

The mediating role of Organizational Resilience in the relationship between leadership agility and Nurses' Empowerment in the Al-Madinah Health Cluster

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Abstract

This study examined the mediating role of organizational resilience in the relationship between leadership agility and nurses' empowerment in the Al-Madinah Health Cluster. A quantitative, cross-sectional research design was adopted, and data were collected from 343 registered nurses working in tertiary hospitals, general hospitals, and primary healthcare centres in the Al-Madinah region. A structured questionnaire was used to measure leadership agility, organizational resilience, and nurses' empowerment, while Partial Least Squares Structural Equation Modelling was applied to assess the measurement and structural models. The findings showed that leadership agility did not have a statistically significant direct effect on nurses' empowerment. However, leadership agility had a strong positive effect on organizational resilience, and organizational resilience had a strong positive effect on nurses' empowerment. The indirect effect of leadership agility on nurses' empowerment through organizational resilience was also positive and statistically significant, confirming an indirect-only mediation pattern. These findings indicate that leadership agility contributes to nurses' empowerment primarily by strengthening the organization's capacity to anticipate challenges, adapt to disruption, maintain operational continuity, and support staff during changing conditions. The study concludes that healthcare organizations should integrate agile leadership development with resilience-building initiatives, including improved communication, flexible resource allocation, organizational learning, emergency preparedness, and greater staff participation in decision-making. This combined approach can provide more sustainable support for nurses' autonomy, involvement, and professional influence within complex healthcare environments.

Key Words: Leadership Agility, Organizational Resilience, Nurses Empowerment, Healthcare Management, Al-Madinah Health Cluster.

1. Introduction

Healthcare organizations operate in complex and rapidly changing environments shaped by technological advancement, workforce pressures, evolving patient needs, and recurrent operational disruptions. These conditions require leaders who can respond quickly, adjust decisions, and support staff while maintaining continuity and quality of care. Leadership agility has therefore become increasingly important in healthcare because it enables

leaders to interpret change, adapt their approaches, encourage collaboration, and mobilize employees toward organizational goals (Syamsir et al., 2025). In nursing settings, agile leadership is reflected in flexible decision-making, open communication, staff participation, responsiveness to clinical challenges, and the ability to modify practices when conditions change (Abd El Fattah et al., 2026). Such behaviours can strengthen nurses' involvement and improve their capacity to contribute to organizational activities and patient-care decisions (Ali & Ali, 2024). However, agile leadership may not directly produce empowerment unless it is supported by organizational systems that provide nurses with adequate resources, information, authority, and opportunities for professional participation.

Nurses' empowerment is essential for effective healthcare delivery because empowered nurses are more capable of exercising autonomy, participating in decision-making, accessing organizational resources, and influencing work-related outcomes. Structural empowerment provides nurses with the support, information, resources, and opportunities required to perform their roles effectively, while psychological empowerment strengthens their perceptions of competence, meaning, autonomy, and professional impact (Abdullatif Ibrahim, 2023). Empowering leadership has been associated with higher work engagement and affective commitment among nurses, indicating that leadership practices are important in shaping nurses' attitudes and workplace experiences (Al Otaibi et al., 2023). Structural and psychological empowerment have also been linked to stronger organizational commitment among nursing staff (Albasal et al., 2022). Nevertheless, nurses may remain insufficiently empowered in healthcare institutions characterized by hierarchical decision-making, restricted access to resources, weak managerial support, or limited participation in organizational processes. These conditions suggest that the relationship between leadership agility and nurses' empowerment may depend on the broader capacity of the organization to remain adaptive and supportive during periods of change.

Organizational resilience may explain how leadership agility is translated into greater empowerment among nurses. Organizational resilience refers to the ability of an organization to anticipate challenges, adapt to changing circumstances, absorb disruptions, recover from setbacks, and continue delivering essential services. In healthcare, resilience involves preparedness, organizational learning, effective communication, flexible resource use, and coordinated responses to uncertainty (Ignatowicz et al., 2023). Leadership practices play an important role in developing these capabilities, as supportive and adaptive leaders can strengthen employees' resilience and involvement during demanding conditions (Abd-EL Aliem & Abou Hashish, 2021). Leadership agility may enhance resilience by enabling rapid problem-solving, flexible decision-making, innovation, and timely resource coordination (Raharja, 2024). In turn, resilient organizations can provide nurses with stable support systems, access to resources, responsive communication, and greater opportunities to participate in decisions. Evidence also suggests that structural empowerment can strengthen organizational resilience by improving employee access, involvement, and capacity to respond effectively to change (van den Berg et al., 2022).

These relationships are particularly relevant in the Saudi healthcare sector, where extensive transformation has increased the need for adaptable leadership, workforce empowerment, and organizational preparedness. Saudi healthcare organizations are expected to improve operational continuity, technological readiness, and institutional resilience while supporting the professional development of healthcare personnel (Kanaan et al., 2025). Research conducted among Saudi nurses has highlighted the importance of structural empowerment and resilience in shaping workplace experiences and intentions to remain in the profession (Al-Otaibi et al., 2024). However, limited empirical research has examined whether organizational resilience mediates the relationship between leadership agility and nurses' empowerment, particularly within the Al-Madinah Health Cluster. Therefore, this study investigates the effect of leadership agility on nurses' empowerment and examines the mediating role of organizational resilience. The study contributes to healthcare leadership literature by explaining the organizational mechanism through which agile leadership may create conditions that strengthen nurses' autonomy, participation, and professional influence.

2. Literature Review

2.1 Theoretical Discussion

The relationships among leadership agility, organizational resilience, and nurses' empowerment can be explained through Dynamic Capabilities Theory and Kanter's Theory of Structural Empowerment. Dynamic Capabilities Theory emphasizes the ability of organizations to sense environmental changes, mobilize resources, and reconfigure internal processes in response to uncertainty. Leadership agility reflects an important managerial capability within this perspective because agile leaders interpret emerging challenges, revise priorities, coordinate timely responses, and encourage flexible action across organizational levels. In healthcare settings, these capabilities are particularly important because hospitals continuously face technological developments, workforce shortages, policy reforms, clinical emergencies, and changing patient demands. Agile leaders respond to these pressures through rapid decision-making, open communication, staff involvement, and continuous adjustment of plans and practices (Syamsir et al., 2025). Leadership agility is also associated with adaptive performance because it enables leaders and employees to modify their behaviour according to changing organizational conditions

(Buttigieg et al., 2023). Within nursing environments, agile leadership can promote stronger collaboration, workplace recognition, and staff participation by creating more responsive relationships between nurse managers and frontline nurses (Abd El Fattah et al., 2026). From the dynamic capabilities perspective, leadership agility is therefore expected to strengthen organizational resilience by helping healthcare organizations anticipate threats, reallocate resources, and maintain essential operations during disruption.

Organizational resilience refers to an organization's ability to anticipate challenges, absorb pressure, adapt to change, recover from setbacks, and continue functioning effectively. In healthcare, resilience includes preparedness, organizational learning, coordination, communication, resource flexibility, and the ability to preserve service continuity during emergencies and operational uncertainty (Ignatowicz et al., 2023). Resilient healthcare organizations are not merely able to survive crises but can also learn from disruption and improve their future adaptive capacity. Leadership plays a central role in this process because leaders influence how risks are interpreted, how resources are distributed, and how employees respond to uncertainty. Transformational leadership practices among nurse managers have been shown to strengthen nurses' organizational resilience and job involvement, demonstrating that supportive and adaptive leadership contributes to resilience development (Abd-EL Aliem & Abou Hashish, 2021). Leadership agility may provide a similar effect by enabling rapid problem-solving, flexible coordination, and learning-oriented responses to change. Dynamic capabilities research further indicates that organizations become more resilient when they can reconfigure resources and adjust operational practices in response to emerging conditions (Akpan et al., 2022).

Kanter's Theory of Structural Empowerment explains nurses' empowerment as an outcome of access to organizational opportunities, information, resources, support, and formal or informal power. In nursing practice, structural empowerment allows nurses to participate in decisions, exercise professional autonomy, influence workplace processes, and obtain the resources needed to perform effectively. Structural conditions also strengthen psychological empowerment by increasing nurses' feelings of competence, meaning, autonomy, and professional impact (Abdullatif Ibrahim, 2023). Empowering leadership has been associated with stronger work engagement and affective commitment among nurses, showing that leadership practices can shape how nurses experience autonomy and involvement in their organizations (Al Otaibi et al., 2023). However, empowerment is difficult to sustain when organizational systems are unstable, poorly coordinated, or unable to provide reliable support during periods of uncertainty. Organizational resilience may therefore serve as the mechanism through which agile leadership is translated into supportive and empowering workplace conditions. Resilient organizations can maintain access to resources, communication, learning opportunities, and staff participation during disruption. Evidence that structural empowerment strengthens organizational resilience also suggests that empowerment and resilience are closely connected organizational capabilities (van den Berg et al., 2022). Integrating Dynamic Capabilities Theory with Structural Empowerment Theory therefore provides a coherent explanation for why leadership agility may first enhance organizational resilience, which subsequently supports nurses' empowerment.

2.2 Hypotheses Development

2.2.1 Leadership Agility and Nurses' Empowerment

Leadership agility is expected to positively influence nurses' empowerment because agile leaders promote flexibility, participation, open communication, and responsive decision-making. Agile leaders are more likely to involve nurses in solving workplace problems, encourage the expression of professional views, and adapt their leadership style according to changing clinical and team requirements. These behaviours can strengthen nurses' access to information, improve their participation in organizational decisions, and enhance their confidence in influencing patient-care processes. Research among nurses has shown that strategic agility and supportive leadership practices are associated with greater workplace recognition and stronger perceptions of professional value (Abd El Fattah et al., 2026). Agile leadership has also been linked to nurses' connectivity and sustainable workplace practices because it improves collaboration and communication between leaders and nursing staff (Ali & Ali, 2024). Perceived organizational agility has similarly been associated with psychological empowerment among nurse managers, suggesting that adaptive organizational behaviour can strengthen employees' feelings of autonomy, competence, and influence (Elghannam, 2024). More broadly, empowering leadership improves nurses' work engagement and affective commitment by providing support and opportunities to contribute to decisions (Al Otaibi et al., 2023). Agile leadership may therefore create an empowering work climate in which nurses are encouraged to respond proactively to change rather than simply comply with established instructions. Based on this reasoning, the following hypothesis is proposed:

H1: Leadership agility has a significant positive effect on nurses' empowerment in the Al-Madinah Health Cluster.

2.2.2 Leadership Agility and Organizational Resilience

Leadership agility is expected to strengthen organizational resilience because agile leaders help organizations detect change, adjust priorities, reorganize resources, and coordinate rapid responses to disruption. Healthcare organizations require leaders who can make timely decisions while preserving communication, staff confidence,

and continuity of care during uncertain circumstances. Agile leadership contributes to these outcomes by encouraging flexible planning, collaborative problem-solving, experimentation, and organizational learning. Leadership agility has been associated with adaptive performance because agile leaders help employees adjust their behaviour and maintain effectiveness when environmental demands change (Buttigieg et al., 2023). Empirical evidence also indicates that leadership agility enhances organizational resilience by improving strategic responsiveness and reducing rigid reactions to emerging challenges (Raharja, 2024). Transformational leadership has similarly been shown to strengthen organizational resilience through the creation of adaptive cultures that support learning and flexibility (Madi Odeh et al., 2023). Dynamic capabilities research further demonstrates that the ability to sense environmental change and reconfigure resources is fundamental to organizational resilience (Akpan et al., 2022). Within healthcare crises, agile leadership is especially important because leaders must balance operational continuity, resource constraints, staff well-being, and rapidly changing patient-care demands. Agile leadership has therefore been identified as an important contributor to sustainable healthcare resilience during periods of crisis and uncertainty (Saadi, 2025). These arguments support the following hypothesis:

H2: Leadership agility has a significant positive effect on organizational resilience in the Al-Madinah Health Cluster.

2.2.3 Organizational Resilience and Nurses' Empowerment

Organizational resilience is expected to positively influence nurses' empowerment because resilient healthcare organizations create conditions that support adaptation, communication, learning, and access to essential resources. Nurses are more likely to feel empowered when their organizations provide reliable information, managerial support, professional opportunities, and sufficient resources to manage changing clinical demands. Resilient organizations also encourage learning from setbacks, which allows nurses to identify risks, express concerns, and contribute to organizational improvement without fear of blame. Structural empowerment strengthens nurses' psychological empowerment by improving their access to information, resources, support, and professional opportunities (Abdullatif Ibrahim, 2023). Structural and psychological empowerment have also been associated with stronger organizational commitment among nursing staff, indicating that supportive organizational conditions enhance nurses' involvement and attachment to their workplaces (Albasal et al., 2022). Evidence from Saudi healthcare suggests that structural empowerment and resilience are important factors shaping nurses' workplace experiences and intentions to remain in their organizations (Al-Otaibi et al., 2024). Resilient organizations may therefore empower nurses by maintaining supportive systems even when the organization is exposed to uncertainty, workload pressure, or operational disruption. Research has also shown that structural empowerment can strengthen organizational resilience by improving employee access, participation, and capacity to contribute to organizational responses (van den Berg et al., 2022). Organizational resilience can thus provide the stable but flexible environment required for nurses to exercise autonomy, participate in decisions, and influence healthcare practices. Accordingly, the following hypothesis is proposed:

H3: Organizational resilience has a significant positive effect on nurses' empowerment in the Al-Madinah Health Cluster.

2.2.4 Mediating Role of Organizational Resilience

Organizational resilience is expected to mediate the relationship between leadership agility and nurses' empowerment because agile leadership may influence nurses primarily by improving the organization's adaptive systems rather than through direct interpersonal behaviour alone. Agile leaders can recognize emerging challenges, revise strategies, communicate rapidly, and coordinate resources, but these leadership behaviours must become embedded in organizational structures before they can consistently improve nurses' access to information, support, and decision-making opportunities. Leadership agility may build resilience by developing flexible procedures, strengthening team preparedness, encouraging learning, and ensuring that resources can be reallocated during disruption. These resilient conditions can subsequently empower nurses by enabling them to participate more confidently in decisions, access organizational support, and maintain professional autonomy during uncertain circumstances. Leadership and empowerment have been identified as strategic contributors to organizational resilience because adaptive leadership and workforce participation jointly strengthen the organization's capacity to respond to change (Dasuki et al., 2025). Empowering leadership has also been linked to self-efficacy and organizational resilience, indicating that leadership effects may operate through supportive organizational conditions that improve employee confidence and adaptive capacity (Karagozoglu & Ozan, 2022). In healthcare organizations, resilient leadership has been shown to contribute to organizational resilience through mechanisms related to nurses' well-being and organizational support (Kyambade & Namatovu, 2026). Leadership capabilities have also been identified as explanatory mechanisms connecting organizational resilience with broader organizational outcomes (Zahari et al., 2022). These findings suggest that leadership agility may strengthen nurses' empowerment most effectively when it first develops a resilient organization capable of maintaining communication, learning, support, and resource availability. Therefore, the following hypothesis is proposed:

H4: Organizational resilience mediates the relationship between leadership agility and nurses' empowerment in the Al-Madinah Health Cluster.

3. Methodology

This study employed a quantitative, cross-sectional, and deductive research design to examine the relationships among leadership agility, organizational resilience, and nurses' empowerment in the Al-Madinah Health Cluster. The quantitative approach was appropriate because the study measured predefined latent constructs and statistically tested hypotheses derived from the proposed theoretical framework. A cross-sectional design was used to collect information from participants at a single point in time, while the deductive approach enabled the examination of the direct effects of leadership agility and organizational resilience on nurses' empowerment, as well as the indirect effect of leadership agility through organizational resilience. Partial Least Squares Structural Equation Modelling was selected because it permits the simultaneous assessment of multiple relationships among latent variables, incorporates measurement error, and is suitable for evaluating mediation models.

The target population comprised all registered nurses employed in tertiary hospitals, general hospitals, and primary healthcare centres operating under the supervision of the Saudi Ministry of Health in the Al-Madinah region. According to the Al-Madinah Health Cluster Annual Report 2024, the population consisted of 6,241 registered nurses. The required sample size was determined using the Krejcie and Morgan sample-size guidelines, which indicated a minimum of 361 participants at a 95% confidence level and a 5% margin of error. To account for incomplete responses and non-response, 440 questionnaires were distributed. A total of 400 questionnaires were returned, of which 57 were excluded because they were incomplete. Consequently, 343 complete and usable questionnaires were retained for the final statistical analysis. The study population and sample determination procedures were consistent with the thesis sampling framework.

A stratified random sampling procedure was used to ensure representation of nurses working across different types of healthcare facilities, clinical departments, work shifts, and professional roles. The sampling frame was obtained with the assistance of the Human Resources Department of the Al-Madinah Health Cluster and included information on nurses' institutional placement, clinical unit, and employment tenure. Participants were drawn from primary healthcare centres, general hospitals, and specialist tertiary hospitals. Eligible respondents were licensed registered nurses who had worked continuously in the same institution for at least one year and were actively involved in direct patient care or unit-level clinical coordination. Nurses working exclusively in administrative, academic, support, or other non-clinical positions were excluded because they had limited direct exposure to the leadership, resilience, and empowerment conditions examined in the study. Random selection within the identified strata was intended to reduce selection bias and obtain a sample reflecting the diversity of the nursing workforce.

Data were collected using a structured, closed-ended questionnaire adapted from established healthcare leadership, organizational resilience, and nursing empowerment measures. The paper focused on three sections of the original thesis instrument. Leadership agility was measured using ten items assessing leaders' flexibility, responsiveness, inclusive decision-making, communication, adaptability, risk anticipation, and capacity to manage competing priorities. Organizational resilience was measured using ten items covering preparedness and anticipation, adaptive capacity, organizational learning, and recovery from disruptions. Nurses' empowerment was initially measured using twelve items reflecting access to opportunities, information, support, resources, participation in decisions, and professional influence. All construct items were rated on a five-point Likert scale ranging from 1, representing "strongly disagree," to 5, representing "strongly agree." The questionnaire also collected demographic and professional information to describe the characteristics of the participating nurses. The operationalization of empowerment was informed by the structural empowerment perspective, which views access to information, support, resources, and professional opportunities as essential conditions for nurses' empowerment (Abdullatif Ibrahim, 2023).

Several procedures were undertaken to establish the clarity, validity, and reliability of the research instrument before the main survey. The questionnaire was reviewed to ensure that the items were aligned with the conceptual definitions of leadership agility, organizational resilience, and nurses' empowerment and were appropriate for the Saudi healthcare context. A pilot test was conducted with 30 female staff nurses from an Al-Madinah Health Cluster hospital that was not included in the final study sample. The pilot participants represented different professional roles, clinical departments, and levels of experience. Their feedback was used to assess the questionnaire's clarity, readability, sequence, linguistic accessibility, and cultural appropriateness. Only minor modifications were required, including the rephrasing of one leadership-agility item to improve its contextual relevance. The pilot participants were excluded from the main study, and the reliability analysis showed that all construct scales exceeded the accepted Cronbach's alpha threshold of 0.70.

Data collection was undertaken over six weeks using both electronic and printed questionnaires to accommodate nurses' different working conditions and access preferences. Electronic survey links were distributed through institutional communication channels, while printed questionnaires were made available where digital participation

was less practical. Coordination with healthcare administrators and nursing leaders enabled the survey to reach nurses across different facilities, departments, and work shifts. Participation was voluntary, and respondents received information about the study's purpose and their right to decline or withdraw without adverse consequences. Informed consent was obtained before participation, and the questionnaires were completed anonymously to protect confidentiality and reduce concerns about reporting perceptions of leadership and organizational practices. Recruitment and data collection commenced only after the relevant ethical and organizational approvals had been obtained.

The data were screened and analysed using descriptive statistics and Partial Least Squares Structural Equation Modelling through SmartPLS. Descriptive analysis included the mean, standard deviation, skewness, and kurtosis of the three constructs. The PLS-SEM analysis was conducted in two stages. First, the measurement model was assessed using indicator loadings, Cronbach's alpha, composite reliability, average variance extracted, and discriminant validity. Items that did not demonstrate satisfactory measurement quality were removed before estimating the final model. Second, the structural model was evaluated through the coefficient of determination, path coefficients, t-statistics, and p-values. Bootstrapping was used to determine the statistical significance of the direct and indirect effects. The mediating role of organizational resilience was assessed by estimating the indirect path from leadership agility to nurses' empowerment through organizational resilience and comparing it with the direct relationship between leadership agility and nurses' empowerment. This analytical procedure enabled the study to determine whether leadership agility influenced nurses' empowerment directly or primarily through the development of organizational resilience.

4. Findings

This section presents the empirical findings of the study based on the responses of 343 nurses working in the Al-Madinah Health Cluster. The analysis begins with the descriptive statistics and normality assessment of leadership agility, organizational resilience, and nurses' empowerment. It then evaluates the measurement model through reliability, convergent validity, and discriminant validity before assessing the structural model and testing the proposed direct and mediating relationships. The results provide the statistical basis for determining the role of organizational resilience in the relationship between leadership agility and nurses' empowerment.

As shown in Table 1, the descriptive analysis was based on responses from 343 nurses and examined the mean levels and variability of leadership agility, organizational resilience, and nurses' empowerment. Organizational resilience recorded the highest mean score ($M = 3.376$, $SD = 0.723$), followed closely by leadership agility ($M = 3.321$, $SD = 0.745$), whereas nurses' empowerment recorded the lowest mean score ($M = 3.195$, $SD = 0.465$). These results indicate that respondents generally reported moderate perceptions across all three constructs, with organizational resilience perceived somewhat more positively than leadership agility and nurses' empowerment. The standard deviation values ranged from 0.465 to 0.745, showing that leadership agility had the greatest variation in respondents' perceptions, while nurses' empowerment showed the least variation and therefore the highest degree of response consistency.

Table 1: Summary of Descriptive Analysis

Construct	N	Mean	Std. Deviation
LA	343	3.321	0.745
OR	343	3.376	0.723
NE	343	3.195	0.465

LA: leadership agility; OR: Organizational Resilience; NE: Nurses' Empowerment

As presented in Table 2, the skewness values for leadership agility, organizational resilience, and nurses' empowerment were -0.166 , -0.173 , and -0.057 , respectively, while the corresponding kurtosis values were 0.225, 0.274, and 0.524. All skewness and kurtosis statistics were close to zero and remained within commonly accepted limits for assessing univariate normality. The negative skewness values indicate only a very slight concentration of responses toward the higher end of the measurement scale, whereas the positive kurtosis values suggest marginally more peaked distributions than a perfectly normal distribution. Overall, the results demonstrate that the distributions of the three constructs did not exhibit substantial skewness or kurtosis, indicating that the data were approximately normally distributed and suitable for the subsequent multivariate analysis.

Table 2: Normality test

Construct	N	Skewness	Kurtosis
LA	343	-0.166	0.225

OR	343	-0.173	0.274
NE	343	-0.057	0.524

LA: leadership agility; OR: Organizational Resilience; NE: Nurses' Empowerment

Figure 1 presents the initial measurement model used to evaluate the relationships between the latent constructs and their respective indicators. The model included ten indicators for leadership agility, ten indicators for organizational resilience, and twelve indicators for nurses' empowerment. Leadership agility and organizational resilience demonstrated strong and consistent indicator performance, whereas several nurses' empowerment indicators showed weak or negative loadings. These poorly performing indicators reduced the reliability and convergent validity of the nurses' empowerment construct and therefore required further assessment. Based on the initial measurement-model results, the indicators that failed to meet acceptable measurement standards were removed before the model was re-estimated to obtain the final measurement model.

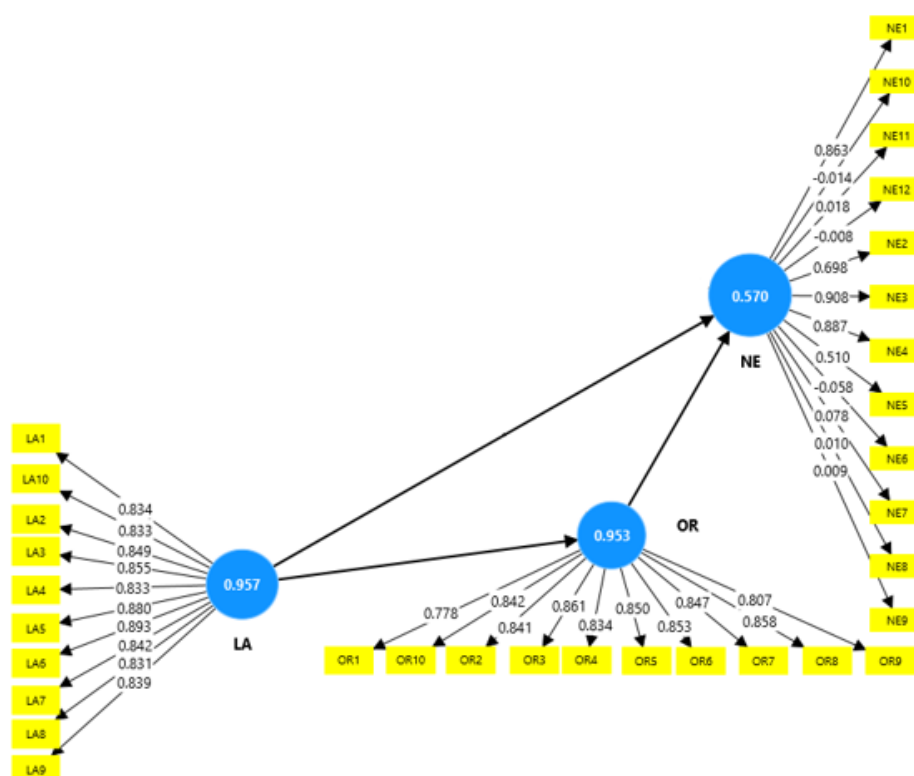


Figure 1: Evaluation of Initial Model measurements

As presented in Table 3, the initial measurement model demonstrated satisfactory reliability and convergent validity for leadership agility and organizational resilience, but substantial measurement problems were identified for nurses' empowerment. The leadership agility items recorded strong factor loadings ranging from 0.831 to 0.893, while the construct achieved a Cronbach's alpha of 0.957, composite reliability of 0.963, and an average variance extracted value of 0.721. Similarly, the organizational resilience items produced acceptable loadings ranging from 0.778 to 0.861, with a Cronbach's alpha of 0.953, composite reliability of 0.959, and an AVE of 0.701. These results indicate that the indicators of leadership agility and organizational resilience consistently represented their respective constructs and explained sufficient variance in the measured items. In contrast, nurses' empowerment showed inadequate internal consistency and convergent validity, with a Cronbach's alpha of 0.570, composite reliability of 0.631, and an AVE of 0.259. Although NE1, NE3, and NE4 recorded strong loadings and NE2 showed a moderately acceptable loading, several indicators displayed extremely low or negative loadings, particularly NE6, NE7, NE8, NE9, NE10, NE11, and NE12. NE5 also recorded a comparatively weak loading of 0.510. These findings indicated that several nurses' empowerment items did not adequately represent the intended construct and weakened its overall measurement quality. Consequently, the poorly performing indicators were removed, and the measurement model was re-estimated before proceeding with the structural-model assessment.

Table 3: Construct Reliability and Validity - Initial Model measurements

	Loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
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LA1	0.834			
LA10	0.833			
LA2	0.849			
LA3	0.855			
LA4	0.833	0.957	0.963	0.721
LA5	0.880			
LA6	0.893			
LA7	0.842			
LA8	0.831			
LA9	0.839			
NE1	0.863			
NE10	-0.014			
NE11	0.018			
NE12	-0.008			
NE2	0.698			
NE3	0.908	0.570	0.631	0.259
NE4	0.887			
NE5	0.510			
NE6	-0.058			
NE7	0.078			
NE8	0.010			
NE9	0.009			
OR1	0.778			
OR10	0.842			
OR2	0.841			
OR3	0.861			
OR4	0.834	0.953	0.959	0.701
OR5	0.850			
OR6	0.853			
OR7	0.847			
OR8	0.858			
OR9	0.807			

Figure 2 presents the final measurement model after the removal of the poorly performing indicators from the nurses' empowerment construct. In the revised model, leadership agility and organizational resilience retained their original indicators, while nurses' empowerment was represented only by the indicators that met the required measurement standards. The final model showed improved measurement quality and provided clearer evidence that the retained indicators adequately represented their respective latent constructs. Based on these results, the final measurement model was considered acceptable for the subsequent assessment of discriminant validity and structural relationships.

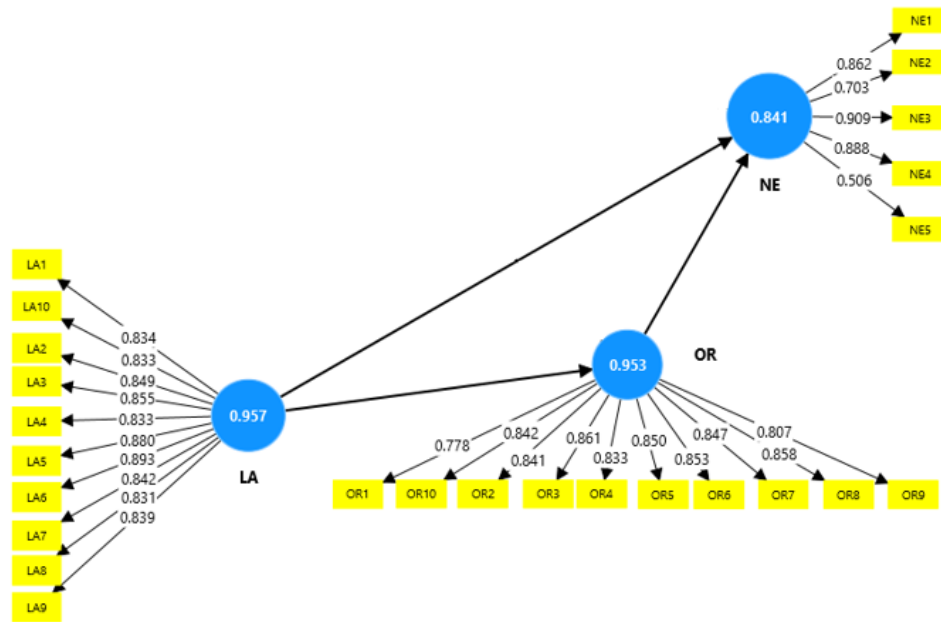


Figure 2: Evaluation of Final Model measurements

As shown in Table 4, the final measurement model demonstrated satisfactory internal consistency reliability and convergent validity for leadership agility, organizational resilience, and nurses' empowerment after the poorly performing empowerment indicators were removed. Leadership agility retained all ten indicators, with factor loadings ranging from 0.831 to 0.893, a Cronbach's alpha of 0.957, composite reliability of 0.963, and an average variance extracted value of 0.721. Organizational resilience also retained all ten indicators, which recorded loadings between 0.778 and 0.861, while the construct achieved a Cronbach's alpha of 0.953, composite reliability of 0.959, and an AVE of 0.701. These values confirm that the indicators of both constructs demonstrated strong internal consistency and explained a substantial proportion of the variance in their respective latent variables. Following the removal of NE6 through NE12, the measurement properties of nurses' empowerment improved considerably, with Cronbach's alpha increasing from 0.570 to 0.841, composite reliability rising from 0.631 to 0.888, and AVE increasing from 0.259 to 0.622. The retained empowerment indicators recorded loadings ranging from 0.506 to 0.909. Although NE5 had a comparatively low loading of 0.506, it was retained because the construct-level reliability and AVE exceeded the accepted thresholds, indicating that its inclusion did not compromise the overall measurement quality. Therefore, the final measurement model provided adequate evidence of reliability and convergent validity and was considered suitable for the subsequent discriminant-validity and structural-model assessments.

Table 4: Construct Reliability and Validity – Final Model measurements

	Loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
LA1	0.834	0.957	0.963	0.721
LA10	0.833			
LA2	0.849			
LA3	0.855			
LA4	0.833			
LA5	0.880			
LA6	0.893			
LA7	0.842			
LA8	0.831			
LA9	0.839			
NE1	0.862	0.841	0.888	0.622

NE2	0.703			
NE3	0.909			
NE4	0.888			
NE5	0.506			
OR1	0.778			
OR10	0.842			
OR2	0.841			
OR3	0.861			
OR4	0.833	0.953	0.959	0.701
OR5	0.850			
OR6	0.853			
OR7	0.847			
OR8	0.858			
OR9	0.807			

As presented in Table 5, discriminant validity was assessed using the heterotrait–monotrait ratio of correlations. The HTMT value between leadership agility and nurses’ empowerment was 0.729, while the value between leadership agility and organizational resilience was 0.707. The highest HTMT value was observed between organizational resilience and nurses’ empowerment at 0.843. All three values were below the commonly accepted threshold of 0.90, indicating that the constructs were empirically distinct from one another. Although the relationship between organizational resilience and nurses’ empowerment was comparatively stronger than the other construct relationships, its HTMT value remained within the acceptable range. Accordingly, the results provide adequate evidence of discriminant validity and confirm that leadership agility, organizational resilience, and nurses’ empowerment measured conceptually separate constructs in the final measurement model.

Table 5: The heterotrait-monotrait ratio of correlations (HTMT)

	LA	NE	OR
LA			
NE	0.729		
OR	0.707	0.843	

LA: leadership agility; OR: Organizational Resilience; NE: Nurses’ Empowerment

As presented in Table 6, discriminant validity was further assessed using the Fornell–Larcker criterion, which compares the square root of the average variance extracted for each construct with its correlations with the other constructs. The diagonal values for leadership agility and organizational resilience were 0.849 and 0.837, respectively, and both exceeded their corresponding inter-construct correlations. The correlation between leadership agility and nurses’ empowerment was 0.693, while leadership agility and organizational resilience recorded a correlation of 0.667. The strongest relationship was observed between organizational resilience and nurses’ empowerment, with a correlation of 0.799. Based on the values reported in Table 6, the diagonal values were higher than the corresponding correlations, suggesting that each construct shared more variance with its own indicators than with the other constructs. Accordingly, the reported results support the discriminant validity of leadership agility, organizational resilience, and nurses’ empowerment.

Table 6: Latent Variable Correlations (Fornell-Larcker criteria)

	LA	NE	OR
LA	0.849		
NE	0.693	0.889	
OR	0.667	0.799	0.837

LA: leadership agility; OR: Organizational Resilience; NE: Nurses’ Empowerment

Figure 3 presents the path model significance results for the relationships among leadership agility, organizational resilience, and nurses’ empowerment. The figure shows that leadership agility had a significant positive effect on organizational resilience, and organizational resilience, in turn, had a significant positive effect on nurses’ empowerment. By contrast, the direct path from leadership agility to nurses’ empowerment was not statistically significant. These results indicate that organizational resilience served as the key explanatory mechanism through which leadership agility influenced nurses’ empowerment. Accordingly, the structural model provides visual

support for the hypothesis-testing results and reinforces the conclusion that the effect of leadership agility on nurses' empowerment was transmitted indirectly through organizational resilience.

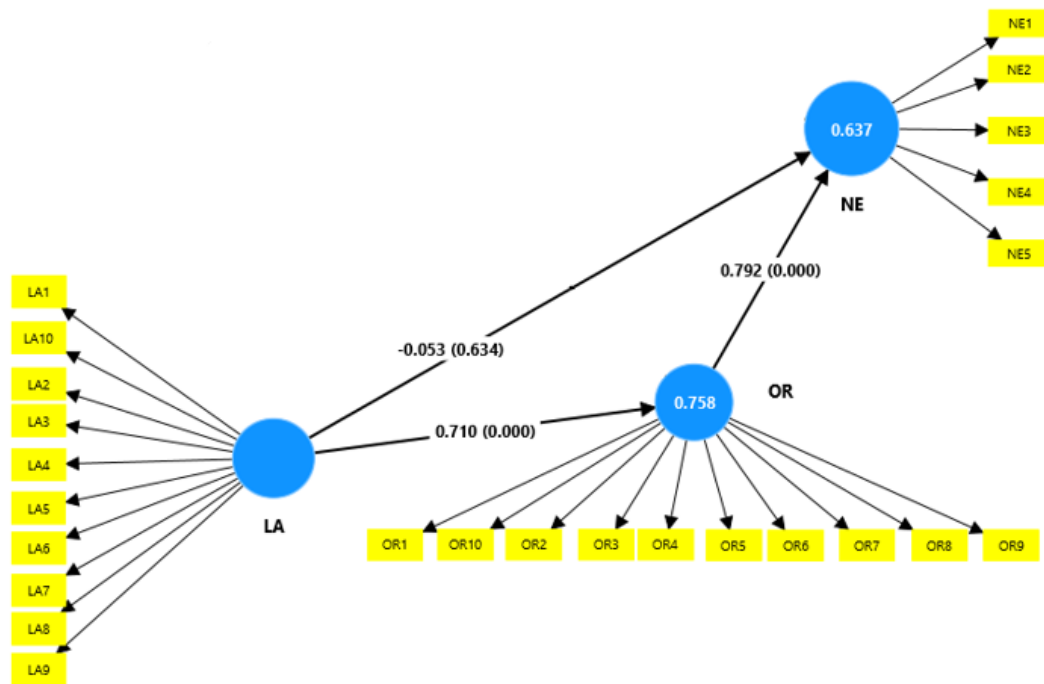


Figure 3: Path Model Significance Results

As presented in Table 7, the coefficient of determination was used to assess the explanatory power of the structural model for the endogenous constructs. Nurses' empowerment recorded an R^2 value of 0.640 and an adjusted R^2 value of 0.637, indicating that leadership agility and organizational resilience jointly explained 64.0% of the variance in nurses' empowerment. Organizational resilience recorded an R^2 value of 0.759 and an adjusted R^2 value of 0.758, showing that leadership agility explained 75.9% of the variance in organizational resilience. These values indicate substantial explanatory power for both endogenous constructs, with the model demonstrating particularly strong predictive capacity for organizational resilience. The small differences between the R^2 and adjusted R^2 values also suggest that the model estimates were stable and were not materially inflated by the number of predictors included in the structural model.

Table 7: Coefficient of Determination (R^2)

	R-square	R-square adjusted
NE	0.640	0.637
OR	0.759	0.758

LA: leadership agility; OR: Organizational Resilience; NE: Nurses' Empowerment

As presented in Table 8, the direct relationship between leadership agility and nurses' empowerment was negative and statistically insignificant ($\beta = -0.049$, $t = 0.452$, $p = 0.651$). This finding indicates that leadership agility did not directly predict nurses' empowerment in the study sample; therefore, H1 was rejected. In contrast, leadership agility had a positive and statistically significant effect on organizational resilience ($\beta = 0.710$, $t = 10.133$, $p < 0.001$), demonstrating that higher levels of leadership agility were associated with stronger organizational resilience. Accordingly, H2 was accepted. Organizational resilience also had a strong positive and statistically significant effect on nurses' empowerment ($\beta = 0.792$, $t = 11.659$, $p < 0.001$), indicating that resilient organizational conditions substantially enhanced nurses' perceptions of empowerment. Consequently, H3 was accepted. Overall, the direct-effect results suggest that leadership agility contributed to nurses' empowerment primarily through its strong influence on organizational resilience rather than through a significant direct pathway.

Table 8: Direct Hypotheses

Hypotheses	Beta	Sample Mean (M)	SD	T statistics	P values	Decision
LA -> NE	-0.049	-0.045	0.108	0.452	0.651	Rejected
LA -> OR	0.710	0.712	0.070	10.133	0.000	Accepted
OR -> NE	0.792	0.791	0.068	11.659	0.000	Accepted

LA: leadership agility; OR: Organizational Resilience; NE: Nurses' Empowerment

As presented in Table 9, the indirect effect of leadership agility on nurses' empowerment through organizational resilience was positive and statistically significant ($\beta = 0.562$, $t = 7.159$, $p < 0.001$). This result indicates that leadership agility enhanced nurses' empowerment by strengthening the organizational capacity to anticipate challenges, adapt to disruptions, maintain operational stability, and support employees during changing conditions. Accordingly, H4 was accepted, confirming that organizational resilience significantly mediated the relationship between leadership agility and nurses' empowerment. When this significant indirect effect is considered together with the insignificant direct relationship between leadership agility and nurses' empowerment reported in Table 8, the findings indicate an indirect-only mediation pattern. In other words, leadership agility did not independently increase nurses' empowerment but exerted its influence through the development of a resilient organizational environment.

Table 9: Indirect Hypothesis

Hypotheses	Beta	Sample Mean (M)	SD	T statistics	P values	Decision
LA -> OR -> NE	0.562	0.564	0.079	7.159	0.000	Accepted

LA: leadership agility; OR: Organizational Resilience; NE: Nurses' Empowerment

5. Discussion

The study examined the mediating role of organizational resilience in the relationship between leadership agility and nurses' empowerment in the Al-Madinah Health Cluster. The findings showed that leadership agility did not have a statistically significant direct effect on nurses' empowerment, while it exerted a strong positive effect on organizational resilience. Organizational resilience also demonstrated a strong positive effect on nurses' empowerment and significantly mediated the relationship between leadership agility and empowerment. Taken together, these results indicate that agile leadership may not automatically empower nurses unless it is translated into resilient organizational systems, supportive work arrangements, and adaptive practices that nurses can experience in their daily work. This pattern is important in healthcare settings because leadership behaviour is often filtered through organizational structures, policies, communication mechanisms, and access to resources before it influences frontline employees. Agile leaders may therefore contribute to empowerment indirectly by strengthening the organization's capacity to anticipate disruption, adapt processes, maintain service continuity, and support staff under changing clinical conditions.

The insignificant direct relationship between leadership agility and nurses' empowerment suggests that flexible and responsive leadership behaviour alone may be insufficient to increase nurses' perceptions of autonomy, influence, and access to organizational resources. Although agile leaders may communicate openly, involve staff in decisions, and respond quickly to emerging challenges, nurses may not interpret these behaviours as empowerment unless they are supported by formal opportunities, reliable information, sufficient resources, and meaningful participation in organizational processes. This finding differs from studies showing that empowering and adaptive leadership can directly enhance nurses' engagement, commitment, and psychological empowerment (Al Otaibi et al., 2023). It also differs from evidence indicating that organizational agility and flexible managerial behaviour are positively associated with psychological empowerment among nurse managers (Elghannam, 2024). A possible explanation is that the highly structured and hierarchical nature of healthcare organizations may limit the immediate translation of leadership agility into frontline authority. In such settings, agile leadership may improve coordination and decision speed without necessarily changing nurses' formal access to power, resources, or decision rights. The result therefore highlights the distinction between perceiving a leader as adaptable and experiencing the workplace as genuinely empowering.

In contrast, leadership agility had a strong positive effect on organizational resilience, confirming that agile leadership is a major organizational resource in uncertain healthcare environments. Leaders who respond rapidly to change, revise priorities, communicate across professional boundaries, and encourage collaborative problem-

solving can strengthen the capacity of healthcare organizations to absorb disruption and maintain essential services. This finding is consistent with the view that leadership agility enables organizations to sense environmental changes and reconfigure resources in response to emerging threats (Raharja, 2024). It also supports evidence that adaptive leadership capabilities contribute to employee adaptability and organizational performance in complex settings (Buttigieg et al., 2023). In healthcare, agile leadership is especially important because organizations must respond to workforce shortages, technological changes, unexpected patient demands, policy reforms, and clinical emergencies without compromising care continuity. Leadership approaches that encourage learning, flexibility, and rapid coordination are therefore likely to strengthen resilience at both operational and strategic levels. Similar evidence shows that transformational leadership enhances organizational resilience by developing adaptive organizational cultures and supporting continuous adjustment (Madi Odeh et al., 2023).

The strong positive relationship between organizational resilience and nurses' empowerment indicates that nurses are more likely to feel empowered when they work in organizations that can anticipate challenges, maintain stability, learn from disruption, and provide continuous support. A resilient healthcare organization is better positioned to preserve communication channels, clarify roles, allocate resources, and involve nurses in problem-solving during periods of pressure. These conditions closely correspond with the structural foundations of empowerment, particularly access to information, support, opportunities, and resources. Previous evidence has shown that structural empowerment strengthens nurses' psychological empowerment by creating workplace conditions that enable autonomy and professional influence (Abdullatif Ibrahim, 2023). Research conducted in Saudi healthcare has also demonstrated that structural empowerment and resilience are important for improving nurses' workplace experiences and intentions to remain in their organizations (Al-Otaibi et al., 2024). The present findings therefore extend earlier research by showing that organizational resilience is not only an operational capability but also an important social and structural condition that supports the empowerment of nursing staff. This relationship may be particularly relevant in health clusters undergoing rapid transformation, where nurses require both organizational stability and sufficient flexibility to contribute effectively to changing service-delivery priorities.

The most important finding was the significant indirect effect of leadership agility on nurses' empowerment through organizational resilience. Because the direct relationship between leadership agility and empowerment was insignificant, while the indirect pathway was strong and significant, the results indicate an indirect-only mediation pattern. This means that leadership agility influenced nurses' empowerment primarily by creating a more resilient organizational environment. Agile leaders may strengthen preparedness, encourage adaptive learning, improve cross-unit coordination, and ensure that resources remain accessible during change, which subsequently allows nurses to exercise greater professional autonomy and participate more actively in organizational decisions. This result is consistent with the argument that leadership capabilities contribute to organizational outcomes through the development of resilience-related processes rather than through isolated leader-employee interactions (Zahari et al., 2022). It also aligns with research showing that leadership practices strengthen organizational resilience, which then supports positive employee and organizational outcomes (Dasuki et al., 2025). The mediation result therefore provides a more detailed explanation of how leadership agility operates in healthcare and demonstrates that resilience is the mechanism that converts agile leadership into meaningful empowerment.

The findings carry important theoretical and practical implications for healthcare management. Theoretically, the results support an integrated explanation based on dynamic capabilities and structural empowerment perspectives. Leadership agility represents a dynamic managerial capability that allows healthcare organizations to sense, respond to, and reorganize around changing conditions, while organizational resilience provides the adaptive infrastructure through which these leadership capabilities influence employees. Nurses' empowerment emerges when resilient organizational systems provide access to information, resources, support, and opportunities for participation. Practically, healthcare leaders should not limit their efforts to developing flexible leadership behaviours at the individual level. Leadership-development programmes should be accompanied by organizational initiatives that strengthen emergency preparedness, communication, workforce flexibility, learning systems, resource availability, and nurse participation in decisions. Healthcare organizations should also ensure that agile decisions are translated into visible improvements in working conditions, because responsiveness at the leadership level will not empower nurses unless it changes the structures surrounding their roles. Strengthening both agile leadership and organizational resilience may therefore provide a more sustainable approach to improving nurses' empowerment in the Al-Madinah Health Cluster.

6. Conclusion

This study examined the mediating role of organizational resilience in the relationship between leadership agility and nurses' empowerment in the Al-Madinah Health Cluster. The findings showed that leadership agility did not have a significant direct effect on nurses' empowerment, but it had a strong positive effect on organizational resilience. Organizational resilience, in turn, had a substantial positive effect on nurses' empowerment and fully

transmitted the influence of leadership agility to the empowerment of nursing staff. These results demonstrate that agile leadership is most effective when it is embedded within resilient organizational systems that support adaptation, continuity, communication, learning, and access to essential resources. The study concludes that developing agile leaders alone may not be sufficient to strengthen nurses' empowerment unless healthcare organizations simultaneously build resilient structures and practices. Health-cluster administrators should therefore combine leadership development with initiatives that improve preparedness, resource flexibility, staff participation, interdepartmental coordination, and organizational learning. By creating an environment capable of responding effectively to uncertainty while maintaining support for frontline nurses, healthcare organizations can translate leadership agility into greater professional autonomy, involvement, and influence among nursing staff. The study also contributes to healthcare management research by clarifying the mechanism through which leadership agility affects empowerment and by highlighting organizational resilience as a central pathway connecting adaptive leadership with positive workforce outcomes.

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