The Review Of
DIABETIC
STUDIES OPEN ACCESS

Health Management Practices and Workforce Performance Among Pharmacists and Health Assistants in Saudi Arabia: A Cross-Sectional Study

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Abstract

Background: Effective health management plays a crucial role in ensuring the optimal utilization of healthcare human resources, particularly pharmacists and healthcare assistants, who are essential to ensuring medication safety and service quality. Despite healthcare reforms in Saudi Arabia, there is limited empirical evidence examining how management practices influence their performance.

Aim: To examine the relationship between health management practices and workforce performance among pharmacists and health assistants in Saudi Arabia.

Methods: A descriptive analytical cross-sectional study was conducted using a structured questionnaire. Statistical analysis included descriptive statistics, reliability testing, correlation analysis, and multiple linear regression.

Results: A total of 320 healthcare workers participated. Health management practices showed a strong positive association with workforce performance ($r = 0.62$, $p < 0.001$). Leadership, communication, and training were significant predictors of performance.

Conclusion: Strengthening health management practices can significantly enhance the performance of pharmacists and health assistants, contributing to improved healthcare quality and patient safety in Saudi Arabia.

Keywords: Health management practices; Workforce performance; Pharmacists; Health assistants

Introduction

Health management is a cornerstone of effective healthcare systems, as it encompasses the planning, organization, leadership, and control of human and material resources to achieve optimal health outcomes [(1)]. Among the various components of health management, **human resource management (HRM)** plays a particularly critical role, as healthcare services are highly labor-intensive and depend largely on the competence, motivation, and performance of healthcare workers [(2)].

Pharmacists and health assistants represent essential cadres within the healthcare workforce [(3)].

Pharmacists are responsible not only for medication dispensing but also for medication safety, clinical decision support, and patient counseling. Health assistants, on the other hand, provide vital supportive and technical services that ensure continuity of care and operational efficiency within healthcare facilities [4, 5]. Effective coordination and management of these professional groups are therefore fundamental to improving the quality of care and patient safety [6].

From a human resource management perspective, factors such as leadership style, supervision, communication, training and development, workload distribution, and clear policies directly influence job performance, professional satisfaction, and adherence to safety standards [7]. Poor management practices may lead to medication errors, reduced service quality, burnout, and inefficiencies in healthcare delivery. Conversely, strong HRM practices can enhance interprofessional collaboration, workforce productivity, and organizational performance [8, 9].

In the context of the Kingdom of Saudi Arabia, the importance of health management and human resource development has been strongly emphasized through **Saudi Vision 2030** and the **Health Sector Transformation Program (HSTP)** [10]. These national initiatives aim to improve healthcare quality, efficiency, and accessibility by optimizing workforce utilization, promoting continuous professional development, and strengthening governance and accountability within healthcare organizations [11]. Workforce transformation, particularly through capacity building and performance-based management, is considered a key enabler for achieving sustainable health system improvement [12].

Despite these strategic priorities, limited empirical research has examined how health management practices, specifically those related to human resource management, influence the performance of pharmacists and health assistants within Saudi healthcare settings. Most available studies focus on physicians or nurses, leaving a gap in understanding the management-related determinants of performance among these crucial professional groups.

Therefore, this study aims to address this gap by exploring the relationship between health management practices and workforce performance among pharmacists and health assistants in Saudi Arabia. By aligning its objectives with the principles of human resource management and the goals of Saudi Vision 2030, this study provides evidence that may support policymakers and healthcare leaders in designing effective management strategies to enhance workforce performance, service quality, and patient safety.

Methods

Study Design and Setting

A descriptive, analytical cross-sectional study was conducted in governmental hospitals and primary healthcare centers across the Kingdom of Saudi Arabia.

Study Population

The study population included licensed pharmacists and health assistants working in Saudi healthcare facilities.

Sample Size and Sampling Technique

Using Cochran's formula, the minimum required sample size was estimated at 300 participants. A total of 320 participants were recruited using convenience sampling.

Study Instrument (Questionnaire)

A structured self-administered questionnaire was developed after an extensive literature review. It consisted of four sections:

Section I: Sociodemographic and Professional Characteristics, including 8 items:

Age, Gender**,** Profession (Pharmacist / Health Assistant)**,** Educational level**,** Years of experience**,** Type of healthcare facility**,** Region of work**,** and Previous management training

Section II: Health Management Practices (20 items)

Subscales: Leadership and supervision, Communication and teamwork, Training and professional development, and Policies and procedures.

Section III: Workforce Performance (12 items)

Subscales: Job performance, Medication safety practices, Quality of service delivery, and Adherence to professional guidelines

Section IV: Perceived Challenges (6 items)

Subscales: Workload, Staff shortage, Resource availability, and Ma support.

Responses were rated on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree).

Validity and Reliability

A panel of experts assessed the content validity of the tool. Reliability analysis showed good internal consistency: Health management practices: Cronbach's $\alpha = 0.89$, and Workforce performance: Cronbach's $\alpha = 0.87$

Data Analysis

Data were analyzed using SPSS version 26. Statistical tests included: Descriptive statistics (mean, SD, frequency, percentage), Independent t-test, Pearson correlation, and Multiple linear regression. Statistical significance was set at $p < 0.05$.

Results

Table 1 shows that the majority of participants were aged 30–39 years (44.4%), indicating a predominantly mid-career workforce, while nearly one-third were under 30 years. Females constituted a higher proportion of respondents (58.1%), reflecting the increasing feminization of the healthcare workforce in many settings. Pharmacists represented 60% of participants, with health assistants accounting for the remaining 40%, ensuring representation of key cadres involved in pharmaceutical and health service delivery.

More than half of the participants held a bachelor's degree (55.0%), while only 17.5% possessed postgraduate qualifications, suggesting moderate levels of advanced professional training. In terms of experience, the largest group had 5–10 years of work experience (44.4%), indicating substantial practical exposure among respondents. Nearly half of the participants were employed in government hospitals (48.1%), and most worked in the central region (38.8%), highlighting a concentration of healthcare personnel in urban or administrative centers. Notably, 56.9% reported having no prior management training, underscoring a potential gap in formal leadership and managerial capacity development.

Table 1. Sociodemographic and Professional Characteristics of Participants (n = 320)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	< 30	96	30.0
	30–39	142	44.4
	≥ 40	82	25.6
Gender	Male	134	41.9
	Female	186	58.1
Profession	Pharmacist	192	60.0
	Health Assistant	128	40.0
Educational level	Diploma	88	27.5
	Bachelor's degree	176	55.0
	Postgraduate degree	56	17.5
Years of experience	< 5 years	98	30.6
	5–10 years	142	44.4
	> 10 years	80	25.0
Type of healthcare facility	Government hospital	154	48.1
	Primary healthcare center	102	31.9
	Other healthcare facilities	64	20.0
Region of work	Central region	124	38.8
	Western region	86	26.9
	Eastern region	64	20.0
	Southern/Northern regions	46	14.3
Previous management training	Yes	138	43.1
	No	182	56.9

Table 2 indicates generally high perceived levels of health management practices, with mean scores ranging from 3.6 to 3.9 on the measurement scale. Leadership and supervision received the highest mean score (3.9 ± 0.6), suggesting strong supervisory support within healthcare facilities. Communication and teamwork also scored favorably (3.8 ± 0.7), reflecting effective interpersonal and collaborative practices.

Training and development recorded the lowest mean (3.6 ± 0.8), implying relative deficiencies in structured professional development opportunities. The overall management score (3.8 ± 0.6) suggests that, while management practices are generally adequate, targeted improvements—particularly in training—may enhance organizational effectiveness.

Table 2. Descriptive Statistics of Health Management Practices

Domain	Mean	SD
Leadership & Supervision	3.9	0.6
Communication & Teamwork	3.8	0.7
Training & Development	3.6	0.8
Policies & Procedures	3.7	0.6
Overall Management Score	**3.8**	**0.6**

As shown in **Table 3**, workforce performance was rated highly across all measured dimensions, with mean scores close to or exceeding 4.0. Job performance achieved the highest score (4.1 ± 0.5), indicating strong individual productivity and task execution. Medication safety and guideline adherence both demonstrated robust performance (4.0 ± 0.6 and 4.0 ± 0.5, respectively), reflecting adherence to professional and clinical standards.

Service quality scored slightly lower (3.9 ± 0.6), suggesting opportunities for further improvement in patient-centered service delivery. The overall performance score (4.0 ± 0.5) indicates a generally high-performing workforce.

Table 3. Workforce Performance Scores

Performance Dimension	Mean	SD
Job Performance	4.1	0.5
Medication Safety	4.0	0.6
Service Quality	3.9	0.6
Guideline Adherence	4.0	0.5
Overall Performance Score	**4.0**	**0.5**

Table 4 demonstrates a **strong positive correlation** between health management practices and workforce performance (**$r = 0.62$, $p < 0.001$**). This statistically significant association indicates that improvements in management practices are closely linked to enhanced workforce performance, supporting theoretical models that emphasize the role of effective management in health system performance.

Table 4. Correlation Between Management Practices and Performance

Variable	r	p-value
Health Management Practices vs Performance	0.62	<0.001

The regression analysis in **Table 5** identifies **leadership** as the strongest predictor of workforce performance (**$\beta = 0.31$, $p < 0.001$**), followed by **communication** (**$\beta = 0.27$, $p < 0.001$**) and **training** (**$\beta = 0.22$, $p < 0.01$**). Policies and procedures also showed a significant but comparatively smaller effect (**$\beta = 0.18$, $p < 0.05$**).

These findings suggest that leadership quality and effective communication play a central role in enhancing workforce performance, while continuous training and clear policies further contribute to improved outcomes. Collectively, the model highlights the multifaceted nature of management practices and their significant influence on healthcare workforce effectiveness.

Table 5. Multiple Linear Regression Analysis Predicting Workforce Performance

Predictor	β	t	p-value
Leadership	0.31	5.2	<0.001
Communication	0.27	4.6	<0.001
Training	0.22	3.9	<0.01
Policies	0.18	3.1	<0.05

Discussion

This study provides strong empirical evidence that health management practices play a critical role in shaping workforce performance in healthcare settings. The findings demonstrate a significant and positive relationship between management practices and workforce performance, highlighting leadership, communication, training, and policies as essential organizational drivers. These results are consistent with a growing body of international literature emphasizing management quality as a key determinant of health system effectiveness.

In the present study, the predominance of participants in the 30–39-year age group reflects a mid-career workforce, which is often associated with higher productivity, adaptability, and professional maturity. Similar demographic patterns have been reported in healthcare workforce studies conducted in low- and middle-income as well as high-income countries, where mid-career professionals form the backbone of service delivery [13]. The higher proportion of female participants aligns with global trends showing increasing female representation in pharmacy and allied health professions, which has been associated with collaborative leadership styles and improved teamwork dynamics [14].

Despite relatively high educational attainment among participants, more than half reported no prior management training. This finding is consistent with earlier studies indicating that healthcare professionals are frequently promoted into managerial roles without formal leadership or management preparation [15]. Previous research has shown that this lack of structured management training can negatively affect decision-making quality, staff motivation, and organizational performance, reinforcing the importance of integrating management competencies into health professional education [16].

In this study, participants reported generally high levels of health management practices, with leadership and supervision scoring highest. This finding aligns with organizational and health systems theories that identify leadership as the primary mechanism through which institutional goals are operationalized. Numerous studies have demonstrated that effective leadership improves staff engagement, reduces burnout, and enhances accountability, particularly in resource-constrained healthcare environments [17-19]. Communication and teamwork also received high scores, consistent with prior research indicating that effective communication is essential for coordinating multidisciplinary healthcare teams and reducing errors. Studies in hospital and primary care settings have consistently shown that poor communication is a major contributor to adverse events and suboptimal service quality [20, 21].

In contrast, training and development received comparatively lower scores, echoing findings from earlier studies that identified insufficient continuous professional development as a persistent challenge in healthcare organizations. Previous research has demonstrated that limited access to training opportunities restricts skill development, reduces adaptability to change, and weakens long-term workforce performance [22]. This suggests that strengthening structured and needs-based training programs remains a critical priority.

In the present study, workforce performance scores were high across all dimensions, particularly in job performance, medication safety, and guideline adherence. These results are consistent with studies reporting strong professional commitment and compliance with clinical standards among healthcare workers, even in challenging work environments [23, 24]. High medication safety and guideline adherence scores may reflect effective regulatory oversight and professional accountability mechanisms.

However, slightly lower scores in service quality mirror findings from previous studies that identified systemic factors—such as workload, patient volume, and administrative burden—as barriers to optimal service delivery [25, 26]. This supports the argument that performance outcomes are influenced not only by individual competence but also by organizational and managerial contexts.

The present study revealed a strong positive correlation between health management practices and workforce performance, which is consistent with extensive empirical evidence linking management quality to employee outcomes. Previous studies across diverse healthcare settings have reported similar moderate-

to-strong correlations, suggesting that effective management enhances motivation, job satisfaction, and task performance [27, 28]. The strength of the association observed in this study underscores the substantial role of management practices in shaping workforce behavior and outcomes.

This study demonstrates that regression analysis identified leadership as the strongest predictor of workforce performance, followed by communication, training, and policies. This hierarchy of influence closely mirrors findings from previous studies, which consistently highlight leadership as the most influential organizational factor affecting performance [29, 30]. Transformational and participatory leadership styles, in particular, have been shown to foster trust, empowerment, and commitment, leading to improved individual and organizational outcomes.

Moreover, communication emerged as a significant predictor, reinforcing evidence from prior research that effective information flow enhances coordination, reduces misunderstandings, and supports teamwork [31]. Training and development also demonstrated a meaningful impact on performance, consistent with studies showing that continuous learning improves competence, confidence, and adaptability [32, 33]. Although policies and procedures had a comparatively smaller effect, their significance aligns with existing literature suggesting that clear and well-implemented policies provide a structural foundation that supports consistent performance [34, 35].

Implications for Practice and Policy

The findings of this study have important implications for healthcare management and policy. Investing in leadership development, strengthening communication systems, and expanding access to continuous training programs should be prioritized as strategic interventions to improve workforce performance. Previous studies have shown that management-focused interventions are cost-effective and sustainable approaches to enhancing health system performance without necessarily increasing workforce size.

At the policy level, integrating management and leadership training into pre-service and in-service education programs may help address longstanding gaps in managerial capacity. Health systems that recognize management quality as a core input—alongside infrastructure and workforce numbers—are more likely to achieve sustainable improvements in service quality and patient outcomes.

Strengths and Limitations

This study contributes to the literature by providing empirical evidence from a diverse healthcare workforce and examining multiple management domains simultaneously. However, as with many similar studies, the cross-sectional design limits causal inference, and reliance on self-reported data may introduce response bias. Future research using longitudinal designs and mixed methods would help clarify causal pathways and explore contextual factors influencing management-performance relationships.

Conclusion

In line with previous research, this study confirms that effective health management practices—particularly leadership and communication—are critical determinants of workforce performance. The findings reinforce the growing consensus that strengthening managerial capacity is essential for health system improvement. Addressing gaps in training and institutional support can significantly enhance workforce effectiveness, service quality, and overall organizational performance.

Recommendations

- Implement structured management training programs
- Strengthen interprofessional collaboration
- Develop clear policies supporting pharmacists and health assistants

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