

The Impact of Professional Competencies and Cultural Legacy on Medical Leadership Competencies with Leadership Style as a Mediating Variable

Angelina Natasya Sonda*, Anderson Chua, & Erwin Tenggono

Master's Program in Hospital Administration, Pelita Harapan University, Tangerang, Indonesia

Abstract

This study examines the influence of professional competencies and cultural legacy on medical leadership competencies, with leadership style explicitly positioned as a mediating mechanism, within a teaching hospital context in Indonesia. A quantitative cross sectional design was applied, with survey data collected from physicians holding managerial or leadership roles at Rumah Sakit Universitas Kristen Indonesia. Measurement items were adapted from established instruments and assessed using a six point Likert scale. The proposed mediation model was analyzed using PLS SEM with bootstrapping procedures. The measurement model demonstrated satisfactory convergent validity, indicated by outer loadings greater than 0.70 and average variance extracted above 0.50, as well as discriminant validity with HTMT values below 0.90. Reliability criteria were also met, with Cronbach's alpha and composite reliability exceeding 0.70. The structural model showed strong explanatory power, with R^2 values of 0.774 for Leadership Style and 0.696 for Medical Leadership Competencies, alongside high predictive relevance ($Q^2 = 0.760$ and 0.619). Hypothesis testing revealed significant positive effects of professional competencies ($\beta = 0.519$, $p < 0.001$) and cultural legacy ($\beta = 0.432$, $p < 0.001$) on leadership style. Leadership style strongly predicted medical leadership competencies ($\beta = 0.527$, $p < 0.001$) and substantially strengthened the direct effects of professional competencies ($\beta = 0.228$, $p < 0.001$) and cultural legacy ($\beta = 0.129$, $p = 0.008$). These findings highlight the central role of leadership style in translating professional and cultural foundations into effective medical leadership.

Keywords: cultural legacy; healthcare management; leadership style; medical leadership competencies; professional competencies.

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1. Introduction

Healthcare organizations in developing countries face increasingly complex managerial and clinical challenges that demand strong leadership competencies among physicians and healthcare managers. Growing patient expectations, rapid technological development, workforce shortages, and rising demands for patient safety and service quality require healthcare leaders who are capable of managing both clinical and organizational responsibilities. Healthcare leadership competence has therefore become a critical determinant of organizational effectiveness, staff engagement, and service performance. Empirical evidence indicates that leadership capability among healthcare managers is closely associated with the effectiveness of clinical governance systems, staff commitment, and the overall quality of healthcare services delivered to patients (Chin et al., 2024; Specchia et al., 2021). Strong leadership competencies enable healthcare organizations to coordinate multidisciplinary teams, manage complex clinical environments, and respond effectively to institutional and societal pressures.

Research on medical leadership has evolved significantly over the last decade. Earlier approaches tended to emphasize individual leadership traits, whereas contemporary scholarship highlights competency based and developmental perspectives that view leadership as a capability that can be cultivated through training, professional experience, and supportive organizational environments. Medical leadership competence increasingly incorporates

* Corresponding author.

E-mail address: 01615240052@student.uph.edu

behavioral, ethical, and managerial dimensions in addition to clinical expertise. The Medical Leadership Competency Framework highlights key domains such as self awareness, ethical responsibility, communication capability, and reflective learning as essential components of effective physician leadership (Sonnino, 2016). Leadership competence grounded in professional responsibility and ethical integrity contributes to trust building within healthcare teams and strengthens the credibility of healthcare organizations in delivering high quality patient care.

Professional competencies represent one of the most important foundations of medical leadership competence. Physician leaders often derive leadership legitimacy from their professional expertise, clinical credibility, and adherence to ethical standards. Clinical competence, professional accountability, commitment to patient centered care, and continuous professional development contribute significantly to leadership influence within healthcare organizations. Research demonstrates that professional competence among physicians is positively associated with leadership effectiveness, improved decision quality in complex clinical situations, and stronger interprofessional collaboration among healthcare teams (Vahedi et al., 2024). Healthcare environments characterized by high risk decision making and multidisciplinary coordination require leaders who combine technical expertise with strong professional values. Professional competencies therefore function not only as indicators of clinical expertise but also as drivers of leadership credibility and organizational trust.

Leadership practices in healthcare institutions are also strongly shaped by cultural contexts embedded within organizational environments. Cultural legacy reflects shared organizational values, belief systems, communication norms, and behavioral expectations that guide interactions between healthcare professionals and influence leadership acceptance. Cultural structures play an important role in healthcare institutions located in socially diverse and hierarchical societies, where leadership practices are often influenced by social norms, professional hierarchies, and collective values. Empirical research demonstrates that organizational culture significantly shapes leadership communication patterns, authority relationships, and approaches to conflict management within healthcare organizations (Mosadeghrad & Ferdosi, 2013; Shamspour et al., 2024). Alignment between professional values and organizational culture can strengthen leadership legitimacy, while cultural misalignment may reduce leadership effectiveness even when professional competence is high.

Leadership competence does not emerge solely from professional capability or cultural context. Leadership style functions as a behavioral mechanism that translates professional expertise and cultural values into observable leadership practices. Leadership style reflects patterns of decision making, communication approaches, motivational strategies, and relational engagement used by leaders when interacting with organizational members. Research across healthcare management studies indicates that leadership style significantly influences important organizational outcomes including employee satisfaction, psychological safety, organizational commitment, and service quality (Ko & Kang, 2019). Adaptive and transformational leadership behaviors are particularly effective in healthcare environments characterized by clinical uncertainty, ethical complexity, and continuous organizational change. Leadership style therefore represents the behavioral expression of leadership competence and acts as a bridge connecting individual capabilities with organizational outcomes.

Adaptive leadership theory provides a useful theoretical perspective for understanding leadership dynamics in healthcare organizations. The adaptive leadership approach conceptualizes leadership as a context sensitive process that requires leaders to mobilize individuals and teams to address complex challenges that cannot be solved through technical expertise alone. Leadership effectiveness within this framework involves the ability to interpret changing situations, facilitate collaboration, manage conflict, build trust, and guide collective problem solving within organizations. Core adaptive leadership behaviors include communication capability, integrity, conflict management, teamwork facilitation, and proactive leadership initiative (Eshete & Kassahun, 2025). Healthcare organizations frequently face adaptive challenges involving ethical dilemmas, resource limitations, and cultural diversity, making adaptive leadership theory highly relevant for explaining leadership competence in clinical environments.

Despite the growing body of research on healthcare leadership, several gaps remain within the existing literature. Much of the empirical research on medical leadership competence has been conducted in developed healthcare systems, particularly in North America and Europe. Healthcare organizations in developing countries often operate under different institutional constraints, cultural conditions, and organizational structures. Limited resources, stronger professional hierarchies, and diverse cultural contexts create leadership challenges that may not be fully captured in studies conducted in highly developed healthcare systems (Tiwari et al., 2025). Evidence from developing country contexts therefore remains limited, particularly regarding how professional competencies, cultural legacy, and leadership style interact to shape leadership competence among physicians working in hospital organizations (Al Sawafi et al., 2025).

Indonesia represents an important setting for examining these dynamics due to the complexity of its healthcare system and the diversity of its cultural environment (Aisyah et al., 2025). Hospitals frequently operate within contexts that combine professional medical standards, organizational culture, and community values. Teaching hospitals, in particular, require physicians to perform multiple roles simultaneously as clinicians, educators, and organizational leaders (Spanos et al., 2024). Leadership competence within such environments becomes essential for maintaining service quality while managing educational responsibilities and organizational performance.

Rumah Sakit Universitas Kristen Indonesia (RS UKI) is one of Indonesia's longstanding faith-based teaching hospitals, serving a culturally and religiously diverse patient population while integrating medical education, clinical services, and community engagement. Its organizational culture is rooted in Christian values emphasizing compassion, service, integrity, and respect for diversity, yet it operates within Indonesia's multicultural healthcare system. These characteristics provide a distinctive institutional context for examining how cultural legacy influences physicians' leadership style and the development of medical leadership competencies.

The present study seeks to investigate the relationships between professional competencies, cultural legacy, and medical leadership competencies, with leadership style positioned as a mediating variable. Positioning leadership style as an intervening mechanism enables a more comprehensive understanding of how individual capabilities and organizational context translate into leadership behavior and competence (Hafnidah et al., 2025). Examination of these relationships within a developing country teaching hospital contributes to the broader healthcare leadership literature by expanding empirical evidence beyond highly developed healthcare systems.

The study contributes to healthcare leadership scholarship in several ways. Empirical evidence generated within the Indonesian healthcare context provides insights into leadership development in developing country environments where professional hierarchies, cultural diversity, and organizational values intersect. Integration of professional competencies, cultural legacy, and leadership style within a single conceptual framework also extends existing leadership research by highlighting the interaction between individual capability and organizational culture. Findings are expected to provide practical implications for leadership development programs in healthcare organizations by emphasizing the importance of strengthening professional competence, reinforcing culturally grounded organizational values, and cultivating effective leadership behaviors among physician leaders. Strengthening these dimensions may support the development of resilient healthcare organizations capable of delivering high quality services in increasingly complex healthcare systems.

2. Literature Review

Professional competencies represent a fundamental foundation for effective medical leadership within healthcare organizations. Literature identifies several key dimensions of professional competencies relevant to physician leadership. Clinical expertise refers to the ability to apply medical knowledge and evidence based practice in patient care and decision making, which strengthens the credibility of physician leaders within multidisciplinary teams (Specchia et al., 2021). Ethical professionalism emphasizes integrity, accountability, and adherence to professional standards in clinical and organizational decisions (Sonnino, 2016). Patient centered care highlights the capacity of physicians to prioritize patient safety, empathy, and quality of care in leadership practice (Vahedi et al., 2024). Continuous professional development reflects physicians' commitment to lifelong learning and improvement of clinical and managerial competencies (Chin et al., 2024). Evidence from recent healthcare management research demonstrates that these dimensions contribute significantly to leadership effectiveness, clinical governance, staff engagement, and improved healthcare outcomes. Cultural legacy also plays an important role in shaping leadership practices in healthcare institutions. Cultural legacy encompasses several dimensions including shared organizational values, cultural norms in professional interaction, and practices related to diversity and inclusion within healthcare teams. Shared values influence how leaders interpret responsibility, service orientation, and ethical decision making within healthcare organizations (Shamspour et al., 2024). Cultural communication norms shape patterns of interaction between physicians, staff, and patients, particularly in multicultural healthcare environments (Ko & Kang, 2019). Workforce diversity and inclusiveness represent another important dimension of cultural legacy that supports collaborative decision making and mutual respect among healthcare professionals (Mosadeghrad & Ferdosi, 2013). Empirical studies indicate that these cultural dimensions influence leadership expectations, authority relations, and leadership legitimacy in hospital organizations.

Leadership style functions as a behavioral mechanism that translates professional competencies and cultural legacy into observable leadership performance. Several dimensions of leadership style have been widely discussed in healthcare leadership literature. Communication leadership refers to the ability of leaders to articulate vision, share

information clearly, and maintain open dialogue with healthcare teams (Specchia et al., 2021). Collaborative team leadership highlights leaders' capacity to coordinate multidisciplinary teams and foster collective problem solving in clinical environments (Chin et al., 2024). Proactive leadership initiative represents the willingness of leaders to respond to clinical challenges, guide decision making, and maintain accountability in high pressure medical situations (Eshete & Kassahun, 2025). Ethical and value based leadership emphasizes leadership behaviors grounded in professional ethics and organizational values, which are particularly relevant in healthcare institutions that operate within strong cultural or faith based traditions (Shamspour et al., 2024). Research in healthcare management consistently demonstrates that these leadership style dimensions are closely associated with medical leadership competencies, including the ability to manage teams, lead organizational change, maintain service quality, and ensure patient safety (Ko & Kang, 2019). Evidence also shows that leadership style mediates the relationship between leader capability and organizational outcomes, suggesting that professional competence and cultural values become effective leadership only when translated into consistent leadership behaviors within clinical practice.

2.1 Professional Competencies

Professional competencies, encompassing technical knowledge, clinical skills, and professional expertise, form a fundamental basis for the development of medical leadership competencies (Chubaci et al., 2024). Medical leaders with strong professional competencies possess a deeper understanding of clinical processes, patient needs, and ethical considerations, enabling them to translate clinical excellence into effective leadership behaviors. In healthcare organizations, leadership credibility is closely tied to professional mastery, as clinical authority often legitimizes leadership influence.

2.2 Cultural Legacy

Cultural legacy represents the shared values, collective beliefs, and behavioral norms that shape interactions and decision making within an organization. Organizational culture influences how leadership authority is interpreted, how collaboration is practiced, and how professionals respond to institutional challenges. Healthcare organizations characterized by strong cultural values often promote ethical responsibility, mutual respect, and collective accountability among medical staff. Evidence indicates that culturally supportive environments strengthen trust among healthcare professionals and encourage inclusive decision making, both of which are important for effective leadership development (Iddrisu, 2025). Cultural legacy also shapes leadership acceptance within hierarchical healthcare systems, particularly in Asian and developing country contexts where professional relationships are influenced by social norms and institutional traditions.

Cultural values embedded within healthcare institutions influence communication practices, teamwork dynamics, and approaches to diversity management. Hospitals serving heterogeneous patient populations require leaders who can navigate cultural differences while maintaining ethical and professional standards. Research shows that organizational cultures emphasizing inclusivity, shared responsibility, and respect for diversity contribute positively to leadership capability and organizational performance (Chakma & Chakma, 2025). Strong cultural foundations also reinforce leaders' commitment to patient centered care, social responsibility, and professional accountability. Alignment between professional ethics and institutional culture therefore strengthens the capacity of physician leaders to guide teams, maintain collaboration, and ensure quality healthcare delivery.

2.3 Leadership Style

Leadership style reflects the behavioral patterns through which leaders influence organizational members, coordinate teams, and guide decision making processes. Effective leadership style is particularly important in healthcare environments characterized by multidisciplinary collaboration, high levels of uncertainty, and complex patient care demands. Leadership approaches that emphasize communication, empowerment, and collaboration create supportive working environments that encourage professional initiative and shared responsibility. Evidence demonstrates that participative and transformational leadership behaviors significantly enhance team cohesion, psychological safety, and organizational commitment among healthcare professionals (Geremias et al., 2024).

Leadership style also plays a crucial role in translating professional expertise and organizational values into effective leadership practice. Physician leaders who demonstrate proactive decision making, open communication, and collaborative team management are more capable of guiding healthcare teams and maintaining service quality under pressure. Leadership behaviors that prioritize empathy, support, and professional development encourage healthcare staff to contribute actively to organizational goals and clinical improvement initiatives. Empirical studies confirm that leadership styles focused on empowerment and team engagement positively influence leadership competence, staff motivation, and healthcare service performance (Qalati et al., 2022). Effective leadership style therefore serves as a

practical pathway through which professional competencies and cultural values are transformed into observable leadership outcomes within healthcare organizations.

2.4 Medical Leadership Competencies

2.4.1 Professional Competencies and Medical Leadership Competencies

Empirical evidence supports this relationship. Dauvrin & Lorant (2015) demonstrated that professional competencies, including cultural competence as an integral dimension, are positively associated with leadership competencies among healthcare staff. Their findings highlight that professional competence not only enhances clinical performance but also strengthens leadership capacity by fostering trust, ethical sensitivity, and adaptive decision-making. In line with these arguments, professional competencies are expected to directly contribute to the development of medical leadership competencies.

H1: Professional Competencies have a positive effect on Medical Leadership Competencies.

2.4.2 Cultural Legacy and Medical Leadership Competencies

Dauvrin & Lorant (2015) found that organizational culture significantly influences healthcare leadership competencies, particularly in multicultural environments where adaptability and inclusiveness are essential. Ishak et al. (2026) reported that a strong and supportive cultural legacy within public-sector organizations fosters continuous learning, employee engagement, and leadership competence. These findings suggest that cultural legacy serves as an enabling context for leadership development by reinforcing shared values and professional growth.

H2: Cultural Legacy has a positive effect on Medical Leadership Competencies.

2.4.3 Professional Competencies and Leadership Style

Mohamad et al. (2025) empirically demonstrated that managerial professional competencies have a significant positive influence on leadership style. The study indicates that leaders who master professional and managerial competencies are more capable of adopting effective leadership behaviors that align with organizational goals. In healthcare organizations, where leadership demands both technical expertise and interpersonal effectiveness, professional competencies are therefore expected to shape leadership style.

H3: Professional Competencies have a positive effect on Leadership Style.

2.4.4 Cultural Legacy and Leadership Style

Cultural legacy influences leadership style by shaping leaders' values, communication patterns, and approaches to managing diversity. Leaders operating within culturally supportive environments are more likely to adopt inclusive, participatory, and value-driven leadership styles. Such leadership styles are particularly relevant in healthcare organizations serving diverse patient populations. Wilson-Stronks & Mutha (2010) found that hospitals with strong cultural competence exhibit higher leadership and strategic planning performance, particularly in nonprofit organizations that emphasize social values and community service. These findings indicate that leadership styles grounded in cultural legacy tend to prioritize inclusiveness, ethical responsibility, and long-term organizational sustainability. Consequently, cultural legacy is expected to play a significant role in shaping leadership style within medical organizations.

H4: Cultural Legacy has a positive effect on Leadership Style.

2.4.5 Leadership Style and Medical Leadership Competencies

Knevelsrud et al. (2025) showed that leadership styles focused on team empowerment positively influence leadership competence by enhancing motivation and engagement. Similarly, studies in educational contexts by Schiuma et al. (2024) found that leadership style significantly affects professional leadership competencies. These findings suggest that across professional domains, leadership style plays a central role in shaping leadership competence. Accordingly, leadership style is expected to positively influence medical leadership competencies.

H5: Leadership Style has a positive effect on Medical Leadership Competencies.

3. Research Method and Materials

3.1 Research Methods

This study employed a quantitative cross sectional research design to examine the relationships between professional competencies, cultural legacy, leadership style, and medical leadership competencies among physicians in a teaching hospital setting. The sample population of the study comprised medical doctors with different specializations and professional backgrounds. The final dataset consisted of 160 physicians holding managerial or leadership responsibilities at Rumah Sakit Universitas Kristen Indonesia (RS UKI), all of whom met the study inclusion criteria and were included in the analysis.

Data were collected through a structured questionnaire distributed to physicians who hold managerial or coordination roles at Rumah Sakit Universitas Kristen Indonesia (RS UKI) Jakarta. Measurement items were adapted from established healthcare leadership and organizational management instruments to ensure conceptual validity. All constructs were measured using a six point Likert scale ranging from strongly disagree to strongly agree. The six point scale was intentionally selected to minimize neutral midpoint responses and encourage respondents to provide clearer evaluative judgments regarding leadership behavior and organizational conditions (Chyung et al., 2017). Survey methodology literature indicates that even numbered Likert scales help reduce central tendency bias and increase response differentiation, which improves the sensitivity of perceptual measurements in organizational research (Taherdoost, 2019).

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS SEM) through SmartPLS version 3. Selection of PLS SEM was based on its suitability for prediction oriented research models involving multiple latent constructs and mediating relationships. The analytical approach is widely recommended for studies that aim to examine complex structural relationships while maintaining flexibility with sample size and data distribution characteristics. PLS SEM does not require strict assumptions of multivariate normality and allows simultaneous evaluation of the measurement model and the structural model. The analysis followed a two stage procedure consisting of measurement model assessment to test reliability and validity, followed by structural model evaluation to examine path relationships, coefficient of determination values, predictive relevance, and mediation effects using bootstrapping techniques (Hair et al., 2022). This analytical framework enabled comprehensive testing of the proposed model linking professional competencies, cultural legacy, leadership style, and medical leadership competencies.

The structural model evaluated in this study consisted of the following equations:

Structural Equation 1 (Leadership Style Model):

$$LS = \beta_1 PC + \beta_2 CL + \varepsilon_1 \quad (1)$$

where:

LS = Leadership Style

PC = Professional Competencies

CL = Cultural Legacy

β_1, β_2 = path coefficients

ε_1 = error term

Structural Equation 2 (Medical Leadership Competencies Model):

$$MLC = \beta_3 PC + \beta_4 CL + \beta_5 LS + \varepsilon_2 \quad (2)$$

where:

MLC = Medical Leadership Competencies

PC = Professional Competencies

CL = Cultural Legacy

LS = Leadership Style

$\beta_3, \beta_4, \beta_5$ = path coefficients

ε_2 = error term

These equations correspond directly to the proposed research model and were estimated simultaneously using the bootstrapping procedure with 5,000 resamples to assess the significance of the hypothesized relationships.

3.2 Research Model

Figure 1 illustrates the proposed research model that conceptualizes the structural relationships among professional competencies, cultural legacy, leadership style, and medical leadership competencies. The model assumes that professional competencies and cultural legacy function as primary antecedents that shape leadership processes in healthcare organizations. Professional competencies are expected to directly enhance medical leadership competencies by strengthening clinical credibility, ethical decision making, and managerial confidence, which are essential for leadership effectiveness in medical settings (Chin et al., 2024; Sonnino, 2016). Cultural legacy is also hypothesized to exert a direct influence, as shared values, religious or social traditions, and organizational norms shape leadership expectations, authority acceptance, and interaction patterns within healthcare institutions (Mosadeghrad & Ferdosi, 2013; Shamspour et al., 2024). These direct paths reflect the assumption that leadership competence is partially embedded in both individual capability and culturally grounded organizational contexts.

The model further positions leadership style as a mediating variable that translates professional competencies and cultural legacy into medical leadership competencies. Leadership style represents the behavioral manifestation of competence and cultural values, determining how leaders exercise authority, communicate, and respond to complex clinical and organizational challenges. Prior empirical studies indicate that leadership style mediates the relationship between leader characteristics and leadership outcomes, including effectiveness, team performance, and service quality (Ko & Kang, 2019; Specchia et al., 2021). Adaptive and transformational leadership styles are particularly relevant in healthcare due to high uncertainty, ethical dilemmas, and multidisciplinary collaboration demands (Eshete & Kassahun, 2025). By incorporating leadership style as a mediator, the research model acknowledges leadership as a dynamic process, emphasizing that professional and cultural foundations must be enacted through appropriate leadership behavior to produce meaningful medical leadership competencies.

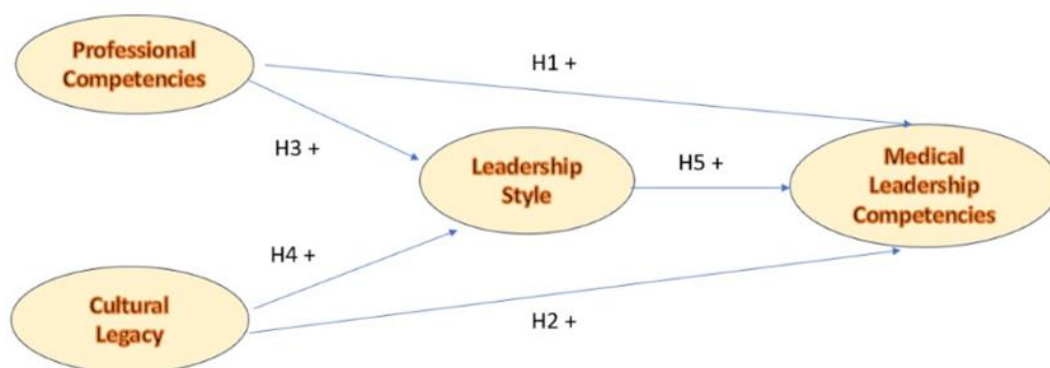


Figure 1. Research Model

3.3 Variables

3.3.1 Dependent Variable

The dependent variable in this study is medical leadership competencies, which represent the capability of physicians in managerial or leadership roles to effectively perform leadership functions within healthcare organizations. Medical leadership competencies encompass cognitive, behavioral, and ethical dimensions that enable medical leaders to guide teams, make informed decisions, and ensure high standards of patient care. Although treated as a dependent variable for analytical purposes, medical leadership competence is widely understood as a developmental and process oriented construct rather than a fixed outcome (Sonnino, 2021). It evolves through continuous professional learning, reflective practice, and experiential engagement with complex clinical and organizational challenges. Prior studies emphasize that strong medical leadership competencies are associated with improved clinical governance, workforce engagement, and organizational performance in healthcare institutions (Chin et al., 2024). Higher levels of medical

leadership competence therefore indicate a greater capacity to translate professional expertise and values into effective leadership practice.

3.3.2 Independent Variables

The independent variables consist of professional competencies and cultural legacy. Professional competencies refer to the knowledge, skills, ethical standards, and professional behaviors that form the foundation of leadership credibility in medical settings. Leadership literature consistently highlights that professional competence strengthens leaders' authority, decision making quality, and trustworthiness, particularly in high risk and multidisciplinary healthcare environments (Chin et al., 2024; Vahedi et al., 2024). Cultural legacy reflects shared values, belief systems, traditions, and norms embedded within the organizational and societal context of healthcare institutions. Cultural legacy influences leadership expectations, communication styles, power distance, and acceptance of authority, especially in hierarchical and faith based healthcare organizations (Mosadeghrad & Ferdosi, 2013; Shamspour et al., 2024). Both variables are conceptualized as key antecedents that shape leadership processes and outcomes by providing the professional and cultural foundations upon which leadership behavior is enacted.

3.4 Mediating Variable

Leadership style is positioned as a mediating variable that explains how professional competencies and cultural legacy influence medical leadership competencies. Leadership style represents the behavioral expression of a leader's competence and value orientation, reflected in patterns of communication, motivation, decision making, and conflict management. Research in healthcare management demonstrates that leadership style mediates the effects of individual capability and organizational culture on leadership effectiveness, employee satisfaction, and service quality (Ko & Kang, 2019; Specchia et al., 2021). Adaptive and transformational leadership styles are particularly salient in healthcare contexts due to clinical uncertainty, ethical complexity, and the need for collaboration across professional boundaries (Eshete & Kassahun, 2025). Positioning leadership style as a mediator acknowledges leadership as a dynamic process, emphasizing that professional and cultural resources must be translated into appropriate leadership behaviors to generate strong medical leadership competencies.

3.5 Data Analysis

The collected data were analyzed using structural equation modeling to examine the hypothesized relationships among professional competencies, cultural legacy, leadership style, and medical leadership competencies. Structural equation modeling was selected due to its ability to simultaneously test complex causal relationships, including both direct and indirect effects, and to assess measurement and structural models within a single analytical framework. This approach is widely recommended in leadership and healthcare management research when examining latent constructs and mediation effects (Hair et al., 2022).

Measurement items were assessed using a six-point Likert scale, and the data were treated as continuous variables based on both methodological justification and empirical precedent. Prior studies indicate that ordinal scales with five or more response categories may be analyzed as continuous without compromising estimation accuracy, particularly in SEM applications (Hair et al., 2022; Rhemtulla et al., 2012). Reliability and validity of the measurement model were evaluated before hypothesis testing to ensure construct robustness. Internal consistency was assessed through composite reliability and Cronbach's alpha, while convergent validity was examined using average variance extracted. Discriminant validity was confirmed by comparing the square root of average variance extracted with inter-construct correlations. This rigorous assessment ensured that the structural model results accurately reflected the theoretical relationships proposed in the research model.

4. Results and Discussion

4.1 Results

With respect to the gender composition of the sample population, the number of female medical practitioners was slightly more dominant compared to male medical practitioners. Most of the sample population belonged to the productive age group of 31-40 years, indicating that the medical practitioners were at the middle stage of their professional lives. In terms of the specialization of the medical profession, the sample showed a broad range of medical disciplines, with a significant presence of pediatrics, obstetrics and gynecology, internal medicine, cardiology, anesthesiology, and general practitioners. In terms of the professional experience of the respondents, most of the respondents had been working for five to eight years at RS UKI, and the majority of the respondents had

gained five to ten years of experience in their medical profession as practicing medical doctors. Table 1 shows the descriptive statistics of the demographic and professional characteristics of the respondents.

Table 1. Descriptive statistics

Characteristics	Number	Percentage (%)
Gender		
Male	74	46.25
Female	86	53.75
Age (years)		
20–25	10	6.25
26–30	13	8.125
31–35	37	23.125
36–40	54	33.75
41–45	37	23.125
46–50	6	3.75
51–55	2	1.25
56–60	1	0.625
Specialization		
Internal Medicine (Sp.PD)	15	9.375
Anatomical Pathology (Sp.PA)	8	5
Obstetrics & Gynecology (Sp.OG)	19	11.875
Ophthalmology (Sp.M)	7	4.375
Dermatology & Venereology (Sp.DV)	3	1.875
Pediatrics (Sp.A)	20	12.5
Anesthesiology (Sp.An)	10	6.25
Otolaryngology (Sp.THT)	5	3.125
Forensic Medicine (Sp.For)	3	1.875
Neurosurgery (Sp.BS)	1	0.625
Clinical Pathology (Sp.PK)	1	0.625
Thoracic & Cardiovascular Surgery (Sp.BTKV)	2	1.25
Cardiology (Sp.JP)	14	8.75
General Surgery (Sp.B)	8	5
Psychiatry (Sp.KJ)	2	1.25
Neurology (Sp.N)	3	1.875
Radiology (Sp.Rad)	8	5
General Practitioner	21	13.125
Plastic Surgery (Sp.BP)	1	0.625
Rehabilitation Medicine (Sp.RM)	1	0.625
Dermatology (Sp.KK)	7	4.375
Urology (Sp.U)	1	0.625
Length of Employment at RS UKI		
< 1 year	0	0
1 year	4	2.5
2 years	1	0.625
3 years	1	0.625
4 years	12	7.5
5 years	29	18.125
6 years	18	11.25
7 years	40	25
8 years	29	18.125
9 years	10	6.25
10 years	9	5.625
11 years	5	3.125
15 years	2	1.25

Characteristics	Number	Percentage (%)
Length of Medical Practice		
1 year	4	2.5
2 years	1	0.625
3 years	1	0.625
4 years	12	7.5
5 years	29	18.125
7 years	40	25
8 years	29	18.125
9 years	10	6.25
10 years	9	5.625
11 years	1	0.625
12 years	9	5.625
13 years	7	4.375
14 years	6	3.75
15 years	2	1.25
≥16 years	0	0

4.1.1 Evaluation of the Measurement Model (Outer Model)

4.1.1.1 Convergent Validity

Convergent validity was assessed by examining the outer loadings of each indicator and the Average Variance Extracted (AVE) for each construct. As shown in Table 2, all indicators across the constructs Professional Competencies, Cultural Legacy, Leadership Style, and Medical Leadership Competencies exhibited outer loading values exceeding the recommended threshold of 0.70 (Hair et al., 2019). This indicates that all measurement items demonstrate satisfactory convergent validity.

Furthermore, the AVE values for all constructs were above the minimum criterion of 0.50 (Fornell & Lacker, 1981), with values of 0.709 for Professional Competencies, 0.674 for Cultural Legacy, 0.656 for Leadership Style, and 0.704 for Medical Leadership Competencies. These results confirm that each construct explains more than half of the variance of its indicators, thereby establishing adequate convergent validity.

Table 2. Convergent Validity

Variable	Indicator	Outer Loadings	Results
Professional Competencies	PC.1	0.851	Valid
	PC.2	0.836	Valid
	PC.3	0.826	Valid
	PC.4	0.811	Valid
	PC.5	0.817	Valid
	PC.6	0.821	Valid
	PC.7	0.858	Valid
	PC.8	0.845	Valid
	PC.9	0.836	Valid
	PC.10	0.881	Valid
	PC.11	0.863	Valid
	PC.12	0.856	Valid
Cultural Legacy	CL.1	0.844	Valid
	CL.2	0.812	Valid
	CL.3	0.860	Valid
	CL.4	0.755	Valid
	CL.5	0.830	Valid
Leadership Style	LS.1	0.830	Valid
	LS.2	0.837	Valid
	LS.3	0.833	Valid
	LS.4	0.807	Valid
	LS.5	0.811	Valid

Variable	Indicator	Outer Loadings	Results
Medical Leadership Competencies	LS.6	0.786	Valid
	LS.7	0.757	Valid
	LS.8	0.832	Valid
	LS.9	0.797	Valid
	LS.10	0.806	Valid
	MLC.1	0.857	Valid
	MLC.2	0.837	Valid
	MLC.3	0.836	Valid
	MLC.4	0.825	Valid
	MLC.5	0.818	Valid
	MLC.6	0.842	Valid
	MLC.7	0.842	Valid
	MLC.8	0.829	Valid
	MLC.9	0.828	Valid
	MLC.10	0.845	Valid
	MLC.11	0.837	Valid
	MLC.12	0.872	Valid

Variable	AVE	Result
Professional Competencies	0.709	Valid
Cultural Legacy	0.674	Valid
Leadership Style	0.656	Valid
Medical Leadership Competencies	0.704	Valid

4.1.1.2 Discriminant Validity

Discriminant validity was evaluated using the Heterotrait–Monotrait Ratio (HTMT). According to the recommended criterion, HTMT values should be below 0.90 to indicate sufficient discriminant validity (Henseler, Ringle & Sarstedt, 2015). The results reveal that all HTMT values among the constructs were below the 0.90 threshold, indicating that each construct captures a distinct concept and that there is no excessive overlap among the constructs. Therefore, discriminant validity of the measurement model is confirmed.

Table 3. Discriminant Validity

	Professional Competencies	Cultural Legacy	Leadership Style	Medical Leadership Competencies
Professional Competencies				
Cultural Legacy	0.762			
Leadership Style	0.865	0.873		
Medical Leadership Competencies	0.782	0.769	0.859	

4.1.2 Reliability Analysis

Reliability was assessed using Cronbach's Alpha and Composite Reliability (CR). As presented in Table 4, all constructs exhibited Cronbach's Alpha and Composite Reliability values greater than 0.70. Specifically, Professional Competencies ($\alpha = 0.963$; CR = 0.967), Cultural Legacy ($\alpha = 0.879$; CR = 0.912), Leadership Style ($\alpha = 0.942$; CR = 0.950), and Medical Leadership Competencies ($\alpha = 0.962$; CR = 0.966) demonstrated high internal consistency. These results indicate that all constructs are reliable and suitable for further structural model analysis.

Table 4. Reliability Analysis

Variable	Cronbach's Alpha	Composite Reliability	Result
Professional Competencies	0.963	0.967	Reliable
Cultural Legacy	0.879	0.912	Reliable
Leadership Style	0.942	0.950	Reliable
Medical Leadership Competencies	0.962	0.966	Reliable

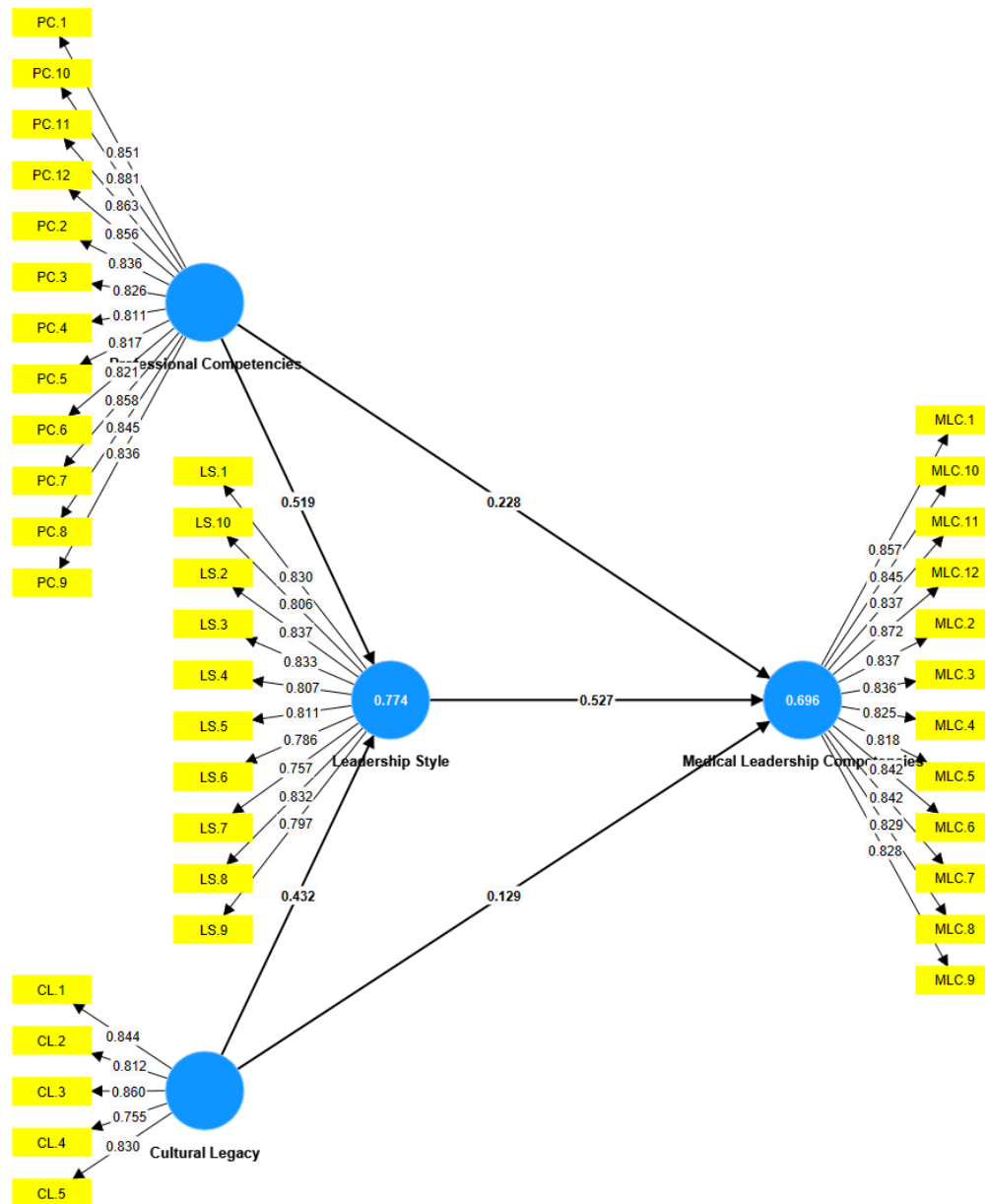


Figure 2. PLS Algorithm Model

Table 5. Variance Inflation Factors (VIF)

Endogenous Variable	Predictor Construct	VIF	Interpretation
Leadership Style	Professional Competencies	2.354	No multicollinearity
Leadership Style	Cultural Legacy	2.354	No multicollinearity
Medical Leadership Competencies	Professional Competencies	2.968	No multicollinearity
Medical Leadership Competencies	Cultural Legacy	2.730	No multicollinearity
Medical Leadership Competencies	Leadership Style	3.642	No multicollinearity

4.1.3 Collinearity Assessment (Variance Inflation Factors)

The results presented in Table X show that all predictor constructs exhibit VIF values below the recommended threshold of 5.00. Specifically, the VIF values for Professional Competencies and Cultural Legacy in predicting Leadership Style are 2.354 and 2.354, respectively. Likewise, the VIF values for Professional Competencies (2.968), Cultural Legacy (2.730), and Leadership Style (3.642) in predicting Medical Leadership Competencies also remain below the acceptable limit. These findings indicate that no significant multicollinearity exists among the predictor constructs. Therefore, the structural model satisfies the collinearity assumption, allowing the subsequent hypothesis testing to be interpreted with confidence.

4.1.4 Inner Model

4.1.4.1 R^2 value (Coefficient of Determination)

Table 6. Coefficient of Determination

Variable	R-square	R-square Adjusted	Description
Leadership Style	0.774	0.771	Strong
Medical Leadership Competencies	0.696	0.690	Strong

The explanatory power of the structural model was evaluated using the coefficient of determination (R^2). The R^2 value for Leadership Style was 0.774, with an adjusted R^2 of 0.771, indicating that Professional Competencies and Cultural Legacy jointly explain 77.1% of the variance in Leadership Style. This reflects a strong explanatory capability.

Similarly, Medical Leadership Competencies yielded an R^2 value of 0.696 and an adjusted R^2 of 0.690, suggesting that 69.6% of the variance in Medical Leadership Competencies is explained by Professional Competencies, Cultural Legacy, and Leadership Style. Both R^2 values fall within the strong category, indicating a robust structural model.

4.1.4.2 Predictive Relevance Q^2

Predictive relevance was assessed using the Stone–Geisser Q^2 value obtained through the blindfolding procedure. The results show Q^2 values of 0.760 for Leadership Style and 0.619 for Medical Leadership Competencies. Since all Q^2 values are greater than zero, the model demonstrates strong predictive relevance for the endogenous constructs.

Table 7. Predictive Relevance

Variable	Q^2 Predict	Result
Leadership Style	0.760	Relevant
Medical Leadership Competencies	0.619	Relevant

4.1.4.3 F^2 (F Square)

The effect size (f^2) was examined to assess the relative impact of each exogenous construct on the endogenous variables. Based on Cohen's (1988) guidelines, f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

Table 8. F Square

	Professional Competencies	Cultural Legacy	Leadership Style	Medical Leadership Competencies
Professional Competencies			0.592	0.053
Cultural Legacy			0.410	0.019
Leadership Style				0.206
Medical Leadership Competencies				

The results indicate that Professional Competencies have a large effect on Leadership Style ($f^2 = 0.592$) and a small-to-moderate effect on Medical Leadership Competencies ($f^2 = 0.053$). Cultural Legacy also exhibits a large effect on Leadership Style ($f^2 = 0.410$) and a small effect on Medical Leadership Competencies ($f^2 = 0.019$). Meanwhile, Leadership Style demonstrates a medium-to-large effect on Medical Leadership Competencies ($f^2 = 0.206$). These findings highlight the central role of Leadership Style in the structural model.

4.1.5 Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure. The results indicate that all hypothesized relationships are positive and statistically significant.

Professional Competencies have a positive and significant effect on Medical Leadership Competencies ($\beta = 0.228$, $t = 3.883$, $p < 0.001$), supporting H1. Cultural Legacy also shows a positive and significant effect on Medical Leadership Competencies ($\beta = 0.129$, $t = 2.409$, $p = 0.008$), thus supporting H2.

Furthermore, Professional Competencies significantly influence Leadership Style ($\beta = 0.519$, $t = 5.712$, $p < 0.001$), confirming H3. Cultural Legacy also has a significant positive effect on Leadership Style ($\beta = 0.432$, $t = 4.553$, $p < 0.001$), supporting H4. Finally, Leadership Style demonstrates a strong positive effect on Medical Leadership Competencies ($\beta = 0.527$, $t = 6.213$, $p < 0.001$), thereby supporting H5.

Overall, the bootstrapping results confirm that all proposed hypotheses are supported, indicating that both Professional Competencies and Cultural Legacy directly and indirectly influence Medical Leadership Competencies through Leadership Style.

Table 9. Hypothesis Testing

Hypothesis	Variable	Original Sample	T-Statistics	P-Value
H1	Professional Competencies → Medical Leadership Competencies	0.228	3.883	0.000
H2	Cultural Legacy → Medical Leadership Competencies	0.129	2.409	0.008
H3	Professional Competencies → Leadership Style	0.519	5.712	0.000
H4	Cultural Legacy → Leadership Style	0.432	4.553	0.000
H5	Leadership Style → Medical Leadership Competencies	0.527	6.213	0.000

4.2 Discussion

This study examined the relationships between professional competencies, cultural legacy, leadership style, and medical leadership competencies among physicians working in a teaching hospital environment. The results provide empirical evidence supporting the proposed research model and demonstrate that leadership competence among physicians is shaped by both individual professional capability and the cultural context of the organization. Healthcare leadership requires the integration of clinical expertise, ethical responsibility, and collaborative behavior in order to manage complex clinical environments and multidisciplinary teams. Findings therefore highlight the importance of combining professional capability with organizational values and leadership behavior in strengthening medical leadership competence.

4.2.1 Professional Competencies and Medical Leadership Competencies

The results show that professional competencies have a positive and significant influence on medical leadership competencies. Leadership effectiveness in medical organizations is closely associated with physicians' clinical expertise, ethical professionalism, and accountability in decision making. Physicians who demonstrate strong professional competencies, particularly in patient centered care, professional integrity, and responsibility toward clinical outcomes, tend to exhibit stronger leadership capabilities. Professional competence enhances credibility

among healthcare teams and strengthens trust between physicians, colleagues, and patients, which ultimately supports effective clinical and managerial decision making.

Evidence from recent healthcare leadership studies confirms that professional competence represents a critical foundation for leadership authority in healthcare organizations. Strong professional expertise allows physician leaders to guide clinical teams, manage uncertainty in medical decision making, and coordinate multidisciplinary collaboration (Nas et al., 2026). Teaching hospitals require physician leaders who combine clinical mastery with leadership capacity because physicians often function simultaneously as clinicians, educators, and organizational coordinators (Vahedi et al., 2024). Professional competencies therefore operate not only as technical qualifications but also as moral and professional anchors that shape leadership legitimacy and influence within healthcare institutions.

4.2.2 Cultural Legacy and Medical Leadership Competencies

The findings also indicate that cultural legacy has a positive and significant effect on medical leadership competencies, although the magnitude of the relationship is smaller compared to professional competencies and leadership style. Cultural legacy reflects shared organizational values, ethical traditions, communication norms, and behavioral expectations that influence how leadership is interpreted and practiced within healthcare institutions. These cultural elements shape interpersonal interactions among healthcare professionals and influence the way leadership authority is accepted within multidisciplinary teams.

Culturally supportive healthcare environments strengthen leadership development by promoting inclusive communication, mutual respect, and collaborative problem solving among medical staff (Bornman & Louw, 2023). Healthcare institutions serving diverse patient populations require leaders who can manage cultural differences while maintaining professional standards and ethical responsibility. Cultural legacy therefore contributes to leadership competence by guiding how physicians navigate social interactions, resolve conflict, and maintain patient centered values (Upadhyay et al., 2022). The relatively modest direct effect observed in this study suggests that cultural legacy may influence leadership competence more strongly through behavioral mechanisms such as leadership style rather than acting as an independent driver of leadership capability.

4.2.3 Professional Competencies and Leadership Style

The analysis demonstrates that professional competencies exert a strong and significant effect on leadership style. Physicians who possess high levels of professional capability are more likely to adopt leadership behaviors characterized by clear communication, proactive initiative, and collaborative team coordination. Clinical expertise and professional credibility provide physician leaders with the legitimacy required to guide teams and make complex decisions under pressure. Healthcare environments frequently involve high risk clinical situations that require decisive leadership, making professional competence an important precursor to effective leadership behavior.

Findings align with contemporary leadership perspectives that view leadership behavior as emerging from an individual's ability to interpret and respond to dynamic organizational challenges. Adaptive leadership theory suggests that leadership effectiveness depends on leaders' capability to mobilize teams, address complex problems, and facilitate collaboration within uncertain environments (Eshete & Kassahun, 2025). Professional competencies significantly influence how leaders enact leadership roles in organizational settings by shaping communication style, decision making patterns, and team management approaches (Hatta et al., 2023). Professional competence therefore functions as a key driver that shapes how leadership behaviors are expressed in everyday clinical practice.

4.2.4 Cultural Legacy and Leadership Style

Cultural legacy also demonstrates a significant positive influence on leadership style. Organizational culture plays a crucial role in shaping how leadership behaviors are practiced and interpreted by members of healthcare institutions. Physicians working within organizations that promote shared values, respect for diversity, and collaborative communication are more likely to adopt leadership styles that emphasize teamwork, openness, and collective responsibility.

Organizational cultures emphasizing inclusiveness, ethical responsibility, and collective engagement contribute significantly to the development of participative and collaborative leadership behaviors (Tsai, 2011). Cultural environments that encourage trust and open communication also strengthen leaders' ability to motivate teams and coordinate interdisciplinary collaboration. In faith based teaching hospitals such as RS UKI, cultural values grounded in service, empathy, and ethical responsibility may reinforce leadership behaviors aligned with compassion and

collective commitment. These findings highlight organizational culture as a contextual factor that shapes leadership style and supports the development of effective leadership behaviors among physicians.

4.2.5 *Leadership Style and Medical Leadership Competencies*

Leadership style demonstrates the strongest positive influence on medical leadership competencies among all tested relationships. Leadership behaviors represent the practical manifestation of leadership capability because they determine how physicians communicate, guide teams, and coordinate organizational processes. Physicians who exhibit leadership styles characterized by effective communication, initiative, and collaborative team management are better able to manage healthcare teams, coordinate clinical activities, and maintain organizational stability during complex medical situations.

Leadership style is a strong predictor of leadership competence and organizational performance in healthcare settings (Sfantou et al., 2017). Leadership behaviors that emphasize empowerment, communication, and team engagement contribute significantly to improved staff performance, psychological safety, and healthcare service quality (Tsai, 2011). Leadership style therefore functions as the behavioral expression through which professional knowledge and organizational values are translated into effective leadership outcomes.

4.2.6 *The Mediating Role of Leadership Style*

The overall findings indicate that leadership style plays a critical mediating role in connecting professional competencies and cultural legacy with medical leadership competencies. Professional capability and cultural values provide the foundational resources required for leadership development, yet their influence becomes substantially stronger when expressed through observable leadership behaviors. Leadership style enables physicians to translate clinical expertise and organizational values into practical leadership actions such as communication, coordination, and team motivation.

These results reinforce the theoretical perspective of adaptive leadership, which conceptualizes leadership as a dynamic process shaped by both individual capability and organizational context. Leadership competence therefore emerges through continuous interaction between professional expertise, cultural environment, and behavioral leadership practices. The mediating role of leadership style highlights that leadership development in healthcare organizations should not focus solely on technical competence but should also emphasize behavioral leadership training that strengthens communication skills, team coordination, and collaborative leadership practices.

4.2.7 *Practical Implications for Indonesian Teaching Hospitals*

The findings provide important policy implications for leadership development in Indonesian teaching hospitals. The significant effects of professional competencies and cultural legacy, together with the mediating role of leadership style, suggest that leadership development programs should extend beyond conventional managerial training by integrating clinical excellence, ethical decision-making, effective communication, interdisciplinary collaboration, and organizational values into physician leadership development. Teaching hospitals should establish structured leadership pathways through mentoring by senior physicians, leadership coaching, multidisciplinary leadership workshops, and periodic competency assessments to strengthen physicians' leadership capabilities while supporting their dual roles as clinicians and educators. At the institutional level, these findings also support the development of competency-based medical leadership frameworks that align hospital management, medical education, and professional development.

Beyond the Indonesian context, these findings also have broader implications for healthcare systems across Southeast Asia, where hospitals face comparable challenges related to workforce shortages, increasing service demand, demographic transitions, and culturally diverse patient populations. Many healthcare organizations in the region operate within hierarchical institutional structures while simultaneously managing the dual burden of communicable and non-communicable diseases. Under these conditions, physician leaders are expected not only to possess strong clinical expertise but also to demonstrate effective communication, interdisciplinary collaboration, and adaptive leadership capabilities. The present findings suggest that strengthening professional competencies and cultivating organizational cultures that support collaborative leadership can enhance medical leadership competencies in similar healthcare settings throughout Southeast Asia. Although institutional and cultural differences exist across countries, the proposed leadership framework provides a useful foundation for designing competency-based leadership development programs that can be adapted to regional healthcare priorities.

5. Conclusion

This study examined the relationships between professional competencies, cultural legacy, leadership style, and medical leadership competencies among physicians working in a teaching hospital environment. The findings confirmed that professional competencies and cultural legacy both exerted significant positive effects on medical leadership competencies. Professional competencies demonstrated a particularly important role, as physicians who possessed strong ethical standards, professional responsibility, and patient centered orientation showed stronger leadership capabilities in managing clinical teams and organizational processes. Cultural legacy also contributed to leadership development by shaping shared values, communication practices, and inclusive behaviors within the hospital environment.

Leadership style emerged as the most influential factor affecting medical leadership competencies. The results showed that leadership style acted as a key behavioral mechanism through which professional competencies and cultural legacy were translated into effective leadership performance. Physicians who demonstrated leadership behaviors such as clear communication, initiative, and collaborative team management exhibited stronger medical leadership competencies. Evidence from the mediation analysis further indicated that leadership style strengthened the influence of professional competencies and cultural legacy on leadership outcomes.

Overall, the study demonstrated that the development of medical leadership competencies depended not only on professional expertise but also on culturally grounded organizational values and observable leadership behaviors. The proposed model provided a comprehensive explanation of how individual capabilities and organizational context interacted to shape leadership competence among physicians in a teaching hospital setting.

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