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ANALYSIS OF PHYSICIAN LEADERSHIP AND LEADERSHIP DEVELOPMENT IN GOVERNMENT-OWNED HEALTHCARE INSTITUTIONS: A MIXED-METHOD STUDY

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Abstract
Background*: Physician involvement in leadership roles within healthcare institutions has been declining worldwide, despite evidence linking physician leadership with improved healthcare outcomes.*
Objective*: To examine physicians' leadership roles, individual characteristics, and factors influencing their leadership effectiveness in government-owned healthcare institutions in Indonesia, and to propose a contextually appropriate leadership development model.*
Methods: A mixed-method design was used. Phase I was a qualitative study conducted through in-depth interviews and focus group discussions with 49 physicians from 31 institutions, analyzed using thematic framework analysis (NVivo 12, COREQ guidelines). Phase II was a quantitative survey involving 358 physicians from 25 institutions, analyzed using structural equation modeling with partial least squares (SEM-PLS).
Results*: Qualitative findings revealed structural, personal, and managerial barriers to leadership engagement, including time constraints, administrative burdens, inadequate incentives, and political influences. However, physicians were perceived as strategic leaders due to their technical expertise, tiered experiences, and credibility in clinical management.*
The quantitative model demonstrated strong reliability and validity. Individual differences (experience, efficacy) significantly influenced motivation to lead ($\beta=0.577$), leadership behavior ($\beta=0.496$), and leadership outcomes ($\beta=0.176$, $p<0.001$). Motivation ($\beta=0.197$) and behavior ($\beta=0.604$) also significantly predicted leadership outcomes.
Conclusion*: Despite low participation, physicians possess leadership characteristics that positively contribute to leadership effectiveness. Physician leadership development should be institutionally driven, integrating managerial competencies with technical expertise, while addressing structural and motivational barriers.*

Keywords*: physician leadership, healthcare management, leadership development, mixed-method, Indonesia*

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INTRODUCTION

Physician involvement in healthcare leadership has become increasingly rare, with less than 4% of physicians holding leadership positions in hospitals, fewer than 25% in community health centers, and only 22% in health departments or offices (Al Sabah et al., 2019; Gunderman & Kanter, 2009; Millisa Eagle, 2023). This declining trend raises concerns given the established evidence that physician leadership is associated with improved organizational performance, higher quality of services, better patient care, reduced mortality, stronger institutional ownership, and enhanced financial performance (Bai & Krishnan, 2015; Colla et al., 2014; Costa, 2014; Falcone & Satiani, 2008; Goodall, 2011; Jiang et al., 2009; Kuntz et al., 2016; Prybil, 2006; Veronesi et al., 2013).

Despite these demonstrated benefits, the specific dimensions of physician leadership, such as leadership role, prior experiences, self-efficacy, leadership behaviors, and motivation to lead, that potentially contribute to leadership effectiveness have not been comprehensively evaluated (Barnes et al., 2020; Collins et al., 2022; Contreras-Carreto & Ramírez-Montiel, 2020; Silverstone, R et al., 1980; Van Diggele et al., 2020). Understanding these factors is crucial in order to explain why physicians' involvement in leadership remains limited and how their unique characteristics may strengthen leadership in healthcare institutions.

This research built upon the previous qualitative phase, which generated in-depth insights into physicians' perceptions and experiences, and advances to the current stage by quantitatively examining the factors that shape effective physician leadership. Furthermore, a quantitative study sought to identify an appropriate model of physician leadership development that aligns with their unique characteristics, including individual differences, motivation to lead, and leadership behaviors, to strengthen leadership capacity within healthcare service institutions.

METHODS

Study Design

This research employed a mixed-methods design, integrating both qualitative and quantitative approaches, conducted from 24 August 2022 to 24 August 2023. The qualitative strand explored physicians' perceptions, experiences, and barriers in healthcare leadership, while the quantitative strand examined relationships between individual characteristics, leadership motivation, behaviors, and outcomes through structural modeling.

Population and Sample

The study population comprised physicians working in government-owned healthcare institutions in Aceh Province, Indonesia.

Phase I (qualitative component): A total of 49 physicians from 31 institutions were purposively selected to capture diverse perspectives across healthcare settings.

Phase II (quantitative component: A total of 358 physicians from 25 institutions participated by completing structured questionnaires.

Data Collection

Phase I: Information was gathered through in-depth interviews and focus group discussions (FGDs). Data collection followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to ensure rigor and transparency.

Phase II: Self-administered questionnaires were distributed to participants. The instrument measured individual differences, leadership motivation, leadership behavior, and leadership outcomes.

Data Analysis

Qualitative analysis: Interview and FGD transcripts were coded and analyzed thematically using NVivo 12 software. Emerging themes were identified and mapped to answer the study questions.

Quantitative analysis: Data were analyzed using structural equation modeling with the partial least squares (SEM-PLS) method. Reliability and validity were tested through convergent validity, Average Variance Extracted (AVE), discriminant validity, composite reliability, and Cronbach's alpha. The outer model (measurement model) tested the validity and reliability of constructs, while the inner model (structural model) assessed the relationships between variables. Model fit was evaluated using standardized root mean square residual (SRMR), normed fit index (NFI), R^2, F^2, Q^2, and PLS Predict indices.

Ethical Considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki.

Ethical approval was obtained from the Health Research Ethics Committee of Dr. Zainoel Abidin General Hospital, Aceh, Indonesia (No. 008/ETIK-RSUDZA/2022). All participants were provided with information regarding the study's objectives, procedures, and potential risks or benefits. Written informed consent was obtained from all participants before data collection, and they were assured of confidentiality, anonymity, and the right to withdraw from the study at any time without consequences.

RESULTS AND DISCUSSION

Qualitative Findings

The findings revealed five key dimensions of healthcare leadership in Indonesia. First, physicians' involvement in healthcare leadership extended across healthcare institutions, service delivery, and structural–administrative domains; however, they continued to face several challenges in carrying out these roles. Second, the leadership of doctors was perceived as important within healthcare services, with their roles as leaders considered equivalent to those of other health professionals. Third, variations were identified among doctor-leaders, who simultaneously acted as care providers, decision-makers, and managers. Fourth, internal leadership development was viewed positively, and its effectiveness could be enhanced when combined with external development strategies. Finally, the study showed that healthcare leaders could emerge not only from doctors but also from non-doctor health professionals, provided they possessed sufficient talent and managerial capability. The detailed results have been published in the Health Leadership and Quality of Life Journal (Khorida et al., 2025).

Quantitative Findings

Table 1 presents the demographic and professional characteristics of the 358 physicians who participated in the quantitative survey. The table summarizes their distribution by gender, age, employment status, length of service, and current position within government-owned healthcare institutions.

Table 1. The Characteristics of the Quantitative Survey Participants

Characteristics	Amount (n=358)
Gender	
Male	140 (39,1%)
Female	218 (60,9%)
Age (years old)	
<40	193 (53,9%)
41-50	103 (28,8%)
51-65	61 (17,3%)
Employee Status	
Civil Servant	295 (80,2%)
Non-Civil Servant	63 (19,8%)
Length of Service (years)	
<10	153 (42,8%)
10-20	149 (41,6%)
>20	56 (15,6%)
Position	
Functional Positions	298 (83,3%)
Structural Leaders	57 (15,9%)
Staff	3 (0,8%)

Source: Primary data, 2024

A total of 358 physicians participated in the quantitative survey. The majority were female (60.9%) and under 40 years of age (53.9%). Most respondents were civil servants (80.2%) with less than 10 years (42.8%) or 10–20 years (41.6%) of service. In terms of position, the majority held functional roles (83.3%), while only a small proportion were structural leaders (15.9%) or staff (0.8%).

Table 2. Structural Model Results

Pathway	Coefficient (β)	p-value	Interpretation
Individual differences → Motivation to lead	0.577	<0.001	Significant positive effect
Individual differences → Leadership behavior	0.496	<0.001	Significant positive effect
Individual differences → Leadership outcomes	0.176	<0.001	Significant positive effect
Leadership motivation → Leadership outcomes	0.197	<0.001	Significant positive effect
Leadership behavior → Leadership outcomes	0.604	<0.001	Significant positive effect

Source: Primary data, 2024

The pathway coefficient analysis revealed that individual differences among physicians,

comprising leadership experience and leadership efficacy, had a significant direct effect on motivation to lead ($\beta = 0.577$, $p = 0.000$), leadership behavior ($\beta = 0.496$, $p = 0.000$), and leadership outcomes ($\beta = 0.176$, $p = 0.000$). In addition, both leadership motivation ($\beta = 0.197$, $p = 0.000$) and leadership behavior ($\beta = 0.604$, $p = 0.000$) demonstrated positive and significant direct effects on leadership outcomes.

Discussion

The results of this study indicated that doctors' involvement in health leadership in Aceh remains minimal, both at the community health center (Puskesmas) level and in other health institutions. Despite their high level of technical competence, various structural, personal, and managerial barriers hinder their participation in leadership positions. In this context, several key themes emerged as the focus of discussion: doctors' involvement in leadership, the importance of doctor leadership, the differences between doctor-leaders, internal development, and who should lead.

Doctors' Involvement in Leadership

Most heads of community health centers in Aceh came from non-medical or public health backgrounds. This situation reflects the limited representation of doctors in strategic positions at the Puskesmas level. The findings revealed challenges doctors face when entrusted with leadership mandates, as their education primarily focuses on patient care. However, leadership roles require them to broaden their perspective, establish relationships with various external stakeholders, and acquire managerial skills not previously part of their training. This condition aligns with studies showing that leadership training is often not included in medical curricula, resulting in a lack of managerial skills among doctors (Contreras-Carreto & Ramírez-Montiel, 2020; Van Diggele et al., 2020).

Many physicians had limited exposure to leadership training during their education, which left them insufficiently prepared to assume leadership roles in their routine clinical practice (Barnes et al., 2020; Contreras-Carreto & Ramírez-Montiel, 2020). At the hospital level, doctors' involvement in structural management remains low. Some doctors are reluctant to take on structural positions, even though their career paths are often directed toward such roles. This reluctance reflects a shift in doctors' interests from leadership to pursuing specialization and career development. Moreover, the lack of doctors' understanding of the importance of leadership also serves as a limiting factor. The literature indicated that many doctors do not fully comprehend the difference between leadership and management, and their limited awareness of the importance of doctors' involvement in leadership roles further diminishes their interest in assuming such positions (Collins et al., 2022).

Structural barriers, such as the appointment process for leadership positions, often influenced by personal connections with superiors, are among the primary factors limiting doctors' involvement in leadership roles. On the other hand, personal barriers also contribute to the low participation of doctors. Studies on factors contributing to the limited involvement of doctors as leaders in community health centers indicate that doctors often perceive Puskesmas as overly bureaucratic organizations, which adds administrative burdens and reduces the time they can dedicate to patient care. Furthermore, the high workload in Puskesmas, including long working hours, overtime, and compensation that does not align with the workload and responsibilities of being a head of Puskesmas, discourages doctors from taking on such positions (Silverstone, R et al., 1980).

The Importance of Doctors' Leadership

Doctor leadership plays a strategic role in improving the quality of healthcare services. With their medical background, doctors understand patient needs and clinical processes, which can be translated into more effective policies. The literature highlights that the involvement of doctors in hospital boards is associated with improved service quality and reduced morbidity rates (Bai & Krishnan, 2015; Veronesi et al., 2013). Other studies indicate that hospitals led by doctors in leadership positions deliver higher-quality care (Bai & Krishnan, 2015; Goodall, 2011). Moreover, the active involvement of doctors as full-time or part-time medical directors positively correlates with higher staff-to-patient ratios, which can further enhance the quality of care (Kuntz & Scholtes, 2013).

Doctors involved in clinical leadership can help improve organizational performance by integrating medical and managerial logic. This integration fosters more effective participatory leadership practices (Savage et al., 2020). However, managerial roles in healthcare

institutions often receive insufficient attention, as doctors remain primarily focused on their clinical responsibilities. Appointing doctors as heads of Puskesmas policy has garnered positive responses from the community. Such initiatives are considered innovative breakthroughs, as doctors can lead while delivering high-quality healthcare services.

Differences in Doctor-Leaders

Doctors in leadership positions, such as heads of primary healthcare centers or hospital directors, possess distinct advantages that set them apart from leaders with non-healthcare backgrounds. Research indicates that hospitals led by doctors tend to achieve higher quality ratings than those managed by non-doctor administrators. It suggests that doctors bring unique skills or management approaches to enhance healthcare service quality (Tasi et al., 2017; Veronesi et al., 2013). While doctors excel in clinical management, they often lack proficiency in other managerial aspects, such as budgeting and human resource management, which challenge their leadership roles. However, their experience across various levels of healthcare services, from primary healthcare centers to hospitals, gave them a deeper understanding of their challenges. Research indicated that doctors' readiness for clinical leadership improves with increased responsibility, experience, and tenure (Barnes et al., 2020).

Internal Development

Internal development is a crucial strategy to enhance doctors' involvement in leadership roles. It involves efforts to build internal capacity through managerial education and training. The findings suggested that physicians should complement their technical medical expertise with the development of administrative skills. These managerial competencies include strategic planning, budget management, and coordinating with various stakeholders on health-related issues (Singh, 2012). The experiential learning and mentoring approaches are particularly relevant in building doctors' leadership capacity. Experiential learning, which emphasizes hands-on experience, has proven effective in improving leadership and collaboration skills across various contexts in medical and health education (Bonesso et al., 2024; Iskandarova & Ford, 2024; Ng et al., 2016). Furthermore, mentoring by senior leaders can accelerate this developmental process by providing valuable guidance and feedback (Geerts et al., 2020; Rodríguez et al., 2021).

Who Should Be the Leader

The findings suggest that the role of doctors as leaders in the healthcare sector must be strengthened. Previous studies have highlighted that many doctors feel unprepared for managerial roles due to a lack of formal training in medical administration during their education (Singh, 2012). The selection of healthcare leaders should consider not only technical and medical expertise but also sufficient managerial capabilities. While doctors' backgrounds offer advantages in addressing healthcare issues holistically, they need greater involvement in developing managerial competencies to compete with non-medical leaders who are often more adept in administrative skills. Literature suggests that integrating management and leadership training into medical curricula can equip doctors to handle diverse and evolving situations. Therefore, incorporating education in management and leadership into medical training is essential to prepare doctors for future managerial challenges (Sonsale & Bharamgoudar, 2017).

The study was limited to government institutions in Aceh Province. Future research should investigate physician leadership across Indonesia, including within private healthcare institutions and academic leadership settings.

CONCLUSION

Doctors' limited involvement in healthcare leadership is shaped by structural, personal, and managerial barriers, but integrating managerial competencies with technical expertise and institutional support can unlock their potential for strategic roles. Their leadership effectiveness is further strengthened by characteristics such as experience, efficacy, motivation, and positive leadership behaviours. This study recommends fostering physician leadership development from within government health institutions by considering individual differences, motivation to lead, and leadership behaviours to achieve effective leadership.

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