Predicting Patient Outcomes through Transformational Leadership and Change Management in the Riyadh Health Cluster: A Multiple Regression Analysis

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Abstract

This study investigates the relative influence of transformational leadership and change management on patient outcomes in the Riyadh Health Clusters through a rigorous quantitative approach. A structured questionnaire measuring transformational leadership, change management practices, and patient outcomes was administered to 384 healthcare professionals across three Riyadh Health Clusters. Stratified random sampling ensured representation of nurses, physicians, administrators, and technical staff. Data were analyzed using SPSS v27, employing multiple regression to evaluate both the independent and joint contributions of the two predictors at a 5% significance level. The combined model explained 66% of the variance in patient outcomes (R^2 = 0.66, F= 98.4, $p < 0.05$). Transformational leadership emerged as the stronger predictor ($\beta = 0.58$, $t = 10.20$, $p < 0.05$), while change management also had a significant but smaller effect ($\beta = 0.24$, $t = 4.15$, $p < 0.05$). Both transformational leadership and structured change management practices significantly enhance patient outcomes, with leadership exerting a more pronounced influence. These findings underscore the importance of developing inspirational leadership alongside robust change management frameworks to optimize care quality and organizational performance in healthcare settings.

Keywords: Transformational Leadership, Change Management, Patient Outcomes, Healthcare Quality, Riyadh Health Clusters

Introduction

Patient outcomes serve as the cornerstone of quality assessment within the healthcare domain, representing the ultimate benchmark for evaluating the effectiveness of care delivered and reflecting the aspects most critical to individuals undergoing treatment. These outcomes

encompass a wide array of factors, including mortality rates, the safety of provided care, readmission rates, the overall patient experience, and the effectiveness of implemented treatments. The contemporary healthcare landscape is marked by an increasing emphasis on value-based care, a significant shift in paradigm where the primary objective is to achieve the most favorable health improvements for patients while judiciously managing the expenditure of resources (HealthCatalyst, 2023; The Access Group, 2022; World Health Organization, 2024; Institute for Strategy and Competitiveness, 2013).

Patient outcomes, from an academic standpoint, are defined as the consequences of medical interventions and healthcare services concerning a patient's health status, well-being, and overall encounter with the healthcare system. These outcomes are multifaceted, incorporating improvements in physical, mental, and emotional health, disease management, functional abilities, and satisfaction with health and life. Furthermore, they reflect changes in attitudes and behaviors of patients, providers, and populations, as well as advancements in medical knowledge through new evidence, research, and innovative care models. The World Health Organization defines an outcome measure as a change in the health of an individual, group, or population that is attributable to a healthcare intervention (World Health Organization, 2024). These measures play a pivotal role in medical decision-making for healthcare professionals and patients seeking high-quality care.

Key indicators of patient outcomes include mortality rates, readmission rates, safety of care (encompassing medical errors and hospital-acquired infections), effectiveness of care (adherence to best practices and achievement of desired results), patient experience (including patient-reported outcome measures and satisfaction surveys), timeliness of care, and the efficient utilization of medical imaging (World Health Organization, 2024). In the field of nursing, patient outcomes are primarily concerned with the results for the patient receiving nursing care, with attributes including maintained or improved functional status, protection from harm, and reported comfort and contentment. The Donabedian model classifies quality measures into structure, process, and outcome, with the latter serving as the ultimate reflection of the impact of healthcare services on patient health. The National Database of Nursing Quality Indicators (NDNQI®) further contributes to this by providing data on nursing-sensitive indicators such as patient falls, infections, and patient satisfaction.

The significance of patient outcomes lies in their role as central measures for evaluating the effectiveness of healthcare delivery in a cost-sensitive manner. They provide a quantitative basis for clinical decisions, measure the effect and efficacy of care, and determine the overall quality of healthcare services. Measuring and reporting these outcomes fosters a culture of continuous improvement and facilitates the adoption of best practices across healthcare settings. Ultimately, the focus on patient outcomes is essential for defining quality of care, driving advancements in treatment and service delivery, understanding the principles of value-based care, and promoting a healthcare system that is truly patient-centered.

The delivery of healthcare is an inherently intricate process, involving a multitude of interconnected organizational factors that can exert a substantial influence on patient outcomes and the overall patient experience (Duggirala et al., 2008; Parsons & Cornett, 2011). These factors span a broad spectrum, encompassing the fundamental systems and processes in place, the level of transparency in operations, the physical environment and tangible resources available, and the effectiveness of communication among staff and with patients. Deficiencies in these organizational elements can have profound negative consequences for patient well-being (Tekingündüz et al., 2021). Inadequate procedures can lead to errors in diagnosis or treatment. Disruptions in workflow can cause delays in care and increase the risk of complications. Limitations in resources can compromise the ability to provide necessary treatments. Insufficient staffing levels can result in overworked and fatigued healthcare professionals, increasing the likelihood of mistakes (World Health Organization, 2024). Conversely, the creation of work environments that prioritize patient safety and foster higher levels of patient satisfaction hinges on a deep understanding of the interrelationships among these hospital and nursing unit characteristics (Vogus & McClelland, 2016). Patient satisfaction and safety are not determined by a single factor but rather by the complex interplay of various organizational components (Parsons & Cornett, 2011).

In this context, both effective leadership and adept change management practices emerge as critical determinants in shaping organizational dynamics and, consequently, influencing patient outcomes (Alharbi, 2012; Tate et al., 2023; Tsai, 2011; Crowell & Boynton, 2020; Tabish & Nabil, 2015). Leadership provides the essential direction, vision, and motivation necessary to navigate the complexities of the healthcare sector (Alharbi, 2012; Tate et al., 2023; Tsai, 2011; Crowell & Boynton, 2020; Tabish & Nabil, 2015). Change management offers the structured methodologies

and tools required to effectively plan, implement, and sustain improvements in care delivery (Kotter, 2012; Lewin, 1951; Prosci, 2024; Harrison et al., 2021; Al-Abri, 2007; Igoe, 2021; Yousefi et al., 2022; Centers for Disease Control and Prevention, 2019; Harvard T.H. Chan School of Public Health, 2023).

Transformational leadership, characterized by its capacity to inspire and motivate individuals towards achieving a shared vision, has been consistently linked with positive outcomes in healthcare settings (Wong et al., 2013; Bass, 1990). This leadership style cultivates a culture of trust, respect, and loyalty among staff, which in turn can lead to increased productivity and job satisfaction (Bass, 1990). When healthcare professionals feel valued and supported by their leaders, they are more likely to be engaged in their work and committed to providing high-quality patient care (Tekingündüz et al., 2021; Rafiq et al., 2022). Furthermore, transformational leaders cultivate a strong sense of patient safety within their organizations, empowering staff to actively participate in decision-making and promoting continuous improvement (Bass, 1990; Clarke, 2013; Wong et al., 2013; McFadden et al., 2009). By encouraging open communication and valuing the input of all team members, these leaders create an environment where potential safety hazards are more likely to be identified and addressed proactively. Empirical evidence suggests that transformational leadership is associated with higher levels of patient satisfaction, a reduction in adverse events, and even decreased lengths of hospital stays (Wong et al., 2013; Boamah et al., 2018). Leaders who inspire their teams and create a shared commitment to excellence often see tangible improvements in these key patient outcome metrics. By effectively managing resources, fostering innovation, and supporting the professional growth of their teams, transformational leaders contribute to the overall quality and sustainability of healthcare organizations. Their ability to create a supportive and inclusive work environment also positively affects nurses' job satisfaction, organizational commitment, and overall work environment. Healthcare professionals who work under transformational leaders often report feeling more empowered, motivated, and satisfied in their roles, which can translate to better patient care and reduced staff turnover (Tekingündüz et al., 2021; Rafiq et al., 2022).

Complementing the role of leadership, effective change management practices are crucial for healthcare organizations to adapt and thrive in the face of evolving needs, regulations, and technological advancements (Kotter, 2012; Lewin, 1951; Prosci, 2024; Harrison et al., 2021; Al-

Abri, 2007; Igoe, 2021; Yousefi et al., 2022). By providing a structured approach to implementing evidence-based interventions and organizational improvements, change management can directly contribute to better patient outcomes and enhanced population health (Centers for Disease Control and Prevention, 2019). These practices facilitate improvements in clinical workflows, enhance clinic culture, boost staff efficiency, and optimize the use of information technology to support patient care (Centers for Disease Control and Prevention, 2019). Successful change management minimizes disruptions, ensures the maintenance of high patient safety standards, and supports healthcare professionals in adjusting to new roles and protocols while sustaining morale during periods of transition (Harvard T.H. Chan School of Public Health, 2023; Kotter, 2012; Lewin, 1951; Prosci, 2024). The active involvement of stakeholders is a cornerstone of effective change management in healthcare, ensuring that changes are embraced and sustained (Prosci, 2024). Various models, such as Kotter's 8-Step Model and Lewin's 3-Stage Model, provide guiding principles for navigating the complexities of organizational change within medical institutions. Kotter's model emphasizes creating a sense of urgency, forming a guiding coalition, developing a vision, communicating the vision, empowering action, generating short-term wins, consolidating gains, and anchoring new approaches in the culture (Kotter, 2012). Lewin's model focuses on unfreezing the current state, moving to a new state, and refreezing to ensure the change is sustained (Lewin, 1951; Centers for Disease Control and Prevention, 2019; Harvard T.H. Chan School of Public Health, 2023; Prosci, 2024).

The theoretical framework underpinning this report draws from established theories of transformational leadership and prominent models of change management. Transformational leadership theory, as articulated by Burns (1978) and further developed by Bass (1985) and Bass & Riggio (2006), posits that effective leaders inspire and motivate their followers to achieve extraordinary outcomes by focusing on their values and aligning them with the organization's mission (Reinhardt et al., 2022; Bass, 1985). Key dimensions of transformational leadership include idealized influence (serving as role models), inspirational motivation (articulating a compelling vision), intellectual stimulation (encouraging innovation), and individualized consideration (supporting individual growth) (Reinhardt et al., 2022; Bass, 1985, 1990; Bass & Riggio, 2006). In the realm of change management, various models offer structured approaches to guide organizational transformations. Lewin's well-known three-stage model of unfreezing (recognizing the need for change), changing (implementing the change), and refreezing (sustaining

the change) provides a foundational understanding of the change process (Lewin, 1951; Cummings et al., 2016). Kotter's 8-Step Process offers a more detailed roadmap, emphasizing the importance of creating a sense of urgency, building a guiding coalition, developing a vision and strategy, communicating the vision, empowering action, generating short-term wins, consolidating gains, and anchoring changes in the organizational culture (Kotter, 2012; Centers for Disease Control and Prevention, 2019). The Prosci ADKAR model focuses on the individual aspects of change adoption, ensuring awareness, desire, knowledge, ability, and reinforcement among those affected (Prosci, 2024). These theoretical perspectives provide a robust foundation for investigating the distinct and potentially overlapping influences of transformational leadership and change management practices on patient outcomes.

While the individual contributions of transformational leadership and change management to healthcare improvement are well-documented, research that specifically examines their relative impact on patient outcomes using quantitative methods like multiple regression analysis remains limited. Some studies have explored the combined influence of leadership styles and change management on outcomes such as job performance within healthcare settings (Mohammed et al., 2024; Emerald Insight, n.d.; Saleem & Naseem, 2022). For instance, findings indicate that both transformational leadership and effective change management practices have a significant positive correlation with the job performance of health information management practitioners (Mohammed et al., 2024). This suggests that both constructs are important for optimizing employee performance, which can indirectly benefit patient care. Furthermore, studies employing multiple regression have demonstrated a statistically significant relationship between transformational leadership and overall organizational change effectiveness, as well as the significance of transformational leadership and leader efficacy in driving successful change implementation (Bushra et al., 2011). These findings highlight the crucial role of leadership in facilitating successful change initiatives aimed at improving various organizational aspects, including patient care. A meta-analysis assessing the effectiveness of leadership interventions in healthcare revealed that while leadership generally improves outcomes like performance and guideline adherence, the relative effectiveness can vary across different contexts, as highlighted by multi-regression analysis. This suggests that the impact of leadership on outcomes is not uniform and may be influenced by various factors, potentially including the presence and effectiveness of change management practices. However, these studies often focus on intermediate outcomes or specific

professional roles rather than directly comparing the strength of influence of transformational leadership versus change management practices on a broad spectrum of patient outcomes.

Despite the existing body of knowledge highlighting the individual and, to some extent, combined effects of transformational leadership and change management on various facets of healthcare, a significant gap remains in understanding their *relative* impact on patient outcomes. While studies have examined their influence on aspects like job satisfaction, safety culture, and organizational change effectiveness, there is a paucity of research that directly compares the strength of their relationship with patient outcomes using rigorous statistical methods such as multiple regression analysis. Given the complexity of the healthcare environment and the multitude of factors influencing patient care, it is crucial to discern the unique contributions of both leadership and change management to inform strategic decision-making within healthcare organizations. This report aims to address this gap by investigating the relative influence of transformational leadership and change management on patient outcomes in Riyadh health cluster.

Methodology

Research Design

This study employs a quantitative research approach to investigate the relative influence of transformational leadership and change management on patient outcomes in Riyadh health clusters. A quantitative design was chosen to capture statistical trends and relationships between variables, allowing for generalizable insights that can inform policy and practice. This approach is particularly suitable for examining the hypotheses, as it enables the measurement of transformational leadership, change management and patient outcomes using standardized instruments, ensuring objectivity and replicability. The study was conducted within the Riyadh Health Clusters, which serve as the primary setting due to their central role in Saudi Arabia's healthcare transformation under Vision 2030.

Population and Sampling Techniques

The target population for this study includes healthcare professionals working within the Riyadh Health Clusters, with a specific focus on nurses, administrators, and managers. The demographic

data collected in the questionnaire (e.g., gender, age range, education level, role, years of experience, and cluster affiliation) provide a comprehensive profile of the participants. A stratified random sampling technique was used to ensure representation across different roles (e.g., nurses, administrators, physicians) and clusters (Riyadh First, Second, and Third Health Clusters). This approach enhances the generalizability of the findings by capturing diverse perspectives within the healthcare workforce.

The sample size was determined using a power analysis to ensure sufficient statistical power for detecting significant relationships between variables. Based on the demographic data, the sample included participants from various age groups (26–55 years), educational backgrounds (diploma to PhD/doctorate), and experience levels (1–7+ years). This diversity ensures that the findings reflect the realities of healthcare delivery across different contexts within the Riyadh Health Clusters.

Variables and Measurement Instruments

In this study, transformational leadership and change management are defined as the independent variables, while patient outcomes are operationalized as the dependent variable. This configuration is derived from extensive research indicating that leadership behaviors, particularly those of a transformational nature, can foster an empowering work environment and enhance the adoption of innovative practices among healthcare professionals (Bass & Riggio, 2006; Wong & Cummings, 2009). Simultaneously, empirical evidence suggests that structured change management practices are integral to the seamless implementation of new clinical protocols and technologies, thereby improving patient safety and overall care quality (Kotter, 1996). Together, these constructs form the cornerstone of our analytical framework, which aims to delineate the relative impact of leadership and change management on patient outcomes through a multiple regression analysis.

The measurement instruments used in this study consist solely of a comprehensive questionnaire developed to capture the key constructs of interest. The questionnaire is divided into several sections. The first section collects demographic information, which is essential for describing the sample and controlling for potential confounding variables. Subsequent sections include scales that measure transformational leadership, change management, and patient outcomes.

Data Analysis

The data were analyzed using Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics, including means, standard deviations, and frequency distributions, were computed to provide an initial overview of the data. To test the research hypotheses specifically multiple regression was used with 5% level of significance, indicating a 95% confidence level for accepting or rejecting the hypotheses.

Ethical Consideration

The study adhered to ethical guidelines, including obtaining informed consent from participants, ensuring confidentiality, and allowing voluntary participation. Participants were informed of their right to withdraw at any stage without penalty.

Results

Table 1: Descriptive Analysis of Respondents Demographic Data

Variable	Category	Frequency	Percentage
Gender	Male	280	72.91%
	Female	104	27.09%
Total		384	100
Age Range	26-35	344	89.66%
	36-45	34	8.87%
	46 or greater	6	1.48%
Total		384	100
Highest Education Level	Bachelor's degree	257	67.00%
	Master's degree	106	27.59%
	PhD/Doctorate	11	2.96%

	Diploma	10	2.46%
Total		384	100
Main Role	Nurse	325	84.73%
	Physician	23	5.91%
	Administration/ Leader	30	7.88%
	Technical	6	1.48%
Total		384	100
Years of Experience	1 year	15	3.94%
	2-3 years	117	30.54%
	4-5 years	204	53.20%
	6-7 years	47	12.32%
Total		384	100
Health Cluster	Riyadh First Health Cluster	153	39.90%
	Riyadh second Health Cluster	136	35.47%
	Riyadh third Health Cluster	95	24.63%
Total		384	100

Source: Field Survey

The frequency table provides a detailed breakdown of the demographic characteristics of the respondents in the dataset. The majority of respondents are male (72.91%), with females making

up 27.09% of the sample. In terms of age, the largest group falls within the 26-35 age range (89.66%), followed by those aged 36-45 (8.87%), and a small percentage of respondents aged 46 or older (1.48%).

Regarding education, most respondents hold a Bachelor's degree (67.00%), while 27.59% have a Master's degree, and a smaller proportion hold a PhD/Doctorate (2.96%) or a Diploma (2.46%). The primary role in the workplace is predominantly Nurse (84.73%), with smaller percentages working as Physicians (5.91%), Administration/Leaders (7.88%), or in Technical roles (1.48%).

In terms of experience, the majority of respondents have 4-5 years of experience (53.20%), followed by those with 2-3 years (30.54%), 6-7 years (12.32%), and 1 year (3.94%). The respondents are distributed across three health clusters, with the largest group belonging to the Riyadh First Health Cluster (39.90%), followed by the Riyadh second Health Cluster (35.47%), and the Riyadh third Health Cluster (24.63%). The data reflects a predominantly young male workforce with a strong representation of nurses and individuals holding Bachelor's degrees, primarily working in the Riyadh First and second Health Clusters.

Test of Hypotheses

Hypothesis 1

Transformational leadership and change management have both independent and joint impact on patient outcomes in Riyadh health clusters.

Table 1: Multiple Regression Results: Impact of Transformational Leadership and Change Management on Patient Outcomes

Variables	R	R^2	F	Sig	Beta	T	Sig
Constant	0.68	0.66	98.4	<0.05			
Transformational Leadership					0.58	10.20	<0.05
Change Management					0.24	4.15	<0.05

Predictors: (Constant): Transformational Leadership, Change Management

Dependent variable: Patient Outcomes

The results of the multiple regression analysis reveal that Transformational Leadership and Change Management significantly affect Patient Outcomes, both individually and in combination. Together, these two predictors account for 66% of the variance in Patient Outcomes ($R^2 = 0.66$, $F = 98.4$, $p < 0.05$), indicating a robust overall effect of the model. In examining the individual contributions, Transformational Leadership stands out as a particularly strong predictor, with a standardized beta coefficient of 0.58 ($t = 10.20$, $p < 0.05$). This finding implies that for every 1-unit increase in the level of Transformational Leadership, Patient Outcomes improve by 0.58 units, even after controlling for the influence of Change Management.

In contrast, Change Management also exhibits a statistically significant impact, though its independent effect is less pronounced than that of Transformational Leadership. Specifically, a 1-unit increase in Change Management practices is associated with a 0.24-unit increase in Patient Outcomes ($\beta = 0.24$, $t = 4.15$, $p < 0.05$) when holding Transformational Leadership constant. These findings indicate that while both factors play a meaningful role in enhancing Patient Outcomes, Transformational Leadership serves as the more influential driver.

Collectively, these results underscore the synergistic effect of effective leadership and structured organizational change in healthcare settings. The substantial portion of variance explained by the combined model highlights that integrating robust leadership strategies with comprehensive

change management practices can markedly optimize patient care. This analysis not only supports the hypothesis that both constructs contribute to improved patient outcomes but also emphasizes the importance of prioritizing Transformational Leadership development in initiatives aimed at enhancing healthcare quality.

Discussion

The finding that Transformational Leadership significantly affects Patient Outcomes ($\beta = 0.58$) is consistent with a substantial body of prior research in healthcare. Numerous studies have highlighted the positive impact of transformational leadership on various aspects of healthcare quality, including patient outcomes. For example, a systematic review by Wong et al. (2013) concluded that transformational nursing leadership improves patient satisfaction and reduces adverse events. Similarly, Tekingündüz et al. (2021) found that transformational leadership positively influences nurses' work environment, leading to better patient outcomes. The strong positive beta coefficient of 0.58 in this study further supports the notion that transformational leadership is a key driver of improved patient outcomes in healthcare settings. This aligns with the core tenets of transformational leadership, which emphasizes inspiring and motivating followers, fostering a shared vision, and promoting intellectual stimulation and individualized consideration.

The study's finding that Change Management also has a statistically significant impact on Patient Outcomes ($\beta = 0.24$), although less pronounced than transformational leadership, is also supported by existing literature. Change management practices provide a structured approach for implementing improvements and adapting to the dynamic healthcare environment. Studies have shown that effective change management can lead to improved clinical workflows, enhanced staff efficiency, and better adoption of new technologies, all of which can positively influence patient outcomes. For instance, Abdel-Satar et al. (2022) found a significant effect of change management on the quality of health services, including assurance and empathy dimensions. The smaller beta coefficient for change management in this study compared to transformational leadership suggests that while important, its direct influence on patient outcomes in this specific context might be less potent than the impact of leadership.

The finding that Transformational Leadership is a more influential driver of Patient Outcomes compared to Change Management aligns with some studies that emphasize the foundational role

of leadership in setting the stage for successful change and improvement. Effective leadership is often seen as crucial for creating a culture that is receptive to change and for motivating staff to embrace new practices. Al-Abri and Hossain (2019) found that transformational leadership had a more significant contribution to organizational readiness for change compared to transactional leadership. This suggests that leadership might lay the groundwork for how effectively change management practices are adopted and ultimately impact patient outcomes.

The substantial portion of variance in Patient Outcomes explained by the combined model ($R^2 = 0.66$) underscores the synergistic effect of integrating robust leadership strategies with comprehensive change management practices. This finding suggests that neither factor operates in isolation, and their combined presence significantly enhances the likelihood of achieving better patient care. While individual studies might focus on one aspect or the other, this analysis highlights the importance of a holistic approach that considers both the leadership and the organizational change mechanisms in driving healthcare quality. This aligns with the understanding that effective change often requires both a compelling vision and the structured processes to implement it successfully.

Conclusion

In conclusion, the findings of this study underscore the critical role that both transformational leadership and change management practices play in enhancing patient outcomes. The multiple regression analysis revealed that these variables jointly account for 66% of the variance in patient outcomes, with transformational leadership emerging as the more potent individual predictor. This result emphasizes that initiatives aimed at fostering inspirational leadership and continuous organizational transformation can lead to substantial improvements in clinical care quality. Additionally, the demographic profile of predominantly young, male nurses within the Riyadh health clusters adds nuance to the interpretation of these findings, highlighting the importance of context-specific strategies in leadership development and change initiatives. When compared with existing literature, the current study aligns with earlier research that posits transformational leadership as a key driver in creating engaged, innovative, and resilient healthcare teams (Bass & Riggio, 2006; Wong & Cummings, 2009). Similarly, the significant, albeit smaller, independent effect of change management on patient outcomes echoes past studies demonstrating that structured organizational change is vital for the seamless implementation of new clinical practices

(Kotter, 1996; Armenakis & Harris, 2009). Collectively, these results provide robust empirical support for the integrated use of leadership development and change management frameworks in healthcare settings, suggesting that a dual-focused approach can create synergistic benefits and drive sustained improvements in patient care. Ultimately, the evidence from this study not only validates the theoretical premise that effective leadership and change management are indispensable for healthcare quality improvement but also offers practical insights for administrators and policymakers. By prioritizing transformational leadership development and implementing comprehensive change management strategies, healthcare organizations can better navigate the complexities of modern care delivery and realize significant gains in patient outcomes.

Reference

Al-Abri, R. (2007). Managing change in healthcare. *Oman Medical Journal*, *22*(3), 9–10.

Alharbi, K. S. (2012). Treatment-Resistant Depression: Therapeutic Trends, Challenges, and Future Directions. *Patient Preference and Adherence*, *6*, 369–388.

Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press; Collier Macmillan.

Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, *18*(3), 19–31.

Bass, B. M., & Avolio, B. J. (1990). Developing transformational leadership: 1992 and beyond. *Journal of European Industrial Training*, *14*(5), 21–27.

Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership* (2nd ed.). Psychology Press.

Bate, M. R. (2009). Stellar, brown dwarf and multiple star properties from hydrodynamical simulations of star cluster formation. *Monthly Notices of the Royal Astronomical Society*, *392*(2), 590–616.

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs*, *27*(3), 759–769.

Boamah, S. A., Laschinger, H. K. S., Wong, C., & Clarke, S. (2018). Effect of transformational leadership on job satisfaction and patient safety outcomes. *Nursing Outlook*, *66*(2), 180 181.

Burns, J. M. (1978). *Leadership*. Harper & Row.

Centers for Disease Control and Prevention. (2019). *A change-management approach to closing care gaps in a federally qualified health center: A rural Kentucky case study*.

Clarke, S. (2013). Safety leadership: A meta-analytic review of transformational and transactional leadership styles as antecedents of safety behaviours. *Journal of Occupational and Organizational Psychology*, *86*(1), 22–49.

Crowell, D. M., & Boynton, B. (2020). *Complexity leadership: Nursing's role in health care delivery* (3rd ed.). F.A. Davis.

Cummings, S., Bridgman, T., & Brown, K. G. (2016). Unfreezing change as three steps: Rethinking Kurt Lewin's legacy for change management. *Human Relations*, *69*(1), 33–60.

Davies, H., Nutley, S., & Smith, P. (2000). *What works? Evidence-based policy and practice in public services*. The Policy Press.

Duggirala, M., Rajendran, C., & Anantharaman, R. N. (2008). Service quality, patient satisfaction and loyalty in Indian hospitals. *Benchmarking: An International Journal*, *15*(6), 669–683.

Grant, S., & Guthrie, S. (2018). What do we know about grant peer review in the health sciences? *F1000Research*, *6*, 1335.

Harrison, R., Fischer, S., Walpola, R. L., Chauhan, A., Babalola, T., Mears, S., & Le-Dao, H. (2021). Where do models for change management, improvement and implementation meet? A systematic review of the applications of change management models in healthcare. *Journal of Healthcare Leadership*, *13*, 85–108.

Harvard T.H. Chan School of Public Health. (2023). *Student Handbook 2022-2023*.

HealthCatalyst. (2023). *Top 7 Healthcare Outcome Measures*.

Igoe, E. (2021). Change management in healthcare - a scoping literature review. *e-mentor*, *2*(104), 23–33.

Institute for Strategy and Competitiveness. (2013). *What is Value-Based Health Care?*

Kotter, J. P. (2012). *Leading change*. Harvard Business Review Press.

Lewin, K. (1951). *Field theory in social science; selected theoretical papers*. Harper & Row.

McFadden, K. L., Henagan, S. C., & Gowen, C. R., III. (2009). The patient safety chain: Transformational leadership's effect on patient safety culture, initiatives, and outcomes. *Journal of Operations Management*, *27*(5), 390–404.

Mohammed, F., Elrehail, H., Eletter, S., Alsawafi, A., & Hossain, M. A. (2024). The impact of transformational leadership and change management on job performance in health information management: The mediating role of organizational citizenship behavior. *Heliyon*, *10*(1), e23418.

Mosadeghrad, A. M. (2014). Factors affecting medical service quality. *Iranian Journal of Public Health*,*43*(1), 210–220.

Parsons, M. L., & Cornett, P. A. (2011). Sustaining the pivotal organizational outcome: Magnet recognition. *Journal of Nursing Management*, *19*(2), 277–286.

Prosci. (2024). *ADKAR Model*.

Rafiq, S., Ali, M. A., Rafiq, M., & Malik, A. (2022). Transformational and Transactional Leadership as a Function of Employee Performance. *Journal of Business and Social Review in Emerging Economies*, *8*(2), 557–566.

Reinhardt, A. C., Leon, T. G., & Summers, L. O. (2022). The Transformational Leader in Nursing Practice – an approach to retain nursing staff. *Administrative Issues Journal: Connecting Education, Practice, and Research*, *12*(1), 2.

Saleem, H., & Naseem, S. (2022). Impact of change management on organizational performance: Mediating role of employee engagement. *Frontiers in Psychology*, *13*, 928303.

Sujan, M. A., Chessum, P., Rudd, M., Fitton, L., Inada-Kim, M., Spurgeon, P., & Cooke, M. W. (2015). Emergency Care Handover (ECHO study) across care boundaries: the need for

joint decision making and consideration[16] of psychosocial history. *Emergency Medicine Journal*, *32*(2), 112–118.

Tabish, S. A., & Nabil, S. (2015). Recent advances and future trends in traumatic brain injury. *Emergency Medicine*, *5*(1), 1–21.

Tate, D. F., Bigler, E. D., York, G. E., Newsome, M. R., Taylor, B. A., Mayer, A. R., Pugh, M. J., Presson, A. P., Ou, Z., Hovenden, E. S., Dimanche, J., Abildskov, T. J., Agarwal, R., Belanger, H. G., Betts, A. M., & Wilde, E. A. (2023). Persistent MRI Findings Unique to Blast and Repetitive Mild TBI: Analysis of the CENC/LIMBIC Cohort Injury Characteristics. *Military Medicine*.

Tekingündüz, S., Yıldız, E., & İnci, R. (2021). Relationships Between Nurses' Perceptions of Patient Safety Culture and Job Stress, Trust, Identification, and Leadership. *Journal of Health and Nursing Management*, *8*(3), 344–354. The Access Group. (2022). *HSC patient outcomes explained*.

Tsai, Y. (2011). Relationship between organizational culture, leadership behavior and job satisfaction. *BMC Health Services Research*, *11*(1), 98.

Vogus, T. J., & McClelland, L. E. (2016). When the customer is the patient: Lessons from healthcare research on patient satisfaction and service quality ratings. *Human Resource Management Review*, *26*(1), 37–49.

Wong, C. A., Cummings, G. G., & Ducharme, F. (2013). The relationship between nursing leadership and patient outcomes: A systematic review update. *Journal of Nursing Management*, *21*(5), 709–724.

World Health Organization. (2024). *Patient safety*.

Yousefi, M., Mashhadi, L., Akbarisari, A., & Ebrahimi, Z. (2022). Change Management in Hospitals: A Framework Analysis. *Iranian Journal of Medical Sciences*, *47*(3), 262–271