



ANALYSIS OF TRANSFORMATIONAL LEADERSHIP AND ORGANIZATIONAL CULTURE IN PROMOTING NURSING INNOVATION THROUGH KNOWLEDGE SHARING: A QUALITATIVE STUDY IN THE MAKKAH HEALTH CLUSTER, SAUDI ARABIA

ANALISIS KEPEMIMPINAN TRANSFORMASIONAL DAN BUDAYA ORGANISASI DALAM MEMPROMOSIKAN INOVASI KEPERAWATAN MELALUI BERBAGI PENGETAHUAN: STUDI KUALITATIF DI KELOMPOK KESEHATAN MAKKAH, ARAB SAUDI

Khadija Lafi Aljarary^{1*}, Hafizah Che Hasan²

^{1*,2}Lincoln university College, Email: Khadi.lafi2030@gmail.com

*email koresponden: Khadi.lafi2030@gmail.com

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Abstract

Transformational leadership and organizational culture are key determinants of nursing innovation in complex healthcare systems. However, limited qualitative evidence exists regarding how these factors interact with knowledge-sharing practices to foster innovation, particularly within healthcare organizations undergoing transformation in Saudi Arabia. This study aims to explore how transformational leadership and organizational culture influence nursing innovation through knowledge-sharing practices in the Makkah Health Cluster, Saudi Arabia. A qualitative exploratory design was conducted within six hospitals in the Makkah Health Cluster. The study included King Abdullah Medical City, Noor Specialist Hospital, Maternity and Child Hospital, King Abdulaziz Hospital, Hira General Hospital, and King Faisal Hospital. A total of 48 participants, including nursing managers, ICU head nurses, and clinical nurses with at least two years of experience, were selected using purposive sampling until data saturation was reached. Data were collected between January and March 2026 through semi-structured interviews, focus group discussions (FGDs), non-participant observations, and document analysis. All interviews and FGDs were audio-recorded, transcribed verbatim, and conducted in English or Arabic based on participant preference. Data were analyzed using Braun and Clarke's thematic analysis approach, and study rigor was ensured through triangulation, member checking, and audit trail procedures following COREQ guidelines. Four key themes emerged: (1) transformational leadership as a catalyst for psychological safety and innovation engagement, (2) organizational culture characterized by a dual structure of collaboration and hierarchy, (3) knowledge sharing as a mechanism for collective clinical learning and problem-solving, and (4) nursing innovation as an emergent, practice-based, and collaborative process. Findings indicate that transformational leadership enhances nurses' motivation and openness to innovation, while organizational culture shapes the environment for collaboration. Knowledge sharing functions as a critical process that transforms clinical experience into practical innovation in nursing care. Nursing innovation in the Makkah Health Cluster is a socially constructed and dynamic process shaped by the interaction of transformational leadership, organizational culture, and knowledge-sharing practices. Strengthening leadership capacity, fostering collaborative organizational culture,



and developing structured knowledge management systems are essential to sustain nursing innovation and improve healthcare service quality.

Keywords : Transformational Leadership, Organizational Culture, Knowledge Sharing, Nursing Innovation, Qualitative Research, Makkah Health Cluster.

Abstrak

Kepemimpinan transformasional dan budaya organisasi merupakan penentu utama inovasi keperawatan dalam sistem perawatan kesehatan yang kompleks. Namun, bukti kualitatif yang terbatas tersedia mengenai bagaimana faktor-faktor ini berinteraksi dengan praktik berbagi pengetahuan untuk mendorong inovasi, khususnya dalam organisasi perawatan kesehatan yang sedang mengalami transformasi di Arab Saudi. Studi ini bertujuan untuk mengeksplorasi bagaimana kepemimpinan transformasional dan budaya organisasi memengaruhi inovasi keperawatan melalui praktik berbagi pengetahuan di Klaster Kesehatan Makkah, Arab Saudi. Desain eksplorasi kualitatif dilakukan di enam rumah sakit di Klaster Kesehatan Makkah. Studi ini mencakup King Abdullah Medical City, Rumah Sakit Spesialis Noor, Rumah Sakit Bersalin dan Anak, Rumah Sakit King Abdulaziz, Rumah Sakit Umum Hiraa, dan Rumah Sakit King Faisal. Sebanyak 48 partisipan, termasuk manajer keperawatan, kepala perawat ICU, dan perawat klinis dengan pengalaman minimal dua tahun, dipilih menggunakan pengambilan sampel bertujuan hingga tercapai saturasi data. Data dikumpulkan antara Januari dan Maret 2026 melalui wawancara semi-terstruktur, diskusi kelompok fokus (FGD), observasi non-partisipan, dan analisis dokumen. Semua wawancara dan FGD direkam audio, ditranskripsikan secara verbatim, dan dilakukan dalam bahasa Inggris atau Arab berdasarkan preferensi peserta. Data dianalisis menggunakan pendekatan analisis tematik Braun dan Clarke, dan ketelitian studi dipastikan melalui triangulasi, pengecekan anggota, dan prosedur jejak audit mengikuti pedoman COREQ. Empat tema utama muncul: (1) kepemimpinan transformasional sebagai katalis untuk keselamatan psikologis dan keterlibatan inovasi, (2) budaya organisasi yang dicirikan oleh struktur ganda kolaborasi dan hierarki, (3) berbagi pengetahuan sebagai mekanisme untuk pembelajaran klinis kolektif dan pemecahan masalah, dan (4) inovasi keperawatan sebagai proses yang muncul, berbasis praktik, dan kolaboratif. Temuan menunjukkan bahwa kepemimpinan transformasional meningkatkan motivasi dan keterbukaan perawat terhadap inovasi, sementara budaya organisasi membentuk lingkungan untuk kolaborasi. Berbagi pengetahuan berfungsi sebagai proses penting yang mengubah pengalaman klinis menjadi inovasi praktis dalam perawatan keperawatan. Inovasi keperawatan di Klaster Kesehatan Makkah adalah proses yang dibangun secara sosial dan dinamis yang dibentuk oleh interaksi kepemimpinan transformasional, budaya organisasi, dan praktik berbagi pengetahuan. Memperkuat kapasitas kepemimpinan, mendorong budaya organisasi yang kolaboratif, dan mengembangkan sistem manajemen pengetahuan yang terstruktur sangat penting untuk mempertahankan inovasi keperawatan dan meningkatkan kualitas layanan kesehatan.

Kata Kunci : Kepemimpinan Transformasional, Budaya Organisasi, Berbagi Pengetahuan, Inovasi Keperawatan, Penelitian Kualitatif, Klaster Kesehatan Makkah.

1. INTRODUCTION

Healthcare organizations worldwide are currently experiencing significant transformation due to technological advancement, increasing patient-care complexity, healthcare workforce shortages, and growing demands for healthcare quality and patient safety. These challenges are particularly evident in nursing services, where nurses are expected not only to deliver high-quality clinical care but also to continuously adapt to organizational change, digital transformation, and evidence-based healthcare practices. In complex healthcare environments such as intensive care units (ICUs), nurses frequently work under high workloads, emotional pressure, and rapidly changing clinical conditions,



making innovation in nursing practice increasingly important for improving healthcare effectiveness and patient outcomes.

Innovation in nursing services has become a strategic priority in modern healthcare systems because it contributes to improving healthcare quality, patient safety, organizational efficiency, and workforce adaptability. Nursing innovation may include the development of patient-centered care approaches, digital nursing documentation systems, interdisciplinary collaboration models, and evidence-based clinical interventions. Previous studies have shown that healthcare organizations capable of fostering innovation are more likely to improve organizational performance, reduce clinical errors, and strengthen healthcare sustainability in rapidly changing healthcare environments (Seljemo et al., 2020; Labrague & Toquero, 2023).

Among the various organizational factors influencing innovation, transformational leadership has increasingly attracted attention in healthcare management research. Transformational leadership is a leadership approach that inspires, motivates, and empowers employees to achieve organizational goals while encouraging creativity, professional development, and organizational change. According to Bernard M. Bass and Ronald E. Riggio, transformational leadership consists of four major dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Leaders who adopt transformational leadership tend to create psychologically safe work environments that encourage learning, collaboration, and innovation among healthcare professionals.

Recent studies have demonstrated that transformational leadership positively influences nurse engagement, organizational resilience, work motivation, and patient-care quality within healthcare organizations (Abd-El Aliem & Abou Hashish, 2021; Alharbi et al., 2021). Furthermore, transformational leadership has also been associated with strengthening organizational learning processes and improving adaptability to healthcare transformation, particularly in organizations undergoing digital and structural reform (Alessa, 2021).

In addition to leadership, organizational culture also plays a crucial role in shaping employee behavior, communication patterns, teamwork, and organizational learning processes. Organizational culture reflects shared values, beliefs, and norms that influence how healthcare professionals interact, collaborate, and respond to organizational challenges. A collaborative organizational culture characterized by trust, open communication, teamwork, and continuous learning can create an environment conducive to innovation and knowledge exchange. Conversely, hierarchical and bureaucratic organizational cultures may limit communication, reduce professional autonomy, and hinder innovation development.

Previous studies have emphasized that organizational culture significantly influences knowledge-sharing behavior and innovation performance within organizations. Research conducted by Kim and Park (2021) demonstrated that collaborative organizational culture positively affects knowledge-sharing practices and innovative behavior among nursing personnel. Similarly, studies on organizational innovation have shown that organizational culture facilitates knowledge-sharing activities that contribute to organizational learning and innovation development (Azeem et al., 2021).

Knowledge sharing has increasingly been recognized as an important organizational mechanism for strengthening innovation capacity in healthcare environments. Knowledge sharing refers to the exchange of information, clinical experiences, tacit knowledge, and professional expertise among healthcare workers. In nursing environments, knowledge-sharing practices may occur through case discussions, mentoring, interdisciplinary meetings, professional training, reflective learning, and digital information systems. Effective knowledge-sharing mechanisms enable healthcare organizations to strengthen collective learning processes, improve clinical problem-solving capabilities, and facilitate innovation development.

Recent evidence suggests that transformational leadership can significantly influence knowledge-sharing behavior through the development of trust, collaboration, and professional engagement among employees (Nguyen et al., 2021). Furthermore, knowledge sharing has been found to mediate the relationship between transformational leadership and organizational innovation (Le &



Lei, 2021). In the context of healthcare services in Saudi Arabia, recent studies have also demonstrated that knowledge transfer partially mediates the relationship between transformational leadership and digital healthcare performance within healthcare clusters undergoing organizational transformation.

Although the literature on transformational leadership, organizational culture, and innovation continues to expand, several important research gaps remain. Most previous studies have predominantly employed quantitative approaches focusing mainly on statistical relationships among variables, thereby providing limited understanding of the social and organizational mechanisms underlying nursing innovation. Consequently, scientific evidence explaining how transformational leadership and organizational culture interact with knowledge-sharing practices within real clinical environments to promote nursing innovation remains limited.

Most previous studies have been conducted in Western countries or non-healthcare sectors, limiting their contextual relevance to healthcare organizations in the Middle East, particularly in Saudi Arabia. Healthcare organizations in Saudi Arabia operate within unique socio-cultural, organizational, and administrative contexts characterized by hierarchical management structures, multicultural workforces, and ongoing healthcare reforms under Saudi Vision 2030. These contextual characteristics may influence leadership practices, organizational communication, and nurses' participation in collaborative learning and innovation processes.

Although previous studies have identified knowledge sharing as a mediating factor between leadership and innovation, qualitative exploration of how knowledge-sharing practices emerge, function, and influence nursing innovation within Saudi healthcare organizations remains very limited. Existing studies have not sufficiently explored how nurses experience leadership support, organizational culture, and collaborative learning processes in daily clinical practice. This indicates an important gap in healthcare management and nursing innovation literature, particularly within the context of healthcare system transformation in Saudi Arabia.

This study is particularly relevant within the context of Saudi Vision 2030, which emphasizes healthcare transformation, digitalization, workforce development, organizational efficiency, and innovation-driven healthcare services. The Makkah Health Cluster represents one of the major healthcare transformation initiatives in Saudi Arabia aimed at improving healthcare integration, service quality, and organizational performance. Therefore, understanding how transformational leadership, organizational culture, and knowledge-sharing practices contribute to nursing innovation is essential for supporting sustainable healthcare transformation and improving healthcare quality in Saudi Arabia.

Based on these research gaps, this study aims to explore the implementation of transformational leadership and organizational culture in promoting nursing innovation through knowledge-sharing practices within the Makkah Health Cluster, Saudi Arabia. Specifically, this study aims to explore how transformational leadership practices influence collaborative learning and innovation among nurses, examine the role of organizational culture in facilitating knowledge-sharing practices, identify how knowledge-sharing mechanisms contribute to innovation in nursing practice, develop a contextual understanding of innovation processes within healthcare organizations in Saudi Arabia.

This study contributes theoretically by extending transformational leadership and organizational learning perspectives within the context of healthcare organizations in the Middle East. The study also offers an integrated qualitative understanding of how transformational leadership, collaborative organizational culture, and knowledge-sharing practices interact in promoting nursing innovation. Practically, the findings are expected to provide strategic recommendations for policymakers, nursing managers, and hospital administrators regarding leadership development, organizational learning systems, and knowledge-management strategies to strengthen innovation capacity and healthcare service quality in Saudi Arabia.

Literature Review

Transformational leadership is a leadership approach that emphasizes the ability of leaders to inspire, motivate, and empower organizational members to achieve higher levels of performance and



contribute to positive organizational change. This concept encompasses four key dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, which enable leaders to build strong working relationships and create an environment conducive to innovation (Bass & Riggio, 2006; Alatawi et al., 2020).

In healthcare organizations, particularly in nursing, transformational leadership plays a critical role in improving service quality and healthcare workforce performance. Nurse leaders who adopt transformational leadership are more likely to enhance nurses' involvement in decision-making, strengthen organizational commitment, and increase work motivation (Boamah et al., 2018; Specchia et al., 2021). Moreover, transformational leadership fosters an environment that supports organizational learning and the development of innovative ideas in healthcare practice (Labrague & Toquero, 2023).

In addition to leadership, organizational culture is a key factor influencing the behavior and interactions of organizational members. Organizational culture reflects shared values, norms, and beliefs that shape communication patterns, teamwork, and decision-making processes within the workplace (Schein, 2017). A positive organizational culture promotes collaboration, open communication, and trust among team members, thereby supporting an innovative work environment (Wei et al., 2020).

In healthcare organizations, knowledge sharing is a crucial mechanism for enhancing organizational learning capacity. Through the exchange of experiences, information, and skills among healthcare professionals, organizations can develop innovative solutions and improve patient care quality (Nazir et al., 2018; Banaser et al., 2021). Therefore, knowledge sharing is often considered a mediating variable linking transformational leadership and organizational culture to nursing innovation. Effective leadership and a supportive organizational culture are expected to strengthen knowledge-sharing practices and promote nursing innovation, particularly in the Makkah Health Cluster.

2. RESEARCH METHOD

This study employed a qualitative exploratory design to investigate how transformational leadership and organizational culture influence nursing innovation through knowledge-sharing practices within the Makkah Health Cluster, Saudi Arabia. A qualitative approach was selected because it allows for an in-depth exploration of nurses' experiences, perceptions, and social interactions within complex healthcare environments. The study was grounded in an interpretivist paradigm, emphasizing the subjective meaning that participants assign to leadership practices, organizational culture, and innovation processes in their daily clinical work. Reporting was guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ) to ensure methodological rigor and transparency.

The research was conducted in six hospitals within the Makkah Health Cluster: King Abdullah Medical City, Noor Specialist Hospital, Maternity and Child Hospital, King Abdulaziz Hospital, Hira General Hospital, and King Faisal Hospital. These institutions represent a mix of tertiary, secondary, and specialized healthcare facilities operating under Saudi Arabia's healthcare transformation agenda aligned with Saudi Vision 2030. The total nursing workforce across these hospitals was approximately 4,425 nurses, providing a broad organizational context for the study.

A purposive sampling technique was used to select participants who had direct experience with nursing leadership, organizational culture, and innovation practices. Participants included nursing managers, ICU head nurses, and clinical nurses with at least two years of professional experience. A total of 48 participants were recruited until data saturation was achieved, meaning no new themes emerged from the data.

Data were collected between January and March 2026 using semi-structured interviews, focus group discussions (FGDs), non-participant observations, and document analysis. Interviews were conducted with nursing managers and head nurses to explore leadership and organizational processes, while FGDs were held with clinical nurses to capture shared experiences of collaboration and



knowledge sharing. Each FGD consisted of 5–6 participants and lasted 60–90 minutes. All interviews were audio-recorded, transcribed verbatim, and conducted in English or Arabic depending on participant preference. Observations and document reviews were used to triangulate findings.

Data were analyzed using Braun and Clarke's six-step thematic analysis, including familiarization, coding, theme development, review, definition, and reporting. To enhance rigor, two researchers independently coded the data and resolved discrepancies through discussion.

Trustworthiness was ensured using Lincoln and Guba's criteria: credibility, dependability, confirmability, and transferability through triangulation, member checking, audit trails, and reflexive journaling. Ethical approval was obtained from the relevant institutional review boards, and informed consent was obtained from all participants.

3. RESULT AND DISCUSSION

The analysis of interviews, focus group discussions (FGDs), observations, and document reviews generated four main themes. The findings demonstrate a strong interrelationship between transformational leadership, organizational culture, knowledge sharing, and nursing innovation within the Makkah Health Cluster. Data saturation was reached after consistent patterns emerged across hospitals and participant groups.

Theme 1: Transformational Leadership as a Catalyst for Motivation and Innovation

Participants consistently described nursing leaders as playing a central role in shaping motivation, clinical engagement, and openness to innovation. Transformational leadership was reflected through inspirational motivation, intellectual stimulation, and supportive supervision.

A senior nurse stated:

“Our managers always encourage us to think beyond routine procedures and find better ways to improve patient care.” (P7, Clinical Nurse)

Nursing managers were perceived as role models who actively promoted continuous learning and encouraged staff participation in problem-solving activities. This leadership style created psychological safety, enabling nurses to express ideas without fear of criticism.

From an interpretive perspective, transformational leadership functioned not only as managerial guidance but also as a relational mechanism that strengthened nurses' confidence to initiate clinical improvements.

Theme 2: Organizational Culture as a Foundation for Collaboration and Learning

The findings indicate that organizational culture within the Makkah Health Cluster is gradually shifting toward a more collaborative and learning-oriented environment. Participants emphasized teamwork, shared responsibility, and open communication as key cultural values supporting nursing practice.

One ICU nurse explained:

“We work as a team, and discussions are open during shift handovers. This helps us learn from each other's experiences.” (P9, ICU Nurse)

However, some participants noted that hierarchical decision-making structures still exist in certain units, limiting full participation in decision-making processes.

This indicates a cultural duality: while collaborative practices are emerging, traditional hierarchical norms remain influential in shaping communication patterns.

Theme 3: Knowledge Sharing as a Mechanism for Clinical Learning and Problem Solving

Knowledge sharing emerged as a central mechanism linking leadership and culture to innovation. Nurses reported actively engaging in knowledge exchange through case discussions, informal consultations, training sessions, and digital communication platforms.

A participant highlighted:

“We often discuss complicated cases after shifts. These discussions help us improve our clinical judgment.” (P18, Clinical Nurse)



FGD findings revealed that knowledge sharing is both formal and informal, occurring during structured meetings and spontaneous peer interactions.

Interpretively, knowledge sharing served as a bridge between individual experience and collective organizational learning, enabling the transformation of tacit clinical knowledge into practical innovations.

Theme 4: Nursing Innovation in Practice and Service Delivery Improvement

Participants identified several forms of nursing innovation, including improved documentation systems, digital health tools, and team-based care models. These innovations were largely driven by collaborative discussions and leadership support.

A nursing manager stated:

“We implemented a new electronic documentation approach based on suggestions from staff nurses.” (P8, Nurse Manager)

Innovation was perceived as a gradual process emerging from continuous interaction between leadership encouragement, organizational support, and knowledge-sharing activities.

Observational data supported these findings, showing increased use of digital systems and structured team discussions in clinical settings.

Cross-Theme Analysis (Integrated Interpretation)

The findings indicate that transformational leadership, organizational culture, and knowledge sharing do not operate independently. Instead, they form an integrated system that shapes nursing innovation.

Transformational leadership enhances motivation and psychological safety, organizational culture provides the collaborative environment, while knowledge sharing acts as the operational mechanism that transforms experience into innovation.

Overall, nursing innovation in the Makkah Health Cluster is best understood as a socially constructed process emerging from continuous interaction between leadership behavior, cultural context, and collective learning practices.

Discussion

1. Transformational Leadership as a Driver of Psychological Safety and Nursing Innovation

The findings of this study demonstrate that transformational leadership plays a critical role in fostering psychological safety, motivation, and innovation among nurses in the Makkah Health Cluster. Leaders who provide inspirational motivation, intellectual stimulation, and individualized consideration create an environment where nurses feel confident to express ideas and engage in clinical improvement initiatives.

This finding is consistent with recent studies showing that transformational leadership significantly enhances nurses' work engagement, innovative behavior, and job satisfaction (Alharbi et al., 2021; Labrague & Toquero, 2023). Similarly, Boamah et al. (2021) found that transformational leadership improves patient safety outcomes by strengthening nurse empowerment and communication effectiveness in clinical settings.

From a theoretical perspective, these results align with Social Exchange Theory, which suggests that supportive leadership fosters reciprocal positive behaviors such as creativity and innovation. In the context of this study, nurses respond to supportive leadership by actively participating in problem-solving and proposing improvements in clinical practice.

However, compared to previous quantitative studies, this research provides deeper insight by showing *how* transformational leadership operates in daily clinical interactions—not only as a structural factor but as a relational and emotional mechanism that builds trust and psychological safety.

2. Organizational Culture: Between Collaboration and Hierarchy

The study reveals that organizational culture within the Makkah Health Cluster is characterized by a dual structure: emerging collaborative practices coexist with persistent hierarchical norms. While teamwork and open communication are increasingly encouraged, decision-making in some units remains centralized.



This finding is consistent with Alshammari et al. (2020), who reported that healthcare organizations in Middle Eastern contexts often experience cultural tension between hierarchical authority and collaborative professionalism. Similarly, Alenezi et al. (2023) found that hierarchical structures may limit nurse participation in decision-making and innovation processes.

From a theoretical standpoint, Schein's organizational culture model explains that deep-rooted assumptions within healthcare systems are resistant to change, particularly in highly regulated environments. This explains why cultural transformation toward collaboration is gradual rather than immediate.

Importantly, this study contributes new empirical insight by showing that cultural duality does not fully hinder innovation; instead, it creates a transitional environment where innovation emerges gradually through negotiation between hierarchical control and collaborative learning.

3. Knowledge Sharing as a Mediating Mechanism for Innovation

One of the most significant findings of this study is the role of knowledge sharing as a central mechanism linking leadership and organizational culture to nursing innovation. Nurses actively engage in both formal and informal knowledge exchange through case discussions, mentoring, and interdisciplinary communication.

This finding is consistent with Nguyen et al. (2021), who found that transformational leadership enhances knowledge-sharing behavior by building trust and collaboration among employees. Similarly, Le and Lei (2021) confirmed that knowledge sharing mediates the relationship between leadership and organizational innovation.

In healthcare settings, Wang et al. (2020) emphasize that knowledge sharing improves clinical decision-making, reduces errors, and enhances organizational learning capacity. The current study extends these findings by demonstrating that knowledge sharing in nursing is not merely informational exchange but a *collective sense-making process* that transforms clinical experience into actionable innovation.

This finding addresses a key research gap: previous studies have largely treated knowledge sharing as a statistical mediator, while this study shows its *social and cognitive function* in shaping clinical innovation practices.

4. Nursing Innovation as an Emergent and Collective Process

The findings indicate that nursing innovation in the Makkah Health Cluster emerges as a collective and incremental process driven by collaboration between leadership support, organizational culture, and knowledge-sharing practices. Innovations observed include improvements in digital documentation systems, patient-care workflows, and team-based care models.

This aligns with Azeem et al. (2021), who found that organizational learning environments significantly enhance innovation capability in healthcare institutions. Similarly, Seljemo et al. (2020) reported that supportive work environments and teamwork are key predictors of nursing innovation and service quality improvement.

However, this study adds an important contribution by showing that innovation in nursing is not always formal or structured. Instead, it often emerges informally through daily clinical interactions, reflective discussions, and problem-solving activities within nursing teams.

5. Integrated Model: Interaction Between Leadership, Culture, and Knowledge Sharing

The findings support an integrated conceptual model in which transformational leadership enhances psychological safety, organizational culture provides the structural environment, and knowledge sharing acts as the operational mechanism that converts experience into innovation.

This supports the knowledge-based view of the firm (Grant, 1996), which emphasizes that organizational innovation depends on the effective creation, transfer, and application of knowledge.

In addition, the results extend the model proposed by Banaser et al. (2021), which highlights knowledge management as a mediator between leadership and innovation in healthcare organizations. This study enriches that model by providing qualitative evidence of *how these mechanisms operate in real clinical environments*.



6. Research Gap Contribution

This study addresses three major gaps in the existing literature:

1. **Methodological gap:** Previous studies are predominantly quantitative, while this study provides deep qualitative insights into lived experiences of nurses.
2. **Contextual gap:** Limited research exists in Middle Eastern healthcare systems, particularly within Saudi Vision 2030 transformation settings.
3. **Mechanism gap:** Prior studies rarely explain how knowledge sharing functions in daily clinical practice; this study shows it as a dynamic social learning process.

7. Theoretical and Practical Implications

Theoretically, this study strengthens transformational leadership theory by demonstrating its indirect influence on innovation through psychological safety and knowledge-sharing mechanisms. It also extends organizational learning theory by showing how shared clinical experiences become the foundation for innovation. Practically, the findings highlight the need for leadership development programs for nursing managers, promotion of collaborative organizational culture, and establishment of structured knowledge management systems in hospitals. These strategies are essential to support sustainable nursing innovation and healthcare transformation in Saudi Arabia.

4. CONCLUSION

This study examined the role of transformational leadership and organizational culture in promoting nursing innovation through knowledge-sharing practices within the Makkah Health Cluster. The findings provide strong evidence that nursing innovation is not an isolated phenomenon, but rather a dynamic outcome of the interaction between leadership behavior, organizational cultural context, and knowledge-sharing processes.

First, transformational leadership plays a central role in shaping nurses' motivation, psychological safety, and engagement in innovation. Leaders who demonstrate inspirational motivation, intellectual stimulation, and individualized consideration create a supportive environment that encourages nurses to actively contribute ideas for improving clinical practice.

Second, organizational culture influences the extent to which collaboration, communication, and learning occur within nursing teams. A culture that supports openness, teamwork, and continuous learning facilitates innovation, while hierarchical structures may still limit full participation in decision-making processes.

Third, knowledge-sharing practices function as a critical mediating mechanism that transforms individual clinical experience into collective organizational knowledge. Through formal and informal interactions such as case discussions, mentoring, and interdisciplinary communication, nurses develop practical innovations in patient care delivery.

Overall, the study concludes that nursing innovation emerges from the synergy between transformational leadership, collaborative organizational culture, and effective knowledge-sharing systems. These three elements collectively form an integrated mechanism that enhances organizational learning and supports continuous improvement in healthcare services.

Recommendations

1. For Hospital Management and Nursing Leaders

Hospital administrators should strengthen transformational leadership competencies among nursing managers through structured leadership development programs. These programs should focus on communication skills, emotional intelligence, coaching abilities, and innovation leadership to enhance nurses' engagement in clinical improvement initiatives.

In addition, leaders should actively foster psychological safety by encouraging open dialogue, supporting staff suggestions, and recognizing innovative contributions from nursing personnel.

2. For Organizational Culture Development

Healthcare organizations should accelerate the development of a collaborative and learning-oriented organizational culture. This can be achieved by promoting interprofessional teamwork,



strengthening open communication channels, reducing excessive hierarchical barriers, and encouraging participatory decision-making in clinical units. Such cultural transformation is essential to support sustainable innovation in nursing practice.

3. For Knowledge Management Systems

Hospitals should develop structured knowledge management systems to support continuous knowledge sharing among healthcare professionals. Recommended strategies include, establishing clinical discussion forums and case review meetings, developing digital knowledge-sharing platforms, implementing mentorship and peer-learning programs, and integrating knowledge-sharing activities into routine clinical workflows.

These mechanisms will ensure that tacit clinical knowledge is systematically captured, shared, and transformed into innovation.

4. For Health Policy Makers

Health authorities within the Makkah Health Cluster and Saudi healthcare system should integrate leadership development and knowledge management strategies into broader healthcare transformation policies under Saudi Vision 2030. Investment in nursing leadership capacity and organizational learning systems is essential to ensure long-term healthcare innovation and service quality improvement.

5. For Future Research

Future studies are recommended to employ mixed-method or quantitative approaches such as SEM-PLS to test causal relationships among variables, expand the study to other regions in Saudi Arabia for broader generalization, and explore patient outcomes as an impact of nursing innovation.

Further research should also examine additional mediating variables such as digital readiness, organizational support, and job autonomy to provide a more comprehensive model of healthcare innovation.

Final Statement

This study highlights that sustainable nursing innovation requires not only strong leadership and supportive culture, but also systematic knowledge-sharing mechanisms that transform clinical experience into continuous organizational learning and improved healthcare outcomes.

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