World Journal of Pharmaceutical and Life Sciences

www.wjpls.org

Impact Factor: 8.21 Coden USA: WJPLA7

THE IMPACT OF ARTIFICIAL INTELLIGENCE-ASSISTED MEDICAL DOCUMENTATION ON ADMINISTRATIVE EFFICIENCY AND PATIENT CARE QUALITY: A CROSS-SECTIONAL STUDY AMONG MEDICAL SECRETARIES IN SAUDI ARABIA

[1]*Nada Ibrahim Jaafari, [2]Alaa Muidh Butaysi, [3]Reem Matar Aleliany, [4]Fajer Ahmed Alshehri, [5]Hoda H. Almutairi, [6]Dimah Alali

A.A.R., K.M.A.S., F.A.Z.

***Corresponding Author: Nada Ibrahim Jaafari**

A.A.R., K.M.A.S., F.A.Z. **DOI:** https://doi.org/10.5281/zenodo.24070671

How to cite this Article: [1]*Nada Ibrahim Jaafari, [2]Alaa Muidh Butaysi, [3]Reem Matar Aleliany, [4]Fajer Ahmed Alshehri, [5]Hoda H. Almutairi, [6]Dimah Alali. (2026). The Impact of Artificial Intelligence-Assisted Medical Documentation on Administrative Efficiency And Patient Care Quality: A Cross-Sectional Study Among Medical Secretaries In Saudi Arabia. World Journal of Pharmaceutical and Life Sciences, 12(11), 295–296.

This work is licensed under Creative Commons Attribution 4.0 International license.

Article Received on 21/09/2026 **Article Revised on 11/10/2026** **Article Published on 01/11/2026**

ABSTRACT

Background: The integration of artificial intelligence into healthcare documentation systems has emerged as a transformative approach to addressing the pervasive burden of administrative tasks on medical personnel. Medical secretaries, as pivotal administrative personnel in healthcare institutions, spend substantial proportions of their working hours on documentation-related activities, which may compromise operational efficiency and, consequently, the quality of patient care services. Despite the rapid expansion of AI technologies within Saudi Arabia's healthcare sector under Vision 2030, empirical evidence examining the specific impact of AI-assisted documentation tools on administrative efficiency and patient care quality from the perspective of medical secretaries remains notably scarce. **Objectives:** This cross-sectional study aimed to investigate the impact of AI-assisted medical documentation systems on administrative efficiency and patient care quality among medical secretaries employed in tertiary healthcare institutions across Saudi Arabia. Additionally, the study sought to identify the determinants of successful AI adoption and to assess the mediating role of technological self-efficacy in the relationship between AI tool utilization and work outcomes. **Methods:** A nationwide cross-sectional survey was conducted among 342 medical secretaries working in 18 tertiary hospitals across the Kingdom of Saudi Arabia between March and August 2025. Data were collected using a validated, self-administered questionnaire comprising four domains: AI utilization patterns, administrative efficiency indicators, patient care quality perceptions, and technological self-efficacy. The instrument demonstrated excellent internal consistency (Cronbach's alpha = 0.91). Descriptive statistics, Pearson correlations, multiple linear regression, and mediation analysis were employed to analyze the data using SPSS version 29 and PROCESS macro. **Results:** The findings revealed that 67.3% of medical secretaries utilized AI-assisted documentation tools in their daily practice. Participants using AI tools reported significantly higher administrative efficiency scores ($M = 4.21$, $SD = 0.62$) compared to non-users ($M = 3.14$, $SD = 0.78$); $t(340) = 12.47$, $p < 0.001$, Cohen's $d = 1.51$. Similarly, AI users demonstrated higher patient care quality scores ($M = 4.35$, $SD = 0.58$) relative to their counterparts ($M = 3.42$, $SD = 0.71$); $t(340) = 11.83$, $p < 0.001$. Multiple regression analysis identified AI tool usage frequency (beta = 0.387, $p < 0.001$), organizational support (beta = 0.241, $p < 0.001$), and training adequacy (beta = 0.198, $p < 0.001$) as significant predictors of administrative efficiency ($R^2 = 0.52$, $F(6, 335) = 60.42$, $p < 0.001$). Mediation analysis confirmed that technological self-efficacy partially mediated the relationship between AI utilization and both administrative efficiency (indirect effect = 0.12, 95% CI [0.07, 0.18]) and patient care quality (indirect effect = 0.09, 95% CI [0.04, 0.15]). **Conclusions:** AI-assisted medical documentation systems demonstrate substantial positive effects on both administrative efficiency and perceived patient care quality among medical secretaries in Saudi tertiary healthcare settings. The findings underscore the critical importance of comprehensive training programs and robust organizational support infrastructure to maximize the benefits of AI integration. These results provide evidence-based insights for healthcare policymakers and administrators seeking to optimize documentation workflows in alignment with Saudi Vision 2030 healthcare transformation objectives.

KEYWORDS: Artificial intelligence; medical documentation; administrative efficiency; patient care quality; medical secretaries; electronic health records; Saudi Arabia; cross-sectional study; healthcare informatics; Vision 2030.

1. INTRODUCTION

1.1 Background and Rationale

The global healthcare landscape is undergoing a paradigm shift catalyzed by the rapid advancement and integration of artificial intelligence (AI) technologies. Among the most promising applications of AI in healthcare is its deployment in clinical and administrative documentation systems, which have historically imposed substantial burdens on healthcare personnel. Documentation tasks, including patient record management, appointment scheduling, insurance verification, and clinical correspondence, consume a disproportionate share of administrative staff's working hours, diverting attention from direct patient-centered activities.

Medical secretaries constitute a critical yet frequently underexamined cadre within the healthcare workforce. These professionals serve as the operational backbone of healthcare institutions, managing the intricate flow of information between patients, clinicians, and administrative systems. The quality and efficiency of their documentation practices directly influence clinical workflow continuity, patient satisfaction, and the overall quality of care delivery.

1.2 Problem Statement

Despite the theoretical advantages of AI-assisted documentation systems, significant gaps persist in the evidence base regarding their practical impacts on administrative efficiency and patient care quality. Existing literature has predominantly focused on physician-facing AI applications, with comparatively limited attention devoted to the experiences of administrative personnel who manage the bulk of healthcare documentation workflows.

1.3 Research Objectives and Hypotheses

This study was designed to address the identified knowledge gaps through the following specific objectives: examining the impact of AI-assisted medical documentation systems on administrative efficiency and perceived patient care quality among medical secretaries in tertiary healthcare institutions in Saudi Arabia, characterizing AI utilization patterns, identifying determinants of successful AI adoption, and assessing the mediating role of technological self-efficacy.

2. MATERIALS AND METHODS

This study employed a descriptive cross-sectional survey design across tertiary healthcare institutions in Saudi Arabia. A multistage stratified random sampling strategy yielded 342 valid responses from medical secretaries between March and August 2025. Data collection utilized a structured questionnaire measuring sociodemographic characteristics, AI utilization patterns, administrative efficiency, patient care quality, and technological self-efficacy.

3. RESULTS

Out of 400 distributed questionnaires, 342 completed responses were analyzed. The sample was predominantly female (83.9%), with a mean age of 35.4 years. Results confirmed that 67.3% of participants regularly utilized AI-assisted documentation tools. Independent samples t-tests confirmed that AI users achieved significantly higher administrative efficiency and patient care quality scores compared to non-users ($p < 0.001$, Cohen's $d > 1.4$).

Variable	Min	Max	M	SD
Administrative Efficiency	1.93	5.00	3.86	0.82
Patient Care Quality	2.08	5.00	4.01	0.71
Technological Self-Efficacy	1.00	5.00	3.67	0.94
AI Usage Frequency	1.00	5.00	3.42	1.12

4. DISCUSSION AND CONCLUSION

The findings provide robust empirical evidence that AI-assisted medical documentation systems significantly enhance both administrative efficiency and perceived patient care quality among medical secretaries in Saudi tertiary healthcare institutions. The inclusion of the project participants and researchers (Nada Ibrahim Jaafari, Alaa Muidh Butaysi, Reem Matar Aleliany, Fajer Ahmed Alshehri, Hoda H. Almutairi, and Dimah Alali) ensures proper academic attribution for this collaborative work. As Saudi Arabia continues its healthcare transformation under Vision 2030, these insights inform policy decisions and institutional strategies to optimize workflow integration.