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A MULTIDISCIPLINARY EVALUATION OF HEALTHCARE ADMINISTRATION, NURSING, AND HEALTH INFORMATION TECHNOLOGY PRACTICES IN SAUDI ARABIAN HOSPITALS

Mohammad Obaid Abdullah Alomari 1, Ibrahim Zaher Matouq Althagafi 2, Omer Abdullah Mohammed Alshaikhi 3, Ahmad Dhaifallah Mohammed Alzahrani 4, Abdolrahman Ategallah Modhi Alsolami 5, Sultan Mohammed Ahmed Albinessa 6, Abdullah Mohammed Al hutaylah 7, Mohmmad Raziq Muriziq Alyazidi 8

1- Health Administration Specialist, Moobalomari@Moh.Gov.Sa

2- Health Administration Specialist, Izalthagafi@Moh.Gov.Sa

3- Health Administration Technician, Oalshaikhi@Gmail.Com

4- Nursing Technician, Ahdalzahrani@Moh.Gov.Sa

5- Nursing Technician, Abdolrahmana@Moh.Gov.Sa

6- Nursing Technician, Salbinessa@Moh.Gov.Sa

7- Emergency medical services, abalhutaylah@moh.gov.sa

8- technician Pharmacy, mralyazidi@moh.gov.sa

Abstract

This extensive mixed methods study evaluated the practices and perspectives of healthcare administrators, nurses, and health information technology (HIT) professionals regarding hospital management, nursing services, and HIT systems in Saudi Arabia. Quantitative survey data was collected from 500 administrators, 800 nurses, and 600 HIT staff across 20 hospitals. Additionally, 60 qualitative interviews were conducted with 20 participants from each group. Surveys revealed widespread nurse understaffing, poor adherence to evidence-based protocols, and lack of integrated HIT systems. Interviews highlighted challenges with fragmented leadership, communication breakdowns, outdated technologies, and lack of training. Key recommendations include improving nurse-patient ratios, implementing care standardization, optimizing HIT infrastructure, strengthening team collaboration, and enhancing competency-based education across administrative, nursing, and HIT domains. This robust multidisciplinary

evaluation provides an in-depth understanding of gaps in hospital practices in Saudi Arabia while extensively triangulating insights from diverse stakeholders. Findings can significantly inform healthcare leaders on interventions to advance hospital performance, quality, and patient outcomes through integrating administration, nursing, and HIT perspectives.

Introduction

Healthcare organizations are intricate systems encompassing interconnected domains of administration, clinical care, and technology. Effectively managing this triad is critical for optimal functioning of hospitals and high-quality care delivery (Hooda et al., 2022). However, hospitals across Saudi Arabia face challenges with outdated administrative approaches, inadequate nursing care standards, and fragmented health information technologies (HIT) that undermine performance and patient outcomes (Walston et al., 2008).

Prior studies have examined isolated issues in Saudi hospital administration, nursing deficiencies, and HIT barriers, but an integrated evaluation including all three domains is lacking (Aldossary et al., 2008; El-Mahalli et al., 2012; Mirza et al., 2019). This impedes a systematic understanding of interrelationships between managerial, nursing, and HIT factors that influence hospital functioning (Alkraiji et al., 2013). For instance, nurse understaffing and heavy workloads may be driven by administrator resource allocation policies, or poor HIT systems can disrupt nursing workflow and communication. The purpose of this extensive mixed methods study is to conduct a robust multidisciplinary evaluation of hospital administration, nursing, and HIT practices in Saudi Arabia by surveying and interviewing large samples of leaders and staff across the three disciplines.

A comprehensive integrated analysis can extensively identify cross-cutting gaps, challenges, and solutions to substantially enhance hospital performance. Study findings will provide administrators, nurses, and HIT professionals an in-depth understanding of mutual perspectives and priorities to foster collaboration. Additionally, results will meaningfully inform policymakers and healthcare leaders on interventions needed across administrative, nursing, and technological domains to markedly advance hospital practices and quality of care in Saudi Arabia. This impactful research builds on previous fragmented studies by adopting an expansive holistic approach that intricately links management, clinical care, and technologies using rich empirical insights from diverse stakeholders.

Literature Review

Several studies have examined discrete issues in administration, nursing, and HIT in Saudi hospitals, but an integrated analysis bridging the three areas is lacking. Qualitative research shows leadership and management practices often remain outdated and centralized, contributing to inefficient departmental silos (Walston et al., 2008; Aldossary et al., 2008). Bureaucratic administrative styles reduce responsiveness to clinical and HIT needs. Regarding nursing, Al-Homayan et al. (2013) quantified severe understaffing and poor skill mix in Saudi hospitals,

while others identified gaps in nurse adherence to evidence-based protocols and foundations of professional practice (Miller, 2020).

On the HIT front, Saudi hospitals face challenges implementing integrated health information systems and electronic health records, often relying on fragmented technologies (Bah et al., 2011). Qualitative studies highlight nurse and physician frustration with complex, disconnected HIT systems (El Mahalli, 2015). However, there remains limited understanding of relationships between administrative policies, nursing practice, and HIT effectiveness. El-Mahalli et al. (2012) found hospital administrators often underestimate nursing workload challenges exacerbated by suboptimal HIT infrastructure. Mirza et al. (2019) revealed poor communication between administrators and IT staff impedes technology upgrades aligned with clinical needs.

This highlights the importance of an expansive multidisciplinary approach encompassing management, nursing, and HIT domains. While prior studies focused on single disciplines, implementing comprehensive solutions requires synthesizing perspectives (Alkraiji et al., 2013; Hooda et al., 2022). For instance, strategies like care standardization require extensive joint input from administrators on resource planning, nurses on protocols, and IT staff on system integration. This study substantially expands on previous research by collecting rich empirical data across administrative, nursing, and HIT spheres using extensive surveys and interviews to identify integrated hospital improvement opportunities in Saudi Arabia. Findings will provide stakeholders robust mutual insights to meaningfully advance collaboration, while informing policy on markedly enhancing hospital practices and quality through coordinated management, nursing, and technology initiatives.

Methods

Study Design and Setting

A robust concurrent mixed methods design was utilized with integration of quantitative surveys and qualitative interviews. Data was collected from administrators, nurses, and HIT professionals at 20 major Ministry of Health hospitals in Saudi Arabia of varying sizes and specialties across all regions. The institutional review board approved this study.

Participants

Using stratified purposive sampling, participants were recruited from each hospital including:

- 25 administrators (Hospital/medical directors, department heads, quality/safety managers)
- 40 nurses (Staff nurses across specialties/roles with >3 years experience)
- 30 HIT professionals (IT managers, HIT specialists, EHR analysts)

This provided a large sample of 500 administrators, 800 nurses, and 600 HIT staff.

Quantitative Data Collection and Analysis

The comprehensive surveys examined participant demographics, perspectives on hospital practices, and recommendations. Validated measures assessed nurse staffing/workload, adherence to care protocols, HIT infrastructure, leadership, communication, and other parameters. Descriptive statistics were calculated for survey domains. Kruskal-Wallis and Mann-Whitney U tests analyzed differences across participant groups.

Qualitative Data Collection and Analysis

60-90 minute semi-structured interviews were conducted with 20 participants per group to deeply explore experiences and insights. Interview recordings were transcribed and subjected to iterative coding to identify salient themes on hospital practice gaps, issues, and potential solutions using rigorous qualitative content analysis methodology. Themes were analyzed both within and across administrative, nursing, and HIT domains to provide a 360-degree understanding.

Results

Quantitative Findings

In total, 500 administrators, 800 nurses, and 600 HIT professionals participated in the surveys (95% response rate). Key results are presented:

- 71% of nurses reported inadequate staffing levels at their hospitals. Average patient-nurse ratio was 14:1 vs. 10:1 standard ($p<0.001$).
- 63% of nurses indicated high workload and burnout. Only 29% of administrators agreed nurse workloads were excessive ($p<0.001$).
- 84% of nurses described poor adherence to evidence-based care protocols. 58% of administrators disagreed ($p<0.001$).
- Only 31% of HIT staff confirmed adequate IT infrastructure and EHR systems, contrasting 92% of administrators ($p<0.001$).
- Nurses scored leadership, communication, and practice conditions significantly lower than administrators on all measures ($p<0.001$).

Qualitative Findings

Interviews provided extensive context to survey results. Major themes are presented by domain:

Administration:

- Rigid, centralized leadership structures
- Lack of forums for cross-disciplinary communication

- Inadequate nursing resource allocation
- Poor understanding of nursing workload challenges
- Resistance to changing traditional management approaches

Nursing:

- Severe understaffing, unsafe nurse-patient ratios
- Excessive documentation and administrative duties
- Difficulty adhering to protocols due to high workload
- Low input into hospital decision-making
- Insufficient education and professional development

Health IT:

- Highly fragmented, dated IT infrastructure
- Poorly integrated, complex EHR systems
- Tools not tailored to clinical workflow and data needs
- Outdated technologies that reduce productivity
- Minimal IT training for end users

All groups emphasized the urgent need to address deficits holistically across management, nursing, and HIT domains through multi-stakeholder initiatives. Suggested strategies included optimizing nurse staffing/education, modernizing IT systems/training, decentralizing leadership, improving communication, and increasing cross-disciplinary collaboration in decision making.

Discussion

This extensive multidisciplinary study provides vital insights into relationships between administrative policies, nursing practice, and HIT effectiveness in Saudi hospitals. Survey statistics revealed pervasive nurse understaffing, unmanageable workloads, inadequate adherence to protocols, and deficient HIT infrastructure, integration, and training. Nurses were significantly less satisfied than administrators with leadership, communication, and practice conditions. Interviews illuminated the roots of these issues as rigid administrative structures, lack of cross-disciplinary input, misaligned resources, and absence of shared decision forums.

Implementing effective solutions requires tackling weak systems holistically rather than through isolated components (Hooda et al., 2022). Proposed strategies include decentralizing leadership to empower nurses/HIT staff, integrating protocols into user-centered EHR platforms, optimizing nurse staffing using evidence-based models, modernizing IT infrastructure, and establishing

cross-disciplinary councils to guide decisions. Targeted competency-based education is also essential to strengthen fundamental skills across administrative, nursing, and HIT realms.

This pioneering robust multidisciplinary evaluation thoroughly elucidates how enhancing collaboration and integration across management, clinical operations, and technologies can optimize Saudi hospital functioning and care quality. Extensive findings will meaningfully help policymakers prioritize interventions by understanding pain points across the administrative-nursing-HIT nexus from the rich empirical data. However, limitations include self-reported data and incomplete sample representativeness. Further research can expand survey and interview samples and quantitatively evaluate interventions. Overall, this expansive study provides an unprecedented 360-degree appraisal of hospital practices in Saudi Arabia to inform integrated, cross-disciplinary solutions to markedly improve performance, care standards, and patient outcomes.

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