healthcare

MDPI

Article

Hybrid Clinician-Administrators in Saudi Arabia: Perceived Competence, Role Perceptions, and Role Conflict

Sultan Aldakhil [1,2,3,4,*], Khalid Alkhurayji [5], Abdallah Alsuhaimi [6], Shug Albarrak [2,3,4,7], Deem Alnassar [8] and Saja Alrayes [9]

1 Adams School of Dentistry, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, USA
2 College of Dentistry, King Saud Bin Abdulaziz University for Health Sciences, Riyadh 14611, Saudi Arabia; shug_albarrak@urmc.rochester.edu
3 King Abdullah International Medical Research Center, Ministry of National Guard Health Affairs, Riyadh 11481, Saudi Arabia
4 Ministry of the National Guard—Health Affairs, Riyadh 11426, Saudi Arabia
5 Research Statistics and Information Department, Saudi Central Board for Accreditation of Healthcare Institutions, Riyadh 12264, Saudi Arabia; kalkhurayji@cbahi.gov.sa
6 Executive Director of Standards, Saudi Central Board for Accreditation of Healthcare Institutions, Riyadh 12264, Saudi Arabia; aalsuhaimi@cbahi.gov.sa
7 Eastman Institute for Oral Health, University of Rochester Medical Center, Rochester, NY 14611, USA
8 College of Pharmacy, King Saud University, Riyadh 12371, Saudi Arabia; deemalnassar@gmail.com
9 Health Information Management and Technology Department, College of Public Health, Imam Abdulrahman bin Faisal University, Dammam 34212, Saudi Arabia; salrayes@iau.edu.sa
* Correspondence: aldakhil@unc.edu

Abstract

Background: Clinicians increasingly undertake administrative responsibilities alongside clinical duties, potentially creating competing demands and role conflict. This study aimed to examine perceived competence, administrative-role perceptions, and workplace role conflict among clinician-administrators in Saudi Arabia and explore their relationships with demographic and professional characteristics. Methods: This cross-sectional study included healthcare professionals in Saudi Arabia holding dual clinical and administrative roles with at least one year of professional experience. Data were collected through an online questionnaire between January and December 2025, with support from the Saudi Commission for Health Specialties. Descriptive statistics, correlation analyses, chi-square tests, and multiple linear regression were performed. Results: Among 145 participants, 59.3% were Saudi, 57.2% male, and 52.4% aged 36–45 years. Participants represented multiple specialties and all 13 administrative regions. Clinical and administrative experience were positively correlated ($r = 0.499$, $p < 0.001$), and administrative experience differed across specialties ($p = 0.048$). Motivations for assuming administrative roles varied by gender, nationality, and administrative level ($p < 0.05$). Administrative role perception was strongly associated with role conflict ($r = 0.654$, $p < 0.001$) and were the only significant regression predictor ($\beta = 0.654$, $p < 0.001$), explaining 42.7% of the variance. Conclusions: Clinician-administrators generally perceived themselves as competent and viewed administrative leadership positively, yet experienced meaningful role conflict. Conflict appeared more closely related to structural demands than individual capability, highlighting the need for sustainable hybrid role integration.

Keywords: clinician-administrators; dual roles; healthcare management; healthcare leadership; Saudi Arabia

Check for updates

Received: 14 October 2026
Revised: 12 November 2026
Accepted: 15 November 2026
Published: 18 November 2026

Copyright: © 2026 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.

1. Introduction

Healthcare organizations are increasingly relying on clinicians who assume leadership and administrative responsibilities while still being actively involved in patient care. By involving clinicians in organizational decision-making, we can better align service planning, resource allocation, and quality-improvement priorities with the realities of clinical practice. While research has shown associations between clinical leadership and certain measures of hospital performance, the evidence is still mixed and does not definitively establish that appointing clinicians to managerial positions consistently leads to improved organizational outcomes [1–3]. Understanding the experiences and capacities of clinicians who occupy these positions is therefore as important as examining the potential benefits of clinician-led management.

Clinician-administrators, often referred to as hybrid clinical managers, operate at the crossroads of professional and managerial responsibilities. They simultaneously answer to patients, professional colleagues, institutional leadership, and organizational performance expectations. The concept of hybrid professionalism encapsulates this intersection: clinicians are not only expected to maintain their clinical expertise and professional credibility but also to engage in strategic planning, coordination, workforce management, and the implementation of organizational policies [4–6]. Empirical studies have revealed that hybrid roles are perceived differently depending on the organizational context. For instance, research conducted in Italian clinical directorates indicated both positive perceptions of improved interdisciplinary integration and concerns about managerial control. In contrast, studies conducted in Kenya revealed variations in clinicians' willingness and preparedness to assume managerial responsibilities [5,6].

These dual responsibilities can create conflicting expectations. When time, authority, or organizational support is limited, it becomes challenging to reconcile clinical priorities, professional autonomy, managerial accountability, staffing constraints, and service targets. Research in Australian healthcare organizations has highlighted tensions arising from the simultaneous demands of clinical and managerial roles. On the other hand, a study of hospitals in Germany and Israel revealed that clinical and economic objectives can sometimes align and sometimes necessitate deliberate negotiation [7,8]. Role conflict is conceptually distinct from the mere presence of two responsibilities: it concerns incompatible expectations or pressures associated with an individual's roles. This distinction is consistent with established organizational role theory and its measurement of role conflict and ambiguity [9]. Accordingly, clinician-administrator roles should not be assumed to produce conflict uniformly; their experiences may depend on the characteristics of the individual, the role, and the organizational setting.

Effective participation in administration also requires capabilities that are not identical to clinical proficiency. Healthcare-management competency frameworks emphasize domains such as communication, leadership, professionalism, knowledge of the healthcare environment, and business or managerial skills. Clinicians with clinical experience may enter administrative roles, but they may have limited formal exposure to management education and leadership development [10–12]. Importantly, perceived competence refers to individuals' self-assessment of their abilities rather than an objective assessment of administrative performance. Examining perceived competence alongside motivations for accepting administrative duties, perceptions of managerial responsibilities and their effects on clinical work, and experienced role conflict may therefore provide a more informative account of hybrid practice than considering any one of these dimensions in isolation.

The Saudi Arabian context makes this question particularly relevant. Since the introduction of Vision 2030, health-sector transformation has involved changes in service delivery, governance, organizational structures, and the management of healthcare re-

sources [13]. Saudi studies have examined leadership competencies among nurse executives and leadership practices in primary healthcare settings, while recent Gulf-region research has explored managerial competencies across healthcare and medical-education management levels [14–17]. Additional Saudi research has considered barriers to leadership in health-professions education, organizational-change attitudes, and the relationship of professional certification with administrative leadership practices [18–20]. Collectively, these contributions establish a growing regional evidence base, but published quantitative evidence that jointly examines perceived administrative competence, managerial-role perceptions, and competing clinical and administrative demands across multiple clinical professions remains limited. The extent to which these dimensions vary by professional background, administrative level, and experience in the Saudi healthcare workforce remains insufficiently described.

To address this gap, the present study examined perceived administrative competence, administrative-role perceptions, and workplace role conflict among healthcare professionals holding concurrent clinical and administrative responsibilities in Saudi Arabia. It also explored associations between these domains and participants' demographic and professional characteristics, including clinical and administrative experience. We hypothesized that these characteristics would be associated with differences in administrative-role perceptions and role conflict. By considering the three dimensions together, the study aims to provide context-specific descriptive and associational evidence that may inform future investigations of leadership preparation and support for clinician-administrators, without implying causal relationships from its cross-sectional design.

H_1: *Clinical experience is positively associated with administrative experience.*

H_2: *Administrative experience differs significantly across professional specialties.*

H_3: *Perceived competence is significantly associated with administrative role.*

H_4: *Administrative-role perceptions are positively associated with role conflict.*

H_5: *Perceived competence is significantly associated with role conflict.*

2. Materials and Methods

This section describes the methodological approach used in the study, including the study design, target population, participant recruitment, data collection procedures, questionnaire development, and statistical analyses. It also outlines the procedures used to assess the reliability and factor structure of the research instrument.

2.1. Study Design and Setting

This cross-sectional, questionnaire-based study investigated healthcare professionals in Saudi Arabia who concurrently held clinical and administrative roles. Data collection spanned from January to December 2025, encompassing healthcare and academic settings. This manuscript adheres to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement for cross-sectional studies [21]. STROBE was used as a reporting guideline rather than as a framework for study design or methodological quality assessment.

2.2. Participants and Eligibility

Eligible participants were healthcare professionals employed in governmental hospitals, private hospitals, academic institutions, or other healthcare organizations where they held a dual clinical-administrative role. Participants were required to have at least one year

of experience and provide informed consent. Clinicians who had postponed or were not actively engaged in clinical practice were excluded from the study. The study aimed to encompass a diverse range of healthcare professions and administrative levels, rather than focusing on a single professional group.

2.3. Sample-Size Determination and Recruitment

The target population comprised healthcare professionals in Saudi Arabia who held concurrent clinical and administrative responsibilities and met the predefined eligibility criteria. Although the exact number of professionals holding such hybrid positions is not available, official figures illustrate the considerable size of the broader healthcare workforce. According to the General Authority for Statistics, Saudi Arabia had approximately 516 hospitals and 5779 primary healthcare centers and medical complexes in 2024. The reported workforce approximately included 129,772 physicians, 33,751 dentists, 243,336 nurses, 46,856 pharmacists, and 6139 midwives [22]. Furthermore, the Saudi Commission for Health Specialties reported more than 800,000 registered healthcare practitioners in December 2025 [23]. These figures provide an indication of the scale and diversity of the healthcare workforce from which hybrid clinician-administrators may be drawn.

Given the specific nature of this target population, which was defined by the combination of clinical and administrative responsibilities, a comprehensive sampling frame identifying and enumerating all eligible professionals was not available. Therefore, the total population size could not be reliably established. An a priori power analysis was conducted using G*Power (version 3.1.1; Heinrich Heine University Düsseldorf, Düsseldorf, Germany) to estimate the minimum required sample size. The calculation was based on an assumed effect size of 0.30, adopted from a previous study [24], a statistical power of 80%, and a significance level (α) of 0.05. This analysis yielded a minimum required sample size of 144 participants. The 0.05 margin of error was considered separately as a precision parameter and was not treated as a substitute for the significance level in the power analysis [25]. Participants were recruited using a non-probability sampling approach. Eligible healthcare professionals were approached through electronic invitations distributed via email, with assistance from the Saudi Commission for Health Specialties (SCFHS). The invitations provided access to an online, self-administered questionnaire, through which participants voluntarily submitted their responses. Furthermore, recruitment was conducted through electronic dissemination of the questionnaire with the assistance of SCFHS, rather than through a predefined list of individually tracked eligible invitees. Consequently, the total number of eligible professionals who received the invitation could not be ascertained, precluding the calculation of a conventional response rate.

2.4. Questionnaire Development and Domains

The Independent variables in this study include demographic data such as years of experience, gender, and education levels. The dependent variables include competency variables and influences of dual roles. The questionnaire was developed using a combination of developed and adapted items by synthesizing information from published literature, gathering input from the target population through focus-group discussions, and conducting expert interviews. Focus-group discussions and expert consultations informed the questionnaire development by identifying relevant competencies, administrative responsibilities, and challenges experienced by clinician-administrators. The findings informed item generation, refinement, and alignment with the study objectives. These approaches align with recommended practices for questionnaire-item development [26]. The instrument comprised four main sections, in addition to the information and consent page. Attitudinal responses were recorded using Likert-type categories.

The first section gathered demographic and professional information. The second section evaluated clinical, managerial, and leadership perceived competence, drawing on healthcare-management competency literature and the Healthcare Leadership Alliance framework [11,27,28], which include several items were adapted and modified including (clinical and technical skills, professional roles, evidence-based practice, information systems, team building, performance evaluation, conflict resolution, and patients' rights and responsibilities. Additional items were informed by the Healthcare Leadership Alliance Model, particularly its competency domains of (leadership, professionalism, communication and relationship management, knowledge of the healthcare environment, and business skills and knowledge), and the third section, which entitles the role-specific details that were generated based on exploring relevant literature of job characteristic theory, Work Role Questionnaire (WRQ), and Clinician Supervision Questionnaire (CSQ) [29–31] such as "Incentives (financial) influenced my decision to take the administrative role" and "Administrative role can affect my clinical skills", while the last section which involves the conflict of role domain reporting multidimensional role conflict [32], which items were adapted such as "I have difficulty in satisfying work demands of all the people that I deal with because of time limitations". These sources informed the adaptation and formulation of the questionnaire items to reflect the Saudi healthcare context and the study objectives Table 1.

Table 1. Development of Questionnaire Items.

Questionnaire Domain	Development Approach
Perceived competency (PC)	Adapted and modified from existing competency literature and frameworks
Administrative role (AR)	Primarily formulated by the authors based on literature and theoretical concepts
Role conflict (RC)	Adapted from an existing validated questionnaire, with wording adjustments

The preliminary version of the questionnaire consisted of 53 items distributed across demographic information and three domains derived from an extensive literature review, expert consultations, and content validation procedures (Perceived competence (PC) (17 items), administrative-role (14 items), and role conflict (11 items)). Furthermore, perceived competence (PC) refers to clinicians' perceived knowledge, abilities, and skills required to undertake administrative and managerial responsibilities alongside their clinical duties. Administrative-role perceptions (AR) refer to clinicians' motivations, attitudes, and perceptions regarding administrative responsibilities, including their views on managerial qualifications and the perceived effects of administrative duties on clinical practice. Role conflict (RC) refers to the perceived tensions and difficulties arising from competing clinical and administrative responsibilities, including conflicting demands, workload pressures, resource limitations, and authority-related challenges.

Items were allocated to one of the three questionnaire domains based on their primary conceptual focus and intended measurement construct. Although these domains address related aspects of hybrid roles, they were treated as separate constructs such as administrative-role perceptions reflect clinicians' views and experiences of administrative responsibilities, whereas role conflict reflects the tensions and difficulties arising from competing role demands.

Domains were assessed using a six- and five-point response scale. Higher scores indicated greater perceived competence, stronger administrative-role perceptions, and greater perceived role conflict, respectively. Internal consistency was evaluated using Cronbach's alpha (α) for the overall survey and for each domain separately. Values of

α ≥ 0.70 were considered acceptable, ≥0.80 good, and ≥0.90 excellent. Corrected item–total correlations were examined to identify poorly performing items, with values <0.30 flagged for further review. Alpha if item deleted analyses were conducted to guide potential scale refinement.

Exploratory Factor Analysis (EFA) was conducted to examine the underlying factor structure of the HCA and assess its dimensionality. Prior to extraction, the suitability of data for factor analysis was verified using the Kaiser–Meyer–Olkin (KMO) measure (acceptable ≥0.70) and Bartlett's test of sphericity ($p < 0.05$). Maximum Likelihood extraction with the Promax rotation method was used to account for latent constructs and non-normal item distributions. Factors were retained based on eigenvalues ≥1, scree plot inspection, and theoretical interpretability. An oblique rotation (Promax) was applied, given the expected correlation between factors. Items with factor loadings ≥0.50 were considered acceptable, while cross-loading items were evaluated for conceptual relevance.

The scoring procedures, including item coding, reverse scoring (negatively worded items were reverse-coded to ensure consistent scoring direction across all items within each domain), and handling of missing responses, were defined consistently. Responses were coded numerically, with higher scores indicating higher levels of the measured construct. The distinction between constructs was examined through a review of item content and their respective factor structures to identify potential conceptual overlap. The association between administrative roles and role conflict was subsequently interpreted in consideration of the measurement properties of the questionnaire and the potential influence of overlapping item content. Domains were assessed using questionnaire items representing their respective conceptual domains. Composite scores were derived from the corresponding items, with higher scores reflecting greater levels of the measured constructs. The operational definitions and scoring procedures were established to ensure consistency in measurement and interpretation.

Before implementing the study, a panel of public health experts reviewed the questionnaire to assess its feasibility and content validity. The assessment focused on item relevance, clarity, comprehensibility, and alignment with the intended domains. They also conducted face-validity discussions at the item level. The HCA Scale demonstrated good internal consistency across its constructs (PC α = 0.914; AR α = 0.793; RC α = 0.849; overall α = 0.877). Corrected item–total correlations ranged from 0.187 to 0.699, and no individual item substantially improved the reliability of the corresponding construct when deleted. EFA revealed a clear three-factor structure corresponding to PC, AR, and RC, which explained 72.2% of the total variance (PC 13.9%; AR 50.2%; RC 8.1%).

2.5. Study Variables and Outcomes

The primary outcome was the workplace role-conflict domain score. Additional study measures included the perceived competence domain and the administrative-role domain, along with demographic and professional variables such as age, gender, nationality, specialty, clinical and administrative experience, administrative level, and educational background. Selected administrative-role items individually were examined, including motivations for accepting administrative responsibilities and perceived effects of administrative work on clinical practice.

2.6. Statistical Analysis

The analysis of the study was carried out using IBM SPSS Statistics (version 25.0; IBM Corp., Armonk, NY, USA) for descriptive analysis, reliability testing, and EFA. For the univariate analysis, range, frequency, central tendency, and variation measures such as mean and standard deviation were used as applicable in accordance with the data normality

test. The second step of the analysis entails bivariate analysis, which includes association analysis using chi-square, *t*-test, correlation, and/or ANOVA tests as appropriate for the data. The multivariable analysis is based on the presence of an association between variables. Parametric tests, including independent-samples *t*-tests and one-way ANOVA, were used when their assumptions were reasonably satisfied. When these assumptions were not met, the corresponding non-parametric alternatives, including the Mann–Whitney U and Kruskal–Wallis tests, were applied.

The selection of variables for the multivariable model was guided by the study objectives and their theoretical relevance. Nonetheless, regression model assumptions were evaluated before interpreting the multivariable analysis. Linearity was assessed by examining the relationships between the predictors and the outcome, while residual plots were inspected to assess homoscedasticity and the distribution of residuals. Multicollinearity was evaluated using variance inflation factors (VIFs) and tolerance values. Potential influential observations were examined using standardized residuals, leverage values, and Cook's distance. These diagnostic assessments were used to evaluate the suitability of the fitted regression model. Unstandardized regression coefficients (B), standardized coefficients (β), standard errors, t-statistics, *p*-values, and corresponding 95% confidence intervals (CIs) were reported to quantify the magnitude, direction, and precision of the associations. Model fit was evaluated using the F-statistic, coefficient of determination (R^2), and adjusted R^2.

Multicollinearity was assessed using variance inflation factors (VIFs). Given the exploratory nature of these comparisons and the possibility of inflated type I error due to multiple testing, the findings were interpreted cautiously, with emphasis on the overall patterns of results rather than isolated statistically significant associations. The presence and extent of missing data were assessed, and the handling of missing observations was determined according to the completeness of the responses. Additionally, subgroup comparisons were considered exploratory analyses, as these comparisons were not prespecified in the study protocol. They were conducted to examine potential differences in domain scores across demographic and professional characteristics. Nonetheless, scores were treated as separate continuous variables in the subsequent correlation and multiple linear regression analyses.

3. Results

This section presents the findings of the study in accordance with its research objectives. It provides an overview of the results obtained from the data analysis, highlighting the main findings and their relevance to the study objectives. The results are presented systematically to facilitate understanding and provide a clear overview of the evidence generated by the study.

3.1. Characteristics of the Study Participants

A total of 145 clinician-administrators were included. Saudi participants accounted for 59.3% of the sample and non-Saudi participants for 40.7%; 57.2% were male and 42.8% were female. The largest age group was 36–45 years (52.4%), followed by 26–35 years (29.0%). Participants represented medicine (24.1%), allied health professions (22.8%), nursing (22.1%), dentistry (15.9%), and pharmacy (15.2%). Department-level positions were most common (33.1%), followed by section-level (17.9%) and unit-level (16.6%) roles all represented in Table 2.

Table 2. Characteristics of participants included in this study.

Variable	Category	Frequency (*n*)	Percent (%)
Nationality	Saudi	86	59.3
	Non-Saudi	59	40.7
Gender	Male	83	57.2
	Female	62	42.8
Age Group	Below 25	3	2.1
	26–35	42	29.0
	36–45	76	52.4
	46–55	17	11.7
	56 or above	7	4.8
Specialty	Allied Health Professions	33	22.8
	Pharmacy	22	15.2
	Dentistry	23	15.9
	Medicine	35	24.1
	Nursing	32	22.1
Administrative Level	Section level	26	17.9
	Department level	48	33.1
	Unit level	24	16.6
	Supervisor (Program) level	16	11.0
	Director level	20	13.8
	C-suite level	3	2.1
	Division level	8	5.5

Clinical educational backgrounds were diverse. A bachelor's degree was the most frequently reported clinical qualification (38.6%), while 15.9% reported a master's degree, 15.9% a PhD/doctorate, and 10.3% clinical board certification. For administrative education, 28.3% reported a bachelor's degree, 22.8% a master's degree, 11.0% a diploma, and 2.8% PMP or short-term courses; 27.6% reported no additional administrative training and 8.3% were unspecified. After administrative education was dichotomized and administrative level was collapsed into lower, middle, and higher categories, there was no statistically significant association between administrative level and possession of an administrative degree ($p = 0.405$).

Participants came from all 13 administrative regions of Saudi Arabia. Riyadh accounted for 47.6% of respondents, followed by Makkah (13.8%) and the Eastern Region (9.7%). The remaining participants were distributed across Al Madinah (5.5%), Asir (4.8%), Al-Qassim (4.1%), Hayel (3.4%), Jizan (2.1%), Al-Jouf (2.1%), the Northern Borders (2.1%), Al-Baha (2.1%), Najran (1.4%), and Tabuk (1.4%) as elaborated in Figure 1. The sample therefore had national geographic coverage but was concentrated in Riyadh.

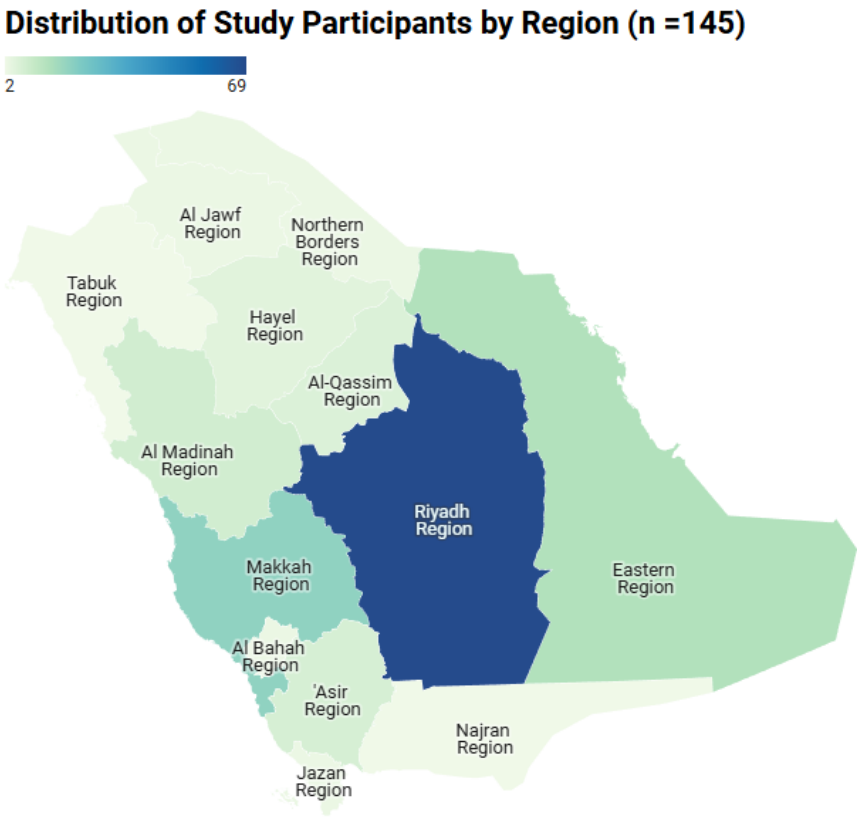


Figure 1. Regional distribution of participants included in this study.

3.2. Clinical and Administrative Experience

Participants reported a mean of 10.73 years of clinical experience (SD = 7.92) and 5.84 years of administrative experience (SD = 5.73). Clinical and administrative experience were moderately and positively correlated ($r = 0.499$, $p < 0.001$). In a regression analysis evaluating administrative education as a potential moderator, the interaction term was not statistically significant ($p = 0.331$), whereas clinical experience remained significantly associated with administrative experience ($p < 0.001$).

Administrative experience differed across specialties ($p = 0.048$). Pharmacy participants reported the highest mean administrative experience (8.67 years), followed by medicine (5.90 years), allied health professions (5.38 years), dentistry (5.13 years), and nursing (4.45 years). Because the study was cross-sectional, these differences describe the sample and do not establish differences in career progression between professions.

3.3. Clinical and Administrative Roles Perceived Competence

Self-rated perceived competence was high across the clinical, managerial, leadership, quality-improvement, decision-making, communication, and interdisciplinary domains assessed by the questionnaire and shown in Table 3. The overall perceived competence-domain mean was 4.02 ± 0.56. For most individual items, the large majority of respondents selected "high" or "very high," while ratings of "none," "very low," or "low" were uncommon.

The perceived competence score was not significantly correlated with the administrative-role score ($r = -0.026$, $p = 0.757$), indicating that self-rated perceived competence and perceptions of the administrative role were not closely related in this sample.

Table 3. Distribution of self-rated competencies and skills across items.

Items	None	Very Low	Low	Moderate	High	Very High
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Clinical skills	2 (1.4)	2 (1.4)	1 (0.7)	17 (11.7)	60 (41.4)	63 (43.4)
Role of clinical professional	2 (1.4)	3 (2.1)	6 (4.1)	20 (13.8)	49 (33.8)	65 (44.8)
Role of administrative professional	2 (1.4)	0 (0.0)	4 (2.8)	32 (22.1)	59 (40.7)	48 (33.1)
Evidence-based practice	0 (0.0)	0 (0.0)	2 (1.4)	26 (17.9)	70 (48.3)	47 (32.4)
Information systems	0 (0.0)	0 (0.0)	3 (2.1)	32 (22.1)	70 (48.3)	40 (27.6)
Mission, vision & objectives communication	0 (0.0)	1 (0.7)	6 (4.1)	22 (15.2)	64 (44.1)	52 (35.9)
Team building techniques	0 (0.0)	0 (0.0)	5 (3.4)	18 (12.4)	65 (44.8)	57 (39.3)
Constructive performance evaluation	1 (0.7)	1 (0.7)	5 (3.4)	26 (17.9)	66 (45.5)	46 (31.7)
Conflict resolution techniques	0 (0.0)	1 (0.7)	3 (2.1)	33 (22.8)	68 (46.9)	40 (27.6)
Patients' rights & responsibilities	1 (0.7)	1 (0.7)	2 (1.4)	16 (11.0)	54 (37.2)	71 (49.0)
Healthcare management theories	2 (1.4)	1 (0.7)	7 (4.8)	23 (15.9)	68 (46.9)	44 (30.3)
Continuing education & career development	0 (0.0)	1 (0.7)	4 (2.8)	22 (15.2)	61 (42.1)	57 (39.3)
Quality improvement	0 (0.0)	1 (0.7)	1 (0.7)	21 (14.5)	78 (53.8)	44 (30.3)
Decision making	1 (0.7)	0 (0.0)	3 (2.1)	16 (11.0)	66 (45.5)	59 (40.7)
Leadership theories & styles	0 (0.0)	1 (0.7)	2 (1.4)	30 (20.7)	65 (44.8)	47 (32.4)
Interdisciplinary work coordination	3 (2.1)	1 (0.7)	1 (0.7)	25 (17.2)	68 (46.9)	47 (32.4)
Productivity measurements	2 (1.4)	0 (0.0)	3 (2.1)	20 (13.8)	76 (52.4)	44 (30.3)

3.4. Administrative-Role Characteristics and Perceptions

Responses to administrative-role items showed both positive professional perceptions and substantial role demands shown in Table 4. Regarding preparation for administrative work, 35.8% disagreed or strongly disagreed with the statement that management qualifications were not crucial, while 45.5% disagreed or strongly disagreed that leadership qualifications were not crucial. Experience received the strongest endorsement: 60.0% disagreed or strongly disagreed that experience was not crucial for excelling in an administrative position.

Table 4. Distribution of responses on administrative role details.

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Management qualifications are not crucial to excel in my administrative position	8 (5.5)	44 (30.3)	31 (21.4)	46 (31.7)	16 (11.0)
Leadership qualifications are not crucial to excel in my administrative position	16 (11.0)	50 (34.5)	33 (22.8)	32 (22.1)	14 (9.7)
Experience is not crucial to excel in my administrative position	22 (15.2)	65 (44.8)	32 (22.1)	18 (12.4)	8 (5.5)
Incentives (financial) influenced my decision to take the administrative role	17 (11.7)	22 (15.2)	39 (26.9)	39 (26.9)	28 (19.3)
Incentives (less clinical load) influenced my decision to take the administrative role	11 (7.6)	33 (22.8)	39 (26.9)	43 (29.7)	19 (13.1)
Job title linked to the administrative role influenced my decision	11 (7.6)	24 (16.6)	33 (22.8)	52 (35.9)	25 (17.2)
Administrative role can affect my clinical skills	4 (2.8)	32 (22.1)	33 (22.8)	55 (37.9)	21 (14.5)
Administrative role enables me to focus on my own clinical practice	5 (3.4)	31 (21.4)	54 (37.2)	45 (31.0)	10 (6.9)
Administrative role encourages sharing of knowledge with colleagues	1 (0.7)	12 (8.3)	24 (16.6)	72 (49.7)	36 (24.8)
Time spent on administrative sessions takes me away from clinical work	1 (0.7)	29 (20.0)	38 (26.2)	54 (37.2)	23 (15.9)
This role affects my relationships with colleagues	8 (5.5)	42 (29.0)	39 (26.9)	42 (29.0)	14 (9.7)
Administrative sessions give me time to discuss issues openly	5 (3.4)	11 (7.6)	25 (17.2)	81 (55.9)	23 (15.9)
I think I am qualified for the administrative role	2 (1.4)	5 (3.4)	19 (13.1)	66 (45.5)	53 (36.6)
Administrative role is an important part of my career	1 (0.7)	5 (3.4)	20 (13.8)	67 (46.2)	52 (35.9)

Job title, financial incentives, and reduced clinical workload were reported as factors influencing decisions to accept administrative roles. Agreement or strong agreement was reported by 53.1% for job title, 46.2% for financial incentives, and 42.8% for reduced clinical workload. In exploratory subgroup analyses, agreement that financial incentives influenced the decision differed by gender (51.8% of men versus 38.7% of women; $\chi^2(4) = 9.568$, $p = 0.048$). Agreement that job title influenced the decision differed by nationality (50.8% of non-Saudi participants versus 25.6% of Saudi participants; $\chi^2(4) = 10.478$, $p = 0.033$).

The influence of reduced clinical workload also differed across administrative levels ($\chi^2(24) = 38.725$, $p = 0.029$), with agreement particularly common among department- and supervisor-level respondents.

Administrative work was also perceived to affect clinical practice. Overall, 52.4% agreed or strongly agreed that the administrative role could affect clinical skills, and 53.1% agreed or strongly agreed that time spent on administrative sessions took them away from clinical work. At the same time, 74.5% agreed or strongly agreed that administrative work encouraged knowledge sharing, 71.8% reported that administrative sessions provided opportunities to discuss issues openly, 82.1% considered themselves qualified for the administrative role, and 82.1% considered the administrative role an important part of their career.

3.5. Hybrid Clinical/Administrative Role Conflict

Role conflict was moderate overall, with a reported domain mean of 3.33 ± 1.59 shown in Table 5. Nearly half of participants agreed or strongly agreed that their administrative roles required decisions against their better judgment (46.2%) and that they experienced conflicting demands from people at work (50.4%). Time and workload pressures were also common: 42.8% reported difficulty satisfying work demands because of limited time, and 49.0% reported that workload interfered with how well work was completed. Resource and authority constraints were evident, with 56.5% reporting assignments without adequate resources or materials and 39.3% reporting insufficient authority to fulfill work responsibilities.

Table 5. Distribution of responses on role conflict domain.

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
My administrative roles obligate me to take decisions that come against my better judgment	5 (3.4)	31 (21.4)	42 (29.0)	52 (35.9)	15 (10.3)
I am subjected to conflict of demands with people I deal with at work	3 (2.1)	26 (17.9)	43 (29.7)	62 (42.8)	11 (7.6)
I have difficulty in satisfying work demands of all people I deal with because of time limitations	6 (4.1)	35 (24.1)	42 (29.0)	49 (33.8)	13 (9.0)
I put some things off longer than I should	7 (4.8)	42 (29.0)	37 (25.5)	50 (34.5)	9 (6.2)
I am not given enough time to do what is expected of me in my job	8 (5.5)	50 (34.5)	36 (24.8)	36 (24.8)	15 (10.3)
The amount of work I have interferes with how well it gets done	6 (4.1)	33 (22.8)	35 (24.1)	58 (40.0)	13 (9.0)
I do not have enough authority to fulfill my work responsibilities	10 (6.9)	39 (26.9)	39 (26.9)	40 (27.6)	17 (11.7)

Table 5. *Cont.*

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
I receive assignments without adequate resources and materials to execute them	6 (4.1)	27 (18.6)	30 (20.7)	56 (38.6)	26 (17.9)
Sometimes I have to buck rules or policies in order to carry out an assignment	9 (6.2)	41 (28.3)	44 (30.3)	40 (27.6)	11 (7.6)
I have no difficulties reconciling my interests in different areas of work and home life	7 (4.8)	27 (18.6)	46 (31.7)	53 (36.6)	12 (8.3)
I have divided loyalties among different parties at work	9 (6.2)	18 (12.4)	45 (31.0)	61 (42.1)	12 (8.3)

A multiple linear regression model including the administrative-role score and perceived competence score was statistically significant ($F = 52.59$, $p < 0.001$) and explained 42.7% of the variance in workplace role-conflict scores ($R^2 = 0.427$; adjusted $R^2 = 0.419$). The administrative-role score was positively associated with workplace role conflict ($B = 0.783$, $\beta = 0.654$, $t = 10.25$, $p < 0.001$), whereas perceived competence was not ($B = 0.004$, $\beta = 0.004$, $t = 0.056$, $p = 0.956$), reflecting that higher administrative-role scores were associated with higher predicted role conflict scores. Collinearity diagnostics did not indicate multicollinearity (VIF ≤ 1.001). Because the administrative-role domain includes several aspects of administrative work, this association should be interpreted at the domain level and does not identify a single administrative characteristic as the cause of role conflict. All associations are cross-sectional and do not establish causality.

4. Discussion

This study describes a multi-professional sample of clinician-administrators drawn from all 13 administrative regions of Saudi Arabia and highlights both the value and the challenges of hybrid clinical-administrative work. Participants were generally clinically experienced, rated their perceived competence highly, and viewed administrative leadership positively. At the same time, many reported that administrative duties reduced clinical time, could affect clinical skills, and were accompanied by competing demands, workload pressure, limited resources, and insufficient authority. The main multivariable finding was that the administrative-role domain was associated with workplace role-conflict scores, whereas perceived competence was not.

Clinical experience was moderately and positively associated with administrative experience, suggesting that greater exposure to clinical practice may accompany increased involvement in administrative responsibilities. Administrative experience also differed significantly across professional specialties, indicating variation in administrative exposure among healthcare professional groups. However, perceived competence was not significantly associated with administrative-role perceptions, suggesting that perceived competency in administrative tasks does not necessarily correspond to how individuals perceive or experience their administrative roles. In contrast, administrative-role perceptions were positively associated with workplace role conflict, indicating that greater engagement with or perception of administrative responsibilities may be accompanied by increased

conflict between clinical and administrative demands. Perceived competence, however, was not significantly associated with role conflict.

The findings are consistent with the concept of hybrid clinical management, in which clinicians occupy a boundary position between professional practice and organizational management. Llewellyn described clinician-managers as "two-way windows" connecting clinical and managerial domains [4], while Kippist and Fitzgerald demonstrated how dual roles can expose clinicians to organizational-professional conflict when clinical values and managerial expectations diverge [7]. The present sample reflects that same boundary-spanning function: respondents retained clinical responsibilities while participating in supervision, management, quality improvement, and organizational decision-making. Such roles may provide important organizational value because clinician involvement in leadership can contribute clinical knowledge, credibility, and insight into care delivery [1,2].

The results also clarify the relationship between experience and administrative participation. Participants had substantially more clinical than administrative experience, and the two were moderately correlated. This pattern is compatible with the common pathway in which administrative responsibilities are assumed after a period of clinical practice, although the cross-sectional design cannot establish the sequence or cause of that transition. Administrative experience also differed across professional groups in this sample, with pharmacy reporting the highest mean followed by medicine, allied health, dentistry, and nursing. These differences may reflect distinct organizational structures and career pathways, but they require confirmation in studies designed to compare professions directly.

Perceived competence was high across clinical and managerial domains, including evidence-based practice, team building, decision-making, quality improvement, leadership, and interdisciplinary coordination. This is relevant because effective clinical leadership has been linked to quality, safety, governance, and organizational performance, and leadership is increasingly understood as a collective rather than exclusively positional function [33,34]. However, perceived competence did not significantly predict workplace role conflict in the multivariable model. This finding suggests that the tensions reported by clinician-administrators cannot be explained simply by lower self-perceived ability and that organizational conditions deserve equal attention.

Role theory provides a useful framework for interpreting workplace role conflict. Role conflict occurs when individuals face incompatible expectations, competing demands, insufficient clarity, or constraints that make simultaneous occupational obligations difficult to reconcile [9]. The item-level responses in this study fit this framework: participants reported decisions that conflicted with their judgment, competing demands, insufficient time, inadequate resources, and insufficient authority. Training may help clinician-administrators manage these situations, but training alone cannot provide protected time, redistribute workload, clarify authority, or ensure access to resources.

Several alternative explanations may account for the observed association between administrative-role perceptions and workplace role conflict. For instance, some conceptual resemblances may exist between the content of the administrative-role and role-conflict domains, as certain aspects of administrative responsibilities may also reflect challenges associated with competing clinical and managerial demands. Second, organizational context may influence how clinicians experience and perceive their dual roles. Third, unmeasured individual and organizational factors may also contribute to role conflict. These possibilities suggest that the observed association should be interpreted cautiously and may reflect a combination of individual perceptions, organizational circumstances, and other factors not captured in the present study. Nonetheless, the administrative-role domain should also be interpreted cautiously because it combines several aspects of administrative work,

including preparation, incentives, professional perceptions, and perceived effects on clinical practice. The observed association with role conflict therefore indicates that the broader administrative-role experience is related to workplace conflict, but it does not establish which specific component is responsible. Item-level findings help clarify where the practical tensions may lie.

Several explanations may account for the absence of a statistically significant independent association between perceived competence and workplace role conflict. First, role conflict may be influenced more strongly by organizational and structural conditions or clinician-administrators may possess the necessary competence to undertake administrative responsibilities but still experience role conflict when they lack sufficient decision-making authority, organizational autonomy, or flexibility to reconcile competing clinical and managerial demands. Therefore, the nonsignificant finding should not be interpreted as evidence that perceived competence is unimportant, but rather that its independent association with role conflict was not demonstrated in the current analysis.

One of the clearest tensions involved the relationship between administrative work and clinical practice. More than half of participants reported that administrative responsibilities could affect clinical skills and those administrative sessions took time away from clinical work. Hybrid leadership can expand professional influence, but it can also reduce clinical exposure and create concern about maintaining professional identity or credibility. This is particularly important because clinician-administrators often rely not only on formal organizational authority but also on the trust and recognition of professional peers [4,33,35]. Organizations should therefore avoid treating administrative work as an additional responsibility layered onto an otherwise unchanged clinical workload.

Participants also reported several motivations for assuming administrative roles, including job title, financial incentives, and reduced clinical workload. Exploratory subgroup analyses suggested variation by gender, nationality, and administrative level. These findings should not be interpreted as stable population differences because some subgroup sizes were small and the study was not primarily powered for multiple subgroup comparisons. Nevertheless, they indicate that clinicians may enter administrative work for different reasons and that leadership pathways may be shaped by both professional aspirations and organizational incentives.

The study is timely in the context of Saudi healthcare transformation. Current reforms emphasize quality, efficiency, governance, integration, workforce development, and the capacity to translate system-level priorities into clinical practice. Recent Saudi literature has similarly highlighted the importance of system integration and workforce capacity building [36], changes in governance and organizational structure associated with health-sector transformation [13], and the need for formal leadership development within health-professions education [37]. Clinician-administrators are positioned at the interface of these priorities because they can translate between frontline care and organizational strategy; however, the present findings indicate that occupying that interface may carry substantial role demands.

This study has several strengths, including participation from five broad healthcare professional groups, multiple administrative levels, and all 13 administrative regions of Saudi Arabia. It also examined perceived competence, administrative-role characteristics, and workplace role conflict within the same sample. Additionally, the study's three-domain questionnaire structure provides a framework for examining these dimensions in future research. Collectively, these findings extend the discussion of clinician-administrators beyond individual perceived competence to include the perceptions and challenges associated with integrating clinical and administrative responsibilities.

Several limitations should be considered. Some conceptual overlap between these constructs cannot be entirely excluded and should be considered when interpreting the results. The cross-sectional design precludes conclusions about causality or temporal direction. Measures were self-reported and may be influenced by response or social-desirability bias, particularly for competence. Recruitment was electronic and non-probability based, which may limit representativeness and generalizability. Nearly half of respondents were from Riyadh, and some professional and administrative subgroups were small. Therefore, subgroup findings represent observations within the recruited sample and should not be interpreted as definitive evidence of differences between professional or demographic groups in the wider Saudi healthcare workforce.

In terms of assessment, further examination of its construct validity, including confirmatory factor analysis and discriminant validity, is needed given that some individual items may not fully capture the complexity of the concepts being assessed. Although the questionnaire was developed based on a literature review, relevant conceptual frameworks, expert input, and content assessment, exploratory factor analysis identified the expected three-domain structure, and all domains demonstrated acceptable internal consistency. Nevertheless, exploratory factor analysis and Cronbach's alpha alone do not provide comprehensive evidence of construct validity or measurement stability. Further psychometric evaluation, including confirmatory factor analysis, test–retest reliability, convergent and discriminant validity, and measurement invariance across professional groups, is needed to strengthen the evidence supporting the questionnaire's measurement properties. Additionally, reliance on self-reported responses may have introduced recall bias, social desirability bias, and common method bias. Therefore, the composite scores should be interpreted with consideration of the available psychometric evidence.

Furthermore, the original regression model did not adjust for all potentially relevant demographic and professional characteristics such as gender, professional specialty, administrative level, and years of clinical or administrative experience. Although these characteristics were explored in separate analyses, their potential confounding effects were not simultaneously examined in the regression model. Consequently, the reported association between administrative-role perceptions and workplace role conflict should be interpreted as an association within the specified model rather than an association independent of all demographic and professional factors. Nevertheless, the relatively high perceived competence scores may indicate a potential ceiling effect, which could have limited the ability to distinguish between participants with different levels of perceived competence.

Several subgroup comparisons were exploratory and should be interpreted cautiously given the unequal distribution of participants across subgroups, which may have affected the statistical power and precision of the comparisons, particularly for groups with smaller sample sizes. Nonetheless, the achieved sample size met the minimum requirement established through the a priori power analysis, which may have limited the statistical power of certain subgroup analyses, particularly where participants were distributed across multiple professional and demographic categories.

Additionally, multiple subgroup comparisons increase the possibility of chance findings (Type I errors). As these analyses were exploratory and not prespecified, statistically significant findings should be interpreted cautiously and considered hypothesis-generating rather than conclusive evidence of subgroup differences. Future studies with more balanced subgroup representation and prespecified analytical comparisons are needed to validate these findings. Nonetheless, the use of a self-administered questionnaire to assess all study variables among the same participants at a single time point may have introduced common-method variance, potentially influencing the observed associations. Furthermore, although the three-domain factor structure supported the proposed organization of the

questionnaire, some conceptual overlap may remain as it may partly reflect similarities in item content and the shared data-collection method. Future studies could use separate measurement instruments, multiple data sources, or different data-collection time points to further examine these relationships.

Future research should employ longitudinal designs to investigate the transition of clinicians into administrative roles and the evolution of workplace role conflicts over time. Qualitative studies could delve deeper into the negotiation of professional and managerial expectations, while intervention studies could assess the effectiveness of protected time, clearer authority, mentorship, formal leadership preparation, and redesigned workload models in enhancing the sustainability of hybrid roles. Nonetheless, future studies need to examine individual domain components, which may help identify the specific aspects of administrative responsibilities most closely associated with workplace role conflict, given that this domain encompasses several aspects of clinicians' perceptions and experiences of administrative responsibilities. Furthermore, Further research could adopt probability-based or more systematically stratified sampling approaches, where feasible, and employ longitudinal designs, qualitative interviews, and validated measurement instruments to further explore clinician-administrator roles. Also examine whether organizational interventions, such as protected administrative time and clearer decision-making authority, are associated with improvements in workplace role-conflict outcomes.

5. Conclusions

This study highlights the multifaceted nature of the clinician-administrator role in Saudi Arabia. Participants were generally experienced, reported relatively high perceived competence, and viewed administrative leadership as an important aspect of their professional roles. However, administrative responsibilities were also associated with reduced clinical time, competing demands, and workplace role conflict. Perceived competence was not independently associated with role-conflict scores in the regression model, suggesting that individual perceived capabilities alone may not fully account for the challenges experienced by clinician-administrators. These findings highlight the potential importance of organizational and structural considerations, including clearly defined responsibilities, appropriate authority, protected clinical time, adequate resources, and manageable workloads. Further research, particularly longitudinal and multicenter studies, is needed to examine these relationships and identify organizational factors that may support the effective integration of clinical and administrative responsibilities.

The practical implication is that the development of clinician-administrators should combine individual preparation with organizational support. Formal leadership education, mentorship, and training in management, conflict resolution, resource allocation, and decision-making remain important. At the same time, institutions should define role expectations and authority, allocate protected administrative time, align workload with dual responsibilities, and ensure that resources and decision-making authority are proportionate to accountability. These measures may help address some of the challenges associated with balancing clinical and administrative responsibilities. However, they should be considered plausible organizational responses based on the challenges identified in this study, rather than interventions whose effectiveness was evaluated or established by the present findings.

Author Contributions: Conceptualization, S.A. (Sultan Aldakhil) and K.A.; Methodology, S.A. (Sultan Aldakhil) and K.A.; Software, K.A.; Validation, K.A., S.A. (Saja Alrayes), and A.A.; Formal analysis, S.A. (Sultan Aldakhil) and K.A.; investigation and resources, S.A. (Sultan Aldakhil), K.A., and D.A.; Data Curation, S.A. (Sultan Aldakhil) and D.A.; Writing—original draft preparation, S.A. (Sultan Aldakhil), K.A., and S.A. (Shug Albarrak); writing—review and editing, and visualization, S.A. (Sultan Aldakhil) and S.A. (Shug Albarrak); supervision, S.A. (Saja Alrayes) and A.A.; project

administration, S.A. (Sultan Aldakhil) and K.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The IRB approval was granted from King Abdullah International Medical Research Center (KAIMRC), reference number (Reference number: 0000076224 Approval date 7 November 2024). This study was conducted in accordance with the ethical principles of the declaration of Helsinki.

Informed Consent Statement: Informed consent was taken from all participants involved in this study.

Data Availability Statement: The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to applicable ethical and confidentiality requirements. Individual-level survey responses are not publicly available to protect participants' anonymity and confidentiality.

Acknowledgments: The authors extend their heartfelt gratitude to the Saudi Commission for Health Specialties for their invaluable assistance in facilitating the distribution of the survey to participants. The authors declare using ChatGPT 5.6 for typos and sentence's structure modifications and confirm reading the content afterwards and assumed responsibility of the manuscript.

Conflicts of Interest: The authors declare that they have no competing interests.

References

1. Clay-Williams, R.; Ludlow, K.; Testa, L.; Li, Z.; Braithwaite, J. Medical leadership, a systematic narrative review: Do hospitals and healthcare organisations perform better when led by doctors? *BMJ Open* **2017**, *7*, e014474. [CrossRef] [PubMed]
2. Sarto, F.; Veronesi, G. Clinical leadership and hospital performance: Assessing the evidence base. *BMC Health Serv. Res.* **2016**, *16*, 169. [CrossRef] [PubMed]
3. Tasi, M.C.; Keswani, A.; Bozic, K.J. Does physician leadership affect hospital quality, operational efficiency, and financial performance? *Health Care Manag. Rev.* **2019**, *44*, 256–262. [CrossRef] [PubMed]
4. Llewellyn, S. 'Two-Way Windows': Clinicians as Medical Managers. *Organ. Stud.* **2001**, *22*, 593–623. [CrossRef]
5. Nzinga, J.; McGivern, G.; English, M. Hybrid clinical-managers in Kenyan hospitals. *J. Health Organ. Manag.* **2019**, *33*, 173–187. [CrossRef] [PubMed]
6. Prenestini, A.; Sartirana, M.; Lega, F. Involving clinicians in management: Assessing views of doctors and nurses on hybrid professionalism in clinical directorates. *BMC Health Serv. Res.* **2021**, *21*, 350. [CrossRef] [PubMed]
7. Kippist, L.; Fitzgerald, A. Organisational professional conflict and hybrid clinician managers: The effects of dual roles in Australian health care organizations. *J. Health Organ. Manag.* **2009**, *23*, 642–655. [CrossRef] [PubMed]
8. Waitzberg, R.; Gottlieb, N.; Quentin, W.; Busse, R.; Greenberg, D. Dual agency in hospitals: What strategies do managers and physicians apply to reconcile dilemmas between clinical and economic considerations? *Int. J. Health Policy Manag.* **2022**, *11*, 1823–1834. [CrossRef] [PubMed]
9. Rizzo, J.R.; House, R.J.; Lirtzman, S.I. Role conflict and ambiguity in complex organizations. *Adm. Sci. Q.* **1970**, *15*, 150. [CrossRef] [PubMed]
10. McConnell, C.R. The health care professional as a manager: Balancing two important roles. *Health Care Manag.* **2008**, *27*, 277–284. [CrossRef] [PubMed]
11. Stefl, M.E. Common competencies for all healthcare managers: The Healthcare Leadership Alliance model. *J. Healthc. Manag.* **2008**, *53*, 360–373. [CrossRef]
12. Stoller, J.K. Developing physician-leaders: Key competencies and available programs. *J. Health Adm. Educ.* **2008**, *25*, 307–328. [PubMed]
13. Alasiri, A.A.; Mohammed, V. Healthcare transformation in saudi arabia: An overview since the launch of vision 2030. *Health Serv. Insights* **2022**, *15*, 11786329221121214. [CrossRef] [PubMed]
14. Alshamlani, Y.A.; Alanazi, N.H.; Alhamidi, S.; Alanazi, R.; Alenezi, A.; Adalin, N.M.; Alyousef, S.; Tumala, R.B. Predictors of leadership competencies among nurse executives in the Kingdom of Saudi Arabia. *J. Healthc. Leadersh.* **2024**, *16*, 105–119. [CrossRef] [PubMed]
15. Abuljood, M.A.; Almatrafi, M.; Alsolami, A.; Aloufi, Y.; Abualkhair, A. Evaluating Leadership Dynamics: A Comprehensive Cross-Sectional Study of Madinah's Primary Healthcare Centers. *Cureus* **2024**, *16*, e67199. [CrossRef] [PubMed]

16. Al Ansari, A.M. Managerial perceptions of core competencies for healthcare middle managers in Bahrain and Saudi Arabia: A qualitative study. *Int. J. Med. Educ.* **2026**, *17*, 1–9. [CrossRef] [PubMed]
17. Al Ansari, A.M.; Holloway, E.L.; Sequeira, R.P. Development and Validation of a Scale for Measuring Leadership and Managerial Competencies of Middle Managers in Health Care and Medical Education in the Gulf Region: Cross-Sectional Study. *JMIR Med. Educ.* **2026**, *12*, e77476. [CrossRef] [PubMed]
18. Almalki, O.S.; Fathelrahman, A.I.; Alfayez, O.M.; Bawazeer, G.A. Current situation and barriers to women's leadership in health care education in Saudi Arabia: A cross-sectional study. *Saudi Pharm. J.* **2024**, *32*, 102000. [CrossRef] [PubMed]
19. Alshahrani, M.; Alshamrani, M.; Alhabib, S.M. Attitudes toward Organizational Change Strategies among Healthcare Professionals and Administrative Staff: An Applied Study in King Fahd Medical City, Riyadh. *Saudi J. Health Syst. Res.* **2025**, *5*, 64–78. [CrossRef]
20. Alyaemni, A.A.; Alomran, S.A. Investigating the Impact of Professional Certification on Leadership Practices and Effectiveness in Health Administration in Saudi Arabia: A Cross-Sectional Mixed-Methods Study. *J. Healthc. Leadersh.* **2026**, *18*, 607265. [CrossRef] [PubMed]
21. von Elm, E.; Altman, D.G.; Egger, M.; Pocock, S.J.; Gotzsche, P.C.; Vandenbroucke, J.P. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: Guidelines for reporting observational studies. *BMJ* **2007**, *335*, 806–808. [CrossRef] [PubMed]
22. General Authority for Statistics. *Healthcare Establishments and Workforce Statistics Publication*; General Authority for Statistics: Riyadh, Saudi Arabia, 2024.
23. During the 101st Meeting of the SCFHS Board of Trustees: The Number of Healthcare Practitioners Surpasses 800,000|Saudi Commission for Health Specialties. Available online: https://scfhs.org.sa/en/news/during-101st-meeting-scfhs-board-trustees-number-healthcare-practitioners-surpasses-800000 (accessed on 12 November 2026).
24. Alshahrani, A.; Williams, H.; MacLure, K. Investigating Health Managers' Perspectives of Factors Influencing Their Acceptance of eHealth Services in the Kingdom of Saudi Arabia: A Quantitative Study. *Saudi J. Health Syst. Res.* **2022**, *2*, 114–127. [CrossRef]
25. Kang, H. Sample size determination and power analysis using the G*Power software. *J. Educ. Eval. Health Prof.* **2021**, *18*, 17. [CrossRef] [PubMed]
26. Pesudovs, K.; Burr, J.M.; Harley, C.; Elliott, D.B. The development, assessment, and selection of questionnaires. *Optom. Vis. Sci.* **2007**, *84*, 663–674. [CrossRef] [PubMed]
27. Okonkwo, U.; Ekpeyoung, B.; Ndep, A.; Nja, G. Managerial competencies-A survey of healthcare managers in a tertiary hospital in Calabar, South-South Nigeria. *Niger. J. Clin. Pract.* **2020**, *23*, 988–994. [CrossRef] [PubMed]
28. Hahn, C.A.; Lapetra, M.G. Development and use of the leadership competencies for healthcare services managers assessment. *Front. Public Health* **2019**, *7*, 34. [CrossRef] [PubMed]
29. McCormick, E.J.; Jeanneret, P.R.; Gael, S. Position Analysis Questionnaire (PAQ): Symposium Proceedings Occupational Research and the Navy-Prospectus. 1980. Available online: https://files.eric.ed.gov/fulltext/ED106646.pdf#page=88 (accessed on 11 November 2026).
30. Abma, F.I.; van der Klink, J.J.L.; Bültmann, U. The work role functioning questionnaire 2.0 (Dutch version): Examination of its reliability, validity and responsiveness in the general working population. *J. Occup. Rehabil.* **2013**, *23*, 135–147. [CrossRef] [PubMed]
31. Tromski-Klingshirn, D.M.; Davis, T.E. Supervisees' perceptions of their clinical supervision: A study of the dual role of clinical and administrative supervisor. *Couns. Educ. Superv.* **2007**, *46*, 294–304. [CrossRef]
32. Donald, C.; Donald, F. Development and validation of the multidimensional role conflict questionnaire. *SA J. Ind. Psychol.* **2001**, *27*, a779. [CrossRef]
33. Daly, J.; Jackson, D.; Mannix, J.; Davidson, P.; Hutchinson, M. The importance of clinical leadership in the hospital setting. *J. Healthc. Leadersh.* **2014**, *6*, 75–83. [CrossRef]
34. West, M.A.; Eckert, R.; Steward, K.; Pasmore, W.A. *Developing Collective Leadership for Health Care*; The King's Fund: London, UK, 2014.
35. Varga, A.I.; Spehar, I.; Skirbekk, H. Trustworthy management in hospital settings: A systematic review. *BMC Health Serv. Res.* **2023**, *23*, 662. [CrossRef] [PubMed]
36. Alkhurayji, K.; Alsuhaimi, A.; Aldakhil, S.; Alshathri, D. Population health management in Saudi Arabia: A narrative review of system undergoing reform. *Dialogues Health* **2026**, *8*, 100292. [CrossRef] [PubMed]
37. Alblihed, M.; Alzghaibi, H. Needs assessment for a leadership course in saudi medical schools: The student perspective. *Adv. Med. Educ. Pract.* **2024**, *15*, 801–813. [CrossRef] [PubMed]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.