an environment conducive to enhanced health and safety outcomes. This aligns with studies by Barling et al,⁶⁴ who emphasize that leadership commitment to safety can influence the entire organization's safety performance.^{5,65} Similarly, findings from Clarke¹⁴ suggest that leadership is integral to cultivating a strong safety climate, particularly in high-risk sectors like healthcare, where employees rely on direction and resources from leadership to adhere to safety protocols.

The influence of Strategic Leadership on TQM supports previous literature that argues leadership is essential for embedding quality management practices within organizations.⁶⁶ The leadership-driven implementation of TQM practices such as continuous improvement, employee involvement, and customer focus has been widely documented as essential for improving organizational performance.^{67,68} This study extends that understanding by showing that strategic leadership not only implements TQM but also leverages it to enhance safety systems within hospitals. The strong connection between leadership and quality management in healthcare supports the research by Amarachukwu Enahoro et al,⁶⁹ who focus on the importance of leadership in the success of TQM initiatives.

Moreover, the mediating role of TQM in the relationship between SL and OHS emphasizes the interconnectedness of leadership, quality management, and safety outcomes. This mediation indicates that while strategic leadership directly impacts the occupational health and safety system, its full effect is realized when channeled through quality management practices. This finding reflects the argument made by Talib et al²⁹, who suggest that TQM serves as a framework that enables organizations to steadily address problems such as safety and performance improvement. Moreover, studies like those conducted by Anderson et al⁷⁰ support the idea that organizations dedicated to TQM values make safe environments, as the focus on continuous improvement obviously covers safety practices.

These results resonate with broader healthcare management literature, where the integration of TQM and OHS has been shown to lead to improved patient care, staff well-being, and overall organizational performance.⁷¹ Specifically, it supports the findings of McFadden et al,⁷² who found how quality management efforts in hospitals often align with safety goals, improving both staff safety and patient outcomes.

In practical terms, this study reinforces the importance of SL in healthcare organizations, particularly in fostering environments that prioritize both quality management and safety. Hospital managers in Yemen and similar regions can enhance OHS by focusing on both strategic direction and the implementation of TQM. As suggested by previous research, eg, Zeng et al,⁶³ strong leadership combined with effective quality management processes can significantly improve organizational safety and performance.

Theoretical and Managerial Implications

This study makes significant theoretical and managerial contributions by advancing the understanding of how Strategic Leadership (SL), Total Quality Management (TQM), and Occupational Health and Safety (OHS) interact in healthcare settings, particularly in resource-constrained environments. From a theoretical standpoint, the study bridges gaps in the existing literature by empirically demonstrating that TQM mediates the relationship between SL and OHS. While previous research has examined these constructs individually, this study uniquely integrates them, offering a nuanced perspective on how leadership practices influence safety outcomes through quality management systems. This insight extends transformational leadership theory by highlighting the role of strategic leaders in fostering safety cultures indirectly through structured quality initiatives. Moreover, it broadens the applicability of TQM and SL theories to low-resource healthcare contexts, such as hospitals in Yemen, showing that these frameworks are adaptable and effective even under financial and infrastructural constraints.

From a managerial perspective, this research provides actionable strategies for achieving safety and performance improvements in resource-constrained healthcare settings. The findings offer hospital leaders a practical roadmap for embedding safety-focused practices into their organizations without requiring substantial new investments. By integrating TQM principles, such as continuous improvement, employee involvement, and leadership commitment, hospitals can optimize existing resources, streamline processes, and minimize risks. For instance, empowering employees through targeted training, encouraging teamwork, and utilizing low-cost technologies for process management are specific, high-impact interventions that can enhance OHS outcomes.

Furthermore, the study emphasizes leadership's critical role in fostering a culture of accountability, transparency, and collaboration. Leaders in resource-limited environments can leverage these findings to prioritize safety goals, align them with organizational strategies, and involve employees in co-creating solutions tailored to their unique challenges. For example, regular staff training on occupational safety, simple hazard identification protocols, and effective communication channels can significantly improve safety outcomes. Additionally, the study demonstrates how leadership practices that encourage ethical behavior and continuous improvement can lead to long-term organizational effectiveness.

In resource-constrained environments like Yemen, where hospitals face severe financial and operational limitations, this research is particularly impactful. It highlights the feasibility of adopting TQM principles as a cost-effective framework for safety improvements, offering examples of scalable interventions that align with local contexts. By emphasizing employee engagement and leadership commitment, hospitals can build resilient systems that prioritize safety despite resource shortages.

In summary, this research provides both theoretical and practical value by integrating SL, TQM, and OHS into a cohesive framework, particularly relevant to low-resource healthcare settings. It not only enhances academic understanding but also equips hospital leaders with innovative and practical strategies to achieve safety objectives, ultimately contributing to better healthcare outcomes in challenging environments.

Limitations and Future Research Directions

Despite the insights this study offered, there are some limitations in the study which should be acknowledged. First, the research was conducted within a specific geographical context, focusing on hospitals in Hodeida, Yemen. As a result, the findings may not be entirely generalizable to other regions or sectors, particularly those with distinct cultural or organizational structures. Future research could extend this study to a wider variety of industries and geographical locations to increase the generalizability of the results. Second, the study adopted a cross-sectional design, which is limited in terms of its ability to establish causality. Longitudinal studies are recommended to further discover how Strategic Leadership (SL) and Total Quality Management (TQM) practices progress over time and their long-term effects on the Occupational Health and Safety System (OHS). Additionally, while this research highlights TQM as a mediator, other potential mediators such as employee engagement, organizational learning, or technological innovations could be explored in future studies. Lastly, the use of only self-reported data might introduce bias, as participants may overestimate their organization's performance or safety culture. Future research could include objective performance measures or mixed methods approaches to validate the findings and provide a more detailed understanding of the relationships between SL, TQM, and OHS.

Conclusion

This study demonstrates the significant role of Strategic Leadership (SL) in enhancing the Occupational Health and Safety System (OHS) in hospitals, with Total Quality Management (TQM) acting as a key mediator. The findings reveal that effective leadership, characterized by clear strategic direction, ethical practices, and a focus on continuous improvement, directly improves workplace safety and indirectly through the adoption of TQM principles. This integrated approach fosters a safer environment for healthcare professionals while enhancing overall organizational performance. The study highlights the importance of combining leadership with quality management practices to achieve sustained safety improvements, particularly in resource-limited settings like Yemen.

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author Mr. Rassal Fadhel.

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