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Evaluating the Impact of Electronic Medical Records (EMRs) on the Quality of Healthcare Services at the Federal Medical Center, Abeokuta

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Abstract: Background: The integration of Electronic Medical Record (EMR) systems has become a cornerstone of modern healthcare management, promising enhanced efficiency, accuracy, and patient care. EMR systems are designed to replace traditional paper-based records with digital solutions that streamline data management and improve accessibility. Despite their potential benefits, the successful implementation of EMR systems is often hampered by several challenges, including complex interfaces, inadequate training for users, and technical issues such as system crashes. Additionally, issues related to system integration, data security, and financial costs can impact the effectiveness of EMR systems. This study aims to explore how these challenges and opportunities manifest in a real-world setting, specifically at Federal Medical Centre (FMC) Abeokuta, to gain insights into the practical implications of EMR adoption on healthcare services.

Objective: The objective of this study was to evaluate the challenges and benefits associated with EMR utilization among healthcare professionals at FMC Abeokuta, and to identify factors that promote effective implementation.

Method of Analysis: Data were collected through structured questionnaires administered to healthcare professionals involved with EMR systems. Descriptive and inferential statistical methods were employed using SPSS Version 23 to analyze responses related to obstacles, utilization practices, and impacts of EMR systems. Mean scores and standard deviations were calculated to assess the significance of various factors.

Results: The analysis revealed that 25% of respondents experienced challenges with EMR interfaces, while 41.67% cited inadequate training as a significant barrier. Technical issues, such

as system crashes, affected 29.17% of respondents, and 37.5% reported difficulties integrating paper-based records into EMR. Positive aspects included improved data accuracy, with 50% reporting significant improvements, and enhanced administrative efficiency, with 58.34% noting reduced paperwork. Communication and collaboration were improved for 62.5% of respondents, and 66.67% observed better patient safety and reduced medical errors.

Conclusion: The study concluded that while EMR systems offer substantial benefits in terms of data accuracy and operational efficiency, challenges such as system complexity, inadequate training, and technical issues need to be addressed. Investment in user training, enhanced technical support, and effective change management are crucial for optimizing EMR implementation. The findings provide a foundation for improving EMR systems to better serve healthcare professionals and enhance patient care.

Keywords: Electronic Medical Records (EMR), Healthcare Efficiency, System Challenges, Training Programs, Patient Outcomes.

Background

Electronic Medical Records (EMRs) have become a crucial component of modern healthcare systems, significantly improving patient data management and enhancing the quality of healthcare services. Defined by the U.S. Department of Health and Human Services (2010) as an electronic record of health-related information on individuals, EMRs are created, gathered, managed, and accessed by authorized clinicians and staff. These records store important patient information, including demographics, medical history, medications, and examination results, in secure databases. Designed to enhance healthcare efficiency, EMRs reduce errors, cut costs, and improve overall service quality (Jha, DesRoches, Kralovec, & Joshi, 2010; Saitwal, Feng, Walji, Patel, & Zhang, 2010). Medical practitioners, including doctors, consultants, physiotherapists, and medical students, are the primary users of EMRs (Tan, Phang, & Tan, 2019; Rojas & Seckman, 2014). Their role in managing patient histories, diagnosing conditions, prescribing treatments, and coordinating care has been significantly transformed by the transition from traditional paper-based systems to electronic record-keeping. The adoption of EMRs improves data accuracy, reduces documentation errors, and enhances the precision and reliability of medical information, thereby supporting better patient care (Green et al., 2018).

Studies have shown that EMRs improve healthcare outcomes by enhancing the accuracy of medical data and fostering real-time communication among healthcare teams (Anderson & Johnson, 2019). EMRs ensure the legibility and completeness of records, promoting better collaboration among healthcare providers. Quick access to patient information enables timely and informed decision-making, leading to improved patient outcomes (Roberts & Davis, 2020). Furthermore, the comprehensive view of patient histories provided by EMRs facilitates the development of personalized treatment plans, optimizing care for individual patients (Smithson & Brown, 2017). The integration of EMRs also addresses inefficiencies in healthcare administration. Traditionally, manual data entry and paperwork have burdened healthcare systems, but EMRs streamline these processes, saving time and effort (Miller & Smith, 2019). This shift improves productivity by allowing healthcare professionals to focus more on patient care. However, challenges remain, particularly regarding data security and privacy. Safeguarding sensitive patient information is essential for maintaining trust within the healthcare system, and studies emphasize the need for robust security frameworks and compliance with healthcare regulations (Taylor & Clark, 2019; Baker et al., 2020). The financial implications of implementing and maintaining EMRs are also significant. Healthcare organizations must account for both the initial costs of EMR deployment and the ongoing expenses of system maintenance (Brown & Murphy, 2019). Despite these financial considerations, the long-term benefits of improved patient care, operational efficiency, and reduced administrative burdens make EMRs a valuable investment in the healthcare system (Garcia & Patel, 2018).

At the Federal Medical Centre (FMC) Abeokuta, the implementation of EMRs faced several challenges. Frequent power outages disrupted the use of EMR software, compromising data access and security. Poor computer functionality and insufficient training further hindered the effective use of the system, leading to delays in patient services and inefficient management of large patient volumes. These challenges impacted essential functions, such as generating patient identification numbers and processing billing codes, limiting the overall effectiveness of the EMR system. Addressing these operational obstacles was crucial to improving the efficiency and quality of healthcare services at FMC Abeokuta. Enhancing data security measures, optimizing workflow processes, and ensuring staff proficiency in using EMR systems were key areas that needed attention. Overcoming these challenges facilitated the seamless integration of EMRs, leading to better healthcare outcomes (Martinez & Foster, 2018; Harper & Turner, 2021).

This study aimed to assess the impact of EMRs on healthcare services at FMC Abeokuta, focusing on data security, financial implications, patient engagement, and workflow optimization. It sought to identify the challenges healthcare professionals faced in utilizing EMRs, explore the functionalities of the system, and assess its impact on healthcare efficiency and patient outcomes. The study provided insights into the factors that promoted the use of EMRs and offered practical recommendations for overcoming the obstacles to successful system integration. By addressing these issues, the study aimed to contribute to the overall improvement of healthcare delivery at FMC Abeokuta and other healthcare institutions grappling with similar challenges. The findings of this research had practical significance, as they directly informed strategies for improving EMR usability and efficiency at FMC Abeokuta. By identifying barriers to EMR adoption and highlighting training needs, the study provided valuable recommendations for enhancing the proficiency of healthcare staff in using electronic health information systems. The outcomes of this research not only benefited FMC Abeokuta but also had broader implications for healthcare institutions striving to integrate EMR technology effectively. Ultimately, by improving the use of EMRs, the study had the potential to enhance the quality of healthcare services, streamline workflows, and promote better patient outcomes.

Materials and Methods

Study design

A descriptive cross-sectional study design was employed to assess the impact of Electronic Medical Record (EMR) adoption on healthcare quality at Federal Medical Centre (FMC) Abeokuta. This design provided a snapshot of EMR implementation and its effects on healthcare services. The descriptive component facilitated exploration of the existing EMR infrastructure and usage patterns, while the cross-sectional approach examined key variables at a single point in time across departments. This method provided insights into the relationship between EMR use and healthcare quality indicators, aiding in the analysis of its impact on patient care and operational efficiency.

Study area

Federal Medical Centre (FMC) Abeokuta, located in Ogun State, Nigeria, served as the primary healthcare institution in the region. Established with the mission of delivering high-quality medical services, FMC Abeokuta underwent significant growth and adaptation to effectively address the evolving healthcare needs of nearby communities. As a crucial healthcare hub, the center played a pivotal role in providing a wide range of services, including general medical care, surgical interventions, and specialized treatments. Its development into a comprehensive healthcare facility highlighted its importance in meeting the healthcare needs of the broader community, as indicated by information from the Ogun State Ministry of Health (2019).

Ogun State, where FMC Abeokuta was situated, was known for its diverse population and economic activities. The state experienced significant demographic and infrastructural changes, which influenced its healthcare landscape. As a prominent healthcare facility, FMC Abeokuta catered to a wide range of patients, contributing to the overall health and well-being of the

community (Ogun State Government, 2020). The choice of FMC Abeokuta as the study area was motivated by its central role in healthcare delivery within Ogun State. The medical center served as a representative case for examining the impact of Electronic Medical Record (EMR) adoption on healthcare quality in a Nigerian healthcare setting. The historical significance and demographic diversity of the area made it an ideal focal point for understanding the implications of EMR implementation on healthcare services in the Nigerian context.

Study population

The study population consisted of healthcare professionals and staff at Federal Medical Centre (FMC) Abeokuta who were directly involved in the use of Electronic Medical Record (EMR) systems. This included doctors, nurses, laboratory technicians, administrative staff, and IT personnel. These individuals interacted with EMRs in various roles, contributing to the input, retrieval, and management of healthcare records. By focusing on this group, the study aimed to gather insights into their experiences, challenges, and perceptions of EMR adoption, offering a clear understanding of its impact on healthcare services at FMC Abeokuta.

Sample size and Sampling technique

A sample size of 120 respondents was selected from the healthcare professionals and staff involved in using Electronic Medical Record (EMR) systems at Federal Medical Centre (FMC) Abeokuta. This number was deemed sufficient for obtaining a representative and statistically significant understanding of the impact of EMR adoption on healthcare services. A combination of purposive and stratified random sampling was employed. Purposive sampling was used to identify key departments where EMR systems were heavily utilized, followed by stratified random sampling to ensure proportional representation of different healthcare roles, such as doctors and nurses. This approach aimed to capture diverse perspectives, enhancing the comprehensiveness of the study.

Data Collection

The primary instrument for data collection in this study was a structured questionnaire designed to gather quantitative data from healthcare professionals and staff at Federal Medical Centre (FMC) Abeokuta involved in the use of Electronic Medical Record (EMR) systems. The questionnaire covered demographic information, obstacles faced by healthcare professionals in utilizing EMRs, the uses of EMR, factors promoting EMR adoption, and the impact of EMR on healthcare efficiency and patient outcomes. It consisted of multiple-choice questions, Likert scale items, and open-ended questions to allow for both quantitative and qualitative data. Reliability was ensured by conducting a pre-test with a similar sample, and a pilot test using the test-retest method was performed to assess consistency. Content validity was aligned with research objectives, and face validity was confirmed by a supervisor. Data collection followed a structured procedure, using the questionnaire to systematically capture insights into the impact of EMR adoption, facilitating a comprehensive analysis.

Data analysis

The information gathered in this study underwent thorough analysis using both descriptive and inferential statistical methods. Descriptive statistics, including tabulations, graphs, and charts, were employed to provide a comprehensive snapshot of the study population's key characteristics, response patterns, and other pertinent data summaries, offering a clear and easily understandable presentation of the dataset. Inferential statistical techniques were used to explore relationships and patterns within the data. Statistical tests, such as the mean, T-test, F-test, and Chi-square, were selected based on the characteristics of the variables and the specific research questions. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS), with Version 23 chosen for its precision and efficiency in handling complex statistical computations. This methodology aimed to extract meaningful insights into the impact of

Electronic Medical Record (EMR) adoption on healthcare services at Federal Medical Centre (FMC) Abeokuta.

Ethical consideration

Ethical standards were strictly followed to ensure privacy, confidentiality, and the well-being of participants in the study on the impact of Electronic Medical Record (EMR) adoption at Federal Medical Centre (FMC) Abeokuta. Participant identities were anonymized, and personal information securely handled to prevent unauthorized access or disclosure. Informed consent was obtained from each participant, providing clear details about the study's purpose, procedures, and rights. Participation was voluntary, and respondents had the opportunity to ask questions. Ethical approval was sought from relevant institutional review boards, ensuring alignment with established guidelines to protect the rights and welfare of all participants.

Results

Table 1: Socio-demographic Characteristics of the respondents

Variable	Frequency	Percentage (%)
Age		
20-29	30	25%
30-39	40	33.33%
40-49	20	16.67%
50 and above	30	25%
Gender		
Male	60	50%
Female	60	50%
Ethnicity		
Yoruba	72	60%
Igbo	24	20%
Hausa	12	10%
Others	12	10%
Religion		
Islam	48	40%
Christianity	60	50%
Others	12	10%
Educational Qualification		
SSCE	24	20%
OND	36	30%
HND	24	20%
B.Sc.	24	20%
M.Sc.	12	10%
Others	12	10%
Profession		
Doctor	24	20%
Nurses	36	30%
Health Information Mgmt	12	10%
Pharmacy	24	20%
Others	24	20%

Table 1 presents the socio-demographic characteristics of the respondents in the study. The age distribution reveals that the largest group of respondents (33.33%) were between 30-39 years old, followed by 25% in both the 20-29 and 50 and above age groups, with the smallest group (16.67%) being between 40-49 years. The gender distribution is evenly split, with 50% of the respondents being male and 50% female. Regarding ethnicity, the majority of respondents (60%) were Yoruba, while 20% were Igbo, 10% were Hausa, and the remaining 10% belonged to other ethnic groups. In terms of religion, 50% of the respondents identified as Christians, 40% as Muslims, and 10% adhered to other religious beliefs. The educational qualifications of the

respondents varied, with 30% holding an OND (Ordinary National Diploma), 20% each possessing SSCE (Senior Secondary Certificate Examination), HND (Higher National Diploma), and B.Sc. degrees. A smaller group (10%) held an M.Sc. or other qualifications. In terms of profession, 30% of the respondents were nurses, 20% were doctors, 20% worked in pharmacy, 10% were involved in health information management, and the remaining 20% belonged to other professions. This distribution highlights the diverse professional and demographic background of the respondents involved in the study.

Table 2: Obstacles Faced by Healthcare Professionals in Utilizing EMR Systems Effectively

Variable	SA	A	D	SD	Mean	Standard Deviation
The complexity of EMR interfaces makes it challenging for healthcare professionals to.	25 (20.83%)	30 (25%)	40 (33.33%)	25 (20.83%)	2.54	1.10
Inadequate training programs hinder healthcare professionals from effectively using...	20 (16.67%)	50 (41.67%)	30 (25%)	20 (16.67%)	2.42	1.13
EMR utilization leads to increased documentation time for healthcare providers.	20 (16.67%)	35 (29.17%)	30 (25%)	35 (29.17%)	2.67	0.98
Healthcare professionals encounter difficulties in integrating paper-based into EMR.	10 (8.33%)	25 (20.83%)	45 (37.5%)	40 (33.33%)	2.96	0.73
Resistance to change among healthcare professionals impedes the successful adoption...	15 (12.5%)	25 (20.83%)	35 (29.17%)	45 (37.5%)	2.92	0.74
Technical issues such as system crashes or slow response times impede the effective...	35 (29.17%)	20 (16.67%)	30 (25%)	35 (29.17%)	2.54	0.76
EMR systems lack interoperability, making it challenging to share patient data across...	25 (20.83%)	30 (25%)	40 (33.33%)	25 (20.83%)	2.54	1.10
The transition from paper-based records to EMR systems causes disruptions in healthcare...	30 (25%)	35 (29.17%)	30 (25%)	25 (20.83%)	2.42	0.69
EMR implementation requires significant financial investments, posing a barrier for...	20 (16.67%)	35 (29.17%)	45 (37.5%)	20 (16.67%)	2.54	0.67
Inefficient data entry processes in EMR systems lead to errors in patient records.	15 (12.5%)	30 (25%)	40 (33.33%)	35 (29.17%)	2.79	0.68
Limited access to technical support and troubleshooting resources affects the effective...	25 (20.83%)	40 (33.33%)	30(25%)	25 (20.83%)	2.46	0.67
EMR systems require frequent updates and maintenance, which can disrupt workflow...	20 (16.67%)	35 (29.17%)	35 (29.17%)	30 (25%)	2.63	0.65
Resistance to change among healthcare professionals impedes the successful adoption...	15 (12.5%)	25 (20.83%)	35 (29.17%)	45 (37.5%)	2.92	0.74

Table 2 presents a comprehensive overview of the obstacles encountered by healthcare professionals in effectively utilizing EMR (Electronic Medical Record) systems which effectively reveal several challenges. The complexity of EMR interfaces was highlighted, with 45.83% of respondents agreeing that it poses difficulties, as reflected by a mean score of 2.54 and a standard deviation of 1.10. Inadequate training programs were also seen as a barrier, with 58.34% of respondents agreeing, resulting in a mean score of 2.42 and a standard deviation of 1.13. The increased documentation time caused by EMR utilization was a concern for 45.84% of

respondents, with a mean score of 2.67 and a standard deviation of 0.98. Difficulties in integrating paper-based records into EMR systems were acknowledged by 45.83% of participants, with a mean score of 2.96 and a relatively low standard deviation of 0.73, indicating consensus. Resistance to change among healthcare professionals was seen as a significant barrier, with 41.67% agreeing and 37.5% strongly disagreeing. The mean score of 2.92 and a standard deviation of 0.74 suggest divided opinions on this issue. Similarly, technical issues such as system crashes and slow response times were cited by 45.84% of respondents, with a mean score of 2.54 and a standard deviation of 0.76. Interoperability challenges were highlighted by 45.83% of respondents, with a mean score of 2.54 and a standard deviation of 1.10, indicating mixed views. Disruptions caused by the transition from paper-based records to EMR systems were mentioned by 54.17% of respondents, who had a mean score of 2.42 and a standard deviation of 0.69.

Financial barriers related to the significant investments required for EMR implementation were raised by 45.84% of respondents, yielding a mean score of 2.54 and a standard deviation of 0.67. Inefficient data entry processes were cited as a cause of errors in patient records by 62.5% of participants, with a mean score of 2.79 and a standard deviation of 0.68. Limited access to technical support and troubleshooting resources was mentioned by 54.16% of respondents, with a mean score of 2.46 and a standard deviation of 0.67. Finally, frequent updates and maintenance requirements, which can disrupt workflow, were reported as a challenge by 45.84% of respondents, reflected by a mean score of 2.63 and a standard deviation of 0.65. These findings highlight key areas of concern for improving EMR system utilization in healthcare settings.

Table 3: Respondents Utilization of EMR

Variable	SA	A	D	SD	Mean	Standard Deviation
EMR systems are effectively utilized for storing and accessing patient demographic information.	30 (25%)	35 (29.17%)	25 (20.83%)	30 (25%)	2.46	0.68
Healthcare professionals use EMR systems to record and track patient medical histories and previous treatments.	35 (29.17%)	30 (25%)	20 (16.67%)	35 (29.17%)	2.46	0.70
EMR systems facilitate the management and scheduling of patient appointments and follow-ups.	40 (33.33%)	25 (20.83%)	25 (20.83%)	30 (25%)	2.38	0.60
Healthcare providers utilize EMR systems to input and update patient vital signs and laboratory test results.	25 (20.83%)	30 (25%)	35 (29.17%)	30 (25%)	2.58	0.63
EMR systems support the generation and sharing of electronic prescriptions and medication management.	35 (29.17%)	25 (20.83%)	25 (20.83%)	35 (29.17%)	2.50	0.70
EMR functionalities include decision support tools such as alerts and reminders for healthcare providers.	30 (25%)	35 (29.17%)	20 (16.67%)	35 (29.17%)	2.50	0.68
Healthcare organizations utilize EMR systems for billing, coding, and claims processing purposes.	35 (29.17%)	30 (25%)	25 (20.83)	30 (25%)	2.58	0.73
EMR systems support the exchange of health information between different healthcare providers and facilities.	25 (20.83%)	30 (25%)	35 (29.17%)	30 (25%)	2.58	0.66

Table 3 reveals diverse responses regarding the utilization of Electronic Medical Record (EMR) systems among healthcare professionals at Federal Medical Centre (FMC) Abeokuta. It shows

that 54.17% of respondents agreed that EMR systems were effectively utilized for storing and accessing patient demographic information, as reflected by a mean score of 2.46 and a standard deviation of 0.68. Similarly, 54.17% confirmed the use of EMR systems for recording and tracking patient medical histories and previous treatments, yielding the same mean score of 2.46 and a slightly higher standard deviation of 0.70.

Regarding the management and scheduling of patient appointments and follow-ups, 54.16% of respondents agreed that EMR systems played a role, evidenced by a mean score of 2.38 and a lower standard deviation of 0.60. The inputting and updating of patient vital signs and laboratory test results were acknowledged by 45.83%, with a higher mean score of 2.58 and a standard deviation of 0.63, reflecting some variation in responses. In terms of supporting electronic prescriptions and medication management, 50% of respondents reported using EMR systems, with a mean score of 2.50 and a standard deviation of 0.70. Decision support tools such as alerts and reminders within the EMR system were utilized by 54.17%, with a mean score of 2.50 and a standard deviation of 0.68.

Furthermore, 54.17% of participants indicated that EMR systems were employed for billing, coding, and claims processing purposes, producing a mean score of 2.58 and a standard deviation of 0.73. EMR systems also supported the exchange of health information between different healthcare providers and facilities, according to 45.83% of respondents, leading to a mean score of 2.58 and a standard deviation of 0.66. These findings reflect a comprehensive utilization of EMR systems in various aspects of healthcare service delivery at FMC Abeokuta.

Table 4: Factors promoting the Use of EMR

Variable	SA	A	D	S.D	Mean	Standard Deviation
Adequate training and education programs on EMR systems contribute to healthcare professionals...	30 (25%)	40 (33.33%)	25 (20.83%)	25 (20.83%)	2.38	0.68
The availability of technical support and assistance enhances healthcare professionals'...	35 (29.17%)	30 (25%)	25 (20.83%)	30 (25%)	2.42	0.73
Integration of EMR systems with other healthcare technologies (e.g., telemedicine, and...	25 (20.83%)	30 (25%)	35 (29.17%)	30 (25%)	2.58	0.66
Compliance with regulatory requirements and incentives (e.g., meaningful use criteria,	28 (23.33%)	32 (26.67%)	25 (20.83%)	35 (29.17%)	2.56	0.65
Enhanced data security measures and privacy protections in EMR systems reassure healthcare...	33 (27.5%)	25 (20.83%)	30 (25%)	32 (26.67%)	2.51	0.74
Effective change management strategies and leadership support facilitate the smooth adoption...	30 (25%)	35 (29.17%)	25 (20.83%)	30 (25%)	2.46	0.58

Table 4 reveals several key factors promoting the use of Electronic Medical Records (EMR) systems among healthcare professionals. Adequate training and education programs were highlighted as essential, with 25% of respondents strongly agreeing and 33.33% agreeing, resulting in a mean score of 2.38 and a standard deviation of 0.68. The availability of technical support also played a crucial role, as 29.17% of participants strongly agreed and 25% agreed, yielding a mean of 2.42 and a standard deviation of 0.73. Integration of EMR systems with other healthcare technologies, such as telemedicine, was another significant factor, with 20.83% strongly agreeing and 25% agreeing, producing a mean score of 2.58 and a standard deviation of 0.66. Compliance with regulatory requirements, such as meaningful use criteria, similarly emerged as a motivating factor, with 23.33% strongly agreeing and 26.67% agreeing, leading to a mean score of 2.56 and a standard deviation of 0.65. Enhanced data security and privacy protections in EMR systems reassured healthcare professionals, as 27.5% strongly agreed and

20.83% agreed, achieving a mean of 2.51 and a standard deviation of 0.74. Finally, effective change management strategies and leadership support were recognized as vital for facilitating EMR adoption, with 25% of respondents strongly agreeing and 29.17% agreeing, resulting in a mean score of 2.46 and a standard deviation of 0.58. These findings underscore the importance of training, support, integration with other technologies, regulatory compliance, security measures, and leadership in encouraging the successful use of EMR systems.

Table 5: Impact of EMR Utilization On Healthcare Efficiency And Patient Outcomes.

Variable	SA	A	D	S.D	Mean	Standard Deviation
EMR utilization has significantly improved the accuracy of patient records in our healthcare practice.	60 (50%)	40 (33.34%)	10 (8.33%)	10 (8.33%)	1.75	0.71
EMR utilization has effectively reduced the time spent on administrative tasks and paperwork for healthcare professionals.	70 (58.34%)	30 (25%)	10 (8.33%))	10 (8.33%))	1.67	0.60
EMR systems have enhanced communication and collaboration among healthcare team members, contributing to faster decision-making and improved patient care.	75 (62.5%)	30 (25%)	10 (8.33%)	5 (4.17%)	1.54	0.51
EMR utilization has streamlined patient information access and retrieval processes in our healthcare setting.	65 (54.17%)	35 (29.17%)	10 (8.33%)	10 (8.33%)	1.71	0.52
EMR utilization has positively influenced the efficiency of clinical workflows in our healthcare practice.	70 (58.33%)	30 (25%)	10 (8.33%)	10 (8.33%)	1.67	0.61
EMR utilization has led to better decision-making processes in patient care.	75 (62.5%)	30 (25%)	10 (8.33%)	5 (4.17%)	1.54	0.51
EMR utilization has resulted in improved patient outcomes, such as reduced readmission rates or better health status.	60 (50%)	35 (29.17%)	15 (12.5%)	10 (8.33%)	1.79	0.44
EMR utilization has facilitated the identification of trends or patterns in patient data, leading to more targeted and effective interventions.	75 (62.5%)	30 (25%)	10 (8.33%)	5 (4.17%)	1.54	0.51
EMR utilization has had a positive impact on improving patient safety and reducing medical errors in our healthcare practice.	80 (66.67%)	25 (20.83%)	10 (8.33%)	5 (4.17%)	1.5	0.5

Table 5 reveals the significant positive impact of Electronic Medical Record (EMR) utilization on healthcare efficiency and patient outcomes. The data indicates that 50% of respondents strongly agreed and 33.34% agreed that EMR use has significantly improved the accuracy of patient records, resulting in a mean score of 1.75 and a standard deviation of 0.71. Moreover, 58.34% of healthcare professionals strongly agreed that EMR utilization has reduced the time spent on administrative tasks, while 25% agreed, yielding a mean of 1.67 and a standard deviation of 0.60. A substantial 62.5% of respondents strongly agreed that EMR systems have enhanced communication and collaboration among healthcare team members, contributing to faster decision-making and improved patient care, with a mean score of 1.54 and a standard deviation of 0.51. Similarly, 54.17% of participants strongly agreed that EMR utilization has streamlined patient information access and retrieval processes, resulting in a mean score of 1.71 and a standard deviation of 0.52.

Regarding clinical workflow efficiency, 58.33% strongly agreed and 25% agreed that EMR usage has positively influenced this aspect, with a mean of 1.67 and a standard deviation of 0.61.

The data also highlights that 62.5% of respondents strongly agreed EMR usage has led to better decision-making in patient care, producing a mean score of 1.54 and a standard deviation of 0.51. In terms of patient outcomes, 50% of respondents strongly agreed that EMR utilization has resulted in improved outcomes, such as reduced readmission rates, with a mean of 1.79 and a standard deviation of 0.44. Furthermore, 62.5% strongly agreed that EMR systems have facilitated the identification of patient data trends, leading to more targeted interventions, with a mean score of 1.54 and a standard deviation of 0.51. Finally, 66.67% of participants strongly agreed that EMR utilization has had a positive impact on improving patient safety and reducing medical errors, with a mean score of 1.5 and a standard deviation of 0.5. These findings suggest that EMR adoption at FMC Abeokuta has significantly enhanced healthcare efficiency, improved patient care, and positively influenced patient outcomes.

Discussion

This study was designed to investigate the impact of Electronic Medical Record (EMR) systems among healthcare professionals at the Federal Medical Centre (FMC) Abeokuta. The findings provide an in-depth analysis of the sociodemographic characteristics of the participants and highlight key challenges and facilitators in the effective utilization of EMR systems.

In terms of age distribution, the respondents represented a wide range of age groups, with 25% aged 20–29, 33.33% aged 30–39, 16.67% aged 40–49, and 25% aged 50 or older, consistent with the findings of similar journal (Smith & Johnson, 2023). The mean age was approximately 38.5 years, with a standard deviation of 11.5 years, indicating moderate dispersion around a centralized age distribution. Gender distribution was balanced, with equal representation of male and female participants, ensuring that the data collection was unbiased (Garcia & Lee, 2021). Ethnic diversity was present, with 60% of respondents identifying as Yoruba, followed by Igbo (20%), Hausa (10%), and other ethnic groups (Smith & Johnson, 2023). Additionally, religious diversity was noted, with Christians making up 50% of the respondents, Muslims 40%, and others 10% (Chen et al., 2020). Educational qualifications varied among participants, with 20% holding SSCE, 30% OND, 20% HND, another 20% B.Sc., and 10% M.Sc. or other advanced qualifications. This range of academic backgrounds reflects the diversity in educational and professional experience among healthcare workers at the center (Smith & Johnson, 2023).

The study highlights several barriers to the effective utilization of EMR systems. Interface complexity emerged as a significant challenge, with a mean score of 2.54, indicating that respondents found the system somewhat difficult to navigate. This finding aligns with prior research suggesting the need for more user-friendly EMR designs (Lapointe & Rivard, 2019). Inadequate training programs, with a mean score of 2.42, further emphasized the importance of comprehensive and tailored training to enable healthcare professionals to use the systems effectively. Resistance to change, especially among more experienced healthcare professionals, was evident with a mean score of 2.92, underscoring the need for addressing organizational culture and attitudes (Adler-Milstein et al., 2013).

Technical challenges such as system crashes and slow response times were identified as moderately challenging, with a mean score of 2.54, reflecting the need for more reliable technology infrastructure. Interoperability issues, with the same mean score, pointed to challenges in sharing patient data across different healthcare platforms, further emphasizing the need for standardized data exchange protocols (Adler-Milstein et al., 2013). The transition from paper-based to electronic records was also seen as challenging, with a mean score of 2.96, highlighting the complexities of data migration and system integration. Financial constraints, with a mean score of 2.54, stressed the importance of proper financial planning for EMR implementation. Other challenges included inefficient data entry processes and limited technical support, with mean scores of 2.79 and 2.46, respectively. Frequent system updates and maintenance, although necessary, were considered disruptive, with a mean score of 2.63, emphasizing the importance of minimizing downtime and ensuring smooth transitions during updates.

Conclusion and recommendation

The research conducted at FMC Abeokuta provides significant insights into the impact of Electronic Medical Record (EMR) systems on healthcare services. The study identifies several challenges, including complex interfaces, inadequate training, technical issues, financial constraints, and resistance to change, highlighting the need for targeted interventions and support mechanisms. On the positive side, successful EMR implementation is supported by robust training programs, technical support, regulatory compliance, and effective change management. These factors collectively enhance EMR operationalization, contributing to improved accuracy, streamlined administrative processes, and better patient outcomes.

To address the identified challenges, it is essential to invest in comprehensive user training programs that cover EMR functionalities and best practices. Enhancing technical support through dedicated IT teams and helpdesk services will address technical issues effectively. Integrating EMR systems with other healthcare technologies and ensuring compliance with regulatory requirements will facilitate better data sharing and security. Effective change management strategies, supported by healthcare leaders, can mitigate resistance and promote successful adoption. Financial support from government agencies and continuous monitoring of EMR utilization will ensure ongoing improvements and optimizations. Continued research and development in EMR technology will further address emerging healthcare challenges and enhance system functionality. Implementing these recommendations will help leverage EMR systems to improve healthcare efficiency, patient safety, and overall quality of care.

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