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Evaluating the Effectiveness of Using Change Management Methodologies to Improve Employee Adoption of New Electronic Healthcare Systems in the Kingdom of Saudi Arabia

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Abstract:

This study evaluates the effectiveness of using change management methodologies to improve employee adoption of new Electronic Healthcare Systems (EHS) in the Kingdom of Saudi Arabia (KSA). The research identifies three primary categories of barriers to EHS implementation: technical, organizational, and human factors. Technical challenges include system compatibility issues, data integration problems, and security concerns. Organizational barriers encompass large capital requirements, process redesign, and alignment with strategic goals. Human factors involve resistance to change and the need for continuous training and support.

The study aims to assess the current status of EHS adoption, identify the types of EHS being implemented, and examine the factors influencing their adoption. It also investigates the major challenges hindering EHS implementation and evaluates the performance of various change management approaches. The research methodology combines quantitative and qualitative methods, including surveys, interviews, focus group discussions, and document analysis.

The findings indicate a positive attitude towards EHS among healthcare professionals in KSA, with change management methodologies significantly enhancing employee acceptance and reducing resistance. Effective strategies for

implementation include comprehensive assessments, open communication, clear reasons for change, employee participation, and regular training and support.

The study concludes that change management methodologies are crucial for the successful adoption of EHS, with improving communication and ensuring proper training and support being the most successful aspects. The overall effectiveness of these methodologies is highlighted by a positive response rate of 73.10%.

Keywords: Electronic Healthcare Systems, Change Management, Employee Adoption, Technical Barriers, Organizational Barriers, Human Factors, Implementation Challenges, Healthcare Professionals.

Chapter 1: Introduction

In recent years, there has been a progression of various technical fields that have affected healthcare. EHS have played a crucial role in improving the efficiency, precision, and accessibility of healthcare services. In the EHS field, digital systems encompass elements such as EHR, telemedicine applications, and HIS. This makes data management easier, helps improve patient care, and decreases administrative problems (Altuwaijri 2008).

Current changes in the health care sector in Saudi Arabia include the Vision 2030 Plan. Vision 2030 is one of the national strategies aimed at diversifying the economy by enhancing the quality of public services such as healthcare. This drive also reaffirms the need to upgrade health facilities to a point where patient care is provided with better results to sustain a functional delivery structure for healthcare services. It also embraces an EHS that strives to transform KSA's current health system and improve the lives of patients more than in any other sector (Alshahrani et al., 2019).

The modernization of healthcare requires electronic healthcare systems (EHS) for several reasons. First, it advances patient safety by minimizing human errors associated with the traditional method of record-keeping and hence provides up-to-date and accurate patient data to healthcare providers, thus enabling better clinical decision-making as well as continuity of care. Second, an EHS enhances data

management fostered through interoperability, making it possible for various health practitioners and platforms to share information. This facilitates a well-coordinated care system and the efficient delivery of healthcare services (Aldosari, 2014).

Telemedicine is among the components of EHS that expand accessibility to medical services in remote areas or underserved populations (remote areas, underserved populations). Hence, patients can access consultation services or follow-up without necessarily going physically to hospitals, thereby reducing the burden on health facility activities, while simultaneously making it simple for people seeking treatment. Health information systems handle appointment scheduling, including billing and inventory control tasks, to improve operational efficiency and cut costs (Alanezi, 2021).

However, as is the case with most programs related to change management, the implementation and adoption of an EHS are not without turmoil. These complexities include system compatibility, which entails issues relating to the interaction of various systems; security; workflow redesign; financial commitment; staff relations, which involve resistance from staff in health facilities; and training, which requires a timely and efficient approach to incorporate all the above. Solving these problems requires the application of effective change processes that can help implement an EHS successfully (Alqahtani et al., 2017).

Consequently, change management can be defined as a strategic process of handling alterations in the objectives, procedures, or tools of an organization. In the context of EHS adoption and management, change management methodologies encompass the course of action and practices that are supportive of facilitating adaptive change by healthcare staff. Such methodologies comprise training interventions and awareness raising, identification of key stakeholders and their management, strategic communication, and

Thus, resistance, user acceptance, and overall EHS success heavily depend on efficient change management. It covers factors affecting the staff, quality training, development, and recognition of the improvement process. Several methodologies

are currently used in the management of change, and some of the most popular are Kurt Lewin's and John Kotter's 8-Step Change Model.

Lewin's model highlights the process of unfreezing, change, and refreezing, whereby unfreezing entails creating readiness for change; change processes entail the implementation of the new method; and refreezing entails the solidification and reinforcement of change as the new culture in the organization. According to Kotter, eight dynamics must be followed to manage change: first, raising awareness of the necessity of change; second, assembling a coalition that will support the change initiative; and third, reinforcing new practices with organizational culture (Alshahrani et al., 2019).

This study sought to assess the degree to which change management methodologies enhance the use of new electronic healthcare systems in the KSA. To this end, this study seeks to explore the nature and extent of EHS adoption in the contemporary operational context, establish the primary impediments to change, and evaluate the performance of different change management approaches and initiatives to offer pertinent recommendations for KSA healthcare establishments.

The mapping of this research extends to the identification and comparison of the EHS adopted in the KSA, a literature survey, data collection, and the formulation of a theoretical model. Both quantitative and qualitative measures are considered, which provide a study with more opportunities to identify the challenges and prospects for EHS adoption. Consequently, the following research questions underpin the study's objectives aimed at enhancing EHS program outcomes in the KSA by contributing to the literature on change management and EHS adoption.

Problem of the Study

The barriers emanating from the introduction of an EHS are clear and can affect its functional implementation and functioning. These can be categorized as technical, organizational, and human factors that are known to transform and complicate the EHS implementation process with the utmost precision required to resolve these hurdles.

- **Technical Challenges**

Implementation and functioning obstacles of an EHS Technical issues are considered one of the main challenges in the examined field. The first technical issue is the system compatibility. Over the years, many healthcare organizations have employed several traditional systems that are normally incompatible with the new EHS. This situation leads to the isolation of subsets; thus, data and processes are disjointed and cannot flow freely, thereby straining the efficiency of the system.

Another technical issue is probably related to data management, specifically consummated data integration. EHS entails the amalgamation of large amounts of patient information within a unified framework. The old applications in an organization's system create a challenge for the integration team to ensure that data are effectively and efficiently transferred to the new EHS. If data are not well integrated, it results in fragmented records of patients; hence, it is not good for quality of care.

This inevitably creates considerable technical difficulties in security and privacy. IT and EHS contain patient records, which are essential and personal, making the system vulnerable to hacking. The risk involved in exposing data to hackers and other offenders calls for strengthened measures for the security of patient data. The outcomes of security breaches are untimely and can be detrimental, contributing to the loss of patient confidence, legal actions, and hefty losses to healthcare establishments.

- **Organizational Challenges**

Organizational issues are identified by the structure and administration of an organization to enhance the implementation of an EHS. Unfortunately, some organizational challenges include the need to invest with a large capital requirement. EHS implementation calls for large investments in availing and establishing new systems in addition to maintaining them. Essentially, the foremost and exclusive step for healthcare organizations is to develop sound budgeting strategies that could

help them identify and set aside necessary amounts for such expenses without having a negative impact on other aspects.

Here, EHS initiatives are rarely neutral and involve adjustments to an organization's operative procedures. This means that healthcare organizations need to transform their work processes to accommodate the systems properly. This means that this process redesign can be disruptive and should be well-planned to support an improvement in the delivery of healthcare rather than aggravating the situation.

Moreover, EHS strategies must support a company's goals and objectives at a large feature that is scrutinized. Successful implementation of an EHS requires the integration of these systems with the other strategic goals of the firm. The inability to do this results in efforts and use of the systems' insufficient harmony, which could lead to uncoordinated efforts.

- **Human Factors**

One can truly consider that human factors are the most crucial of all the problems arising touching the implementation of the EHS. Another major socio-psychological issue that seems to present a lot of concern is resistance to change. Members of healthcare staff may have some level of fear of receiving new knowledge and implementing new technologies that the majority have not used before. This resistance might be due to the fear of the unknown, perceived threat to one's job, or a lack of confidence in the newer systems.

An important prerequisite for countering this type of resistance is ensuring that employees are properly trained and supported. Lack of training can worsen resistance, and as a result, EHS will have low circulation, resulting in poor implementation. Healthcare institutions need to ensure that adequate training procedures are accorded to employees to enable them to gain adequate competency in the usage of new systems. Other structures of support, which are on call, call centers, or help desks, together with follow-up training and support, are also necessary to look into any hitches that many be experienced after the intervention.

Problems and Issues Faced in Individual Areas of the Kingdom of Saudi Arabia

The modeling of EHS in KSA embeds cultural, organizational, and infrastructural factors; each factor poses some factors that must be overcome to ensure the enhancement of EHS.

- **Cultural Factors:**

It is found that cultural factors are important influencers of the cultural values that imbue the organizational culture and influence the healthcare staff's perception of new technologies. Thus, centralized organizational structures and prevailing traditional practices in the KSA may pose a threat to change. For example, bureaucratic decision-making structures, such as the hierarchy, delay the implementation of new systems because many approvals have to be conducted. Moreover, stakeholders expect job description changes due to EHS implementation, resulting in staff anxiety.

- **Organizational Factors:**

The system of healthcare provision in KSA has received a blend of healthcare centers that are either public or privately owned. It is apparent that this diversity may cause fluctuations in EHS implementation and in the extent to which resources can be provided. For example, public healthcare organizations may encounter financial capital constraints to fund new technologies, while private organizations may have a lot of space regarding resource allocation. This disparity makes it possible for sectors to adopt EHS at different rates, thus widening gaps in the delivery of healthcare.

- **Infrastructural Factors**

For an EHS to run effectively, proper IT support entails qualitative internet, proper systems of archiving data, and IT support systems. It is evident that the level of IT advancement differs greatly between the regions of the KSA, and problems are usually more pronounced in rural areas. Thus, EHS sustainability depends not only on searching for NGOs interested in collaboration but also on guaranteeing stable Internet connections and sufficient IT support. It was found that the absence of such a foundation may negatively impact EHS efficacy, especially in regions with poor accessibility.

Importance of the Study

EHS implementation is critical if the strategic goals of improving the overall healthcare system as well as the quality of the delivered care are to be met. An EHS remains a significant and unique necessity for today's and tomorrow's running and construction of the organizational and facility structures of healthcare. Thus, EHS enables healthcare workers to obtain evidence and accurate up-to-date information that can help in significantly decreasing medical mistakes as well as supporting the key choices made in the medical profession. These areas include the replacement of manual record keeping for patient information by digitized records Through the application of records in EHS, the various drawbacks associated with the manual processing of records are eliminated due to gaps and inept organization. The Web 2. The zero role or value in this case avails healthcare practitioners with privileged real-time worksheets on patients, in addition to providing valuable clinical information, thereby boosting the overall quality of care.

However, EHS also precedes several other aspects that are somehow procedural and become a source of great expenditure and time if handled individually; in general, they bring about better organization. Services such as appointment setting, charging,

and supply management that are repetitive become less likely to be erroneous, allowing various health care centers to cut down on costs spent on them, which can then be utilized to meet the health needs of patients. This optimization of operational expenditures equally improves the quality of service delivery support by reducing bureaucratic processes that are usually unfruitful for patient satisfaction.

- **For Healthcare Providers**

EHS enhances the authority of healthcare providers because they can conduct a detailed analysis of patients' medical history simultaneously and within one system. This way of considering the institution helps in making good decisions, and the care delivered between one department and the other is well-coordinated in delivering care to patients. An EHS that has the features of alertness and reminder can help healthcare workers follow existing clinical practice guidelines, thereby reducing the incidence of adverse events and improving patient outcomes. For instance, an EHS can inform physicians of possible interactions of some drugs with other drugs or suggest further tests for the patient, making the care of the patient both safe and effective.

In addition, an EHS enhances the coordination and integration between different healthcare teams and sub-specialties. Because EHS links multiple branches and records, new information reaches the patient's general practitioners and other specialists necessary for treatment. This has the essence of managing several affiliated clients and fostering coordination with numerous healthcare providers. The improved coordination presented by this merger means better care for patients and amplified interdisciplinary collaboration on patients' care management strategies.

- **For Patients**

The civil healing clientele is set to benefit immensely from the general services rendered through the EHS by healthcare providers. Similarly, one of the chief

benefits of using technological tools is the enhanced presence of healthcare services. The EHS allows patients to access their electronic health records and schedule appointments or raise questions to their clinicians through patient portal applications. This involvement and participation in health management increases communication between healthcare consumers and physicians. Another apparent advantage is continuity, which is executed as an EHS guarantees constant updates of the patient records as well as their availability to all other medical facilities. This continuity of care ensures that the patient's care is continuous and has a standard threshold regardless of the number of physicians that the patient has to visit. For instance, through health papers, one can know a patient's medical history in terms of prescribed drugs and past illnesses, thus eliminating the likelihood of being exposed to the same examinations and care.

Other related services that fall under the EHS include telemedicine solutions that enhance the availability of health facilities to reach many people, especially in developing countries. Telemedicine reduces the need for physical visits for consultations and follow-ups, thereby helping to solve the geographical problems and workload of medical organizations. This makes it advantageous in areas that may not have many medical facilities, thus enabling patients to attend as soon as possible.

Thus, based on the findings of this research, the introduction of an EHS can dramatically improve the delivery of integrated healthcare services in the Kingdom of Saudi Arabia. When the program falls within the scope of the Vision 2030 strategy, the EHS can contribute significantly to the improvement of care results, including the cost of healthcare and integration of healthcare providers.

- **Efficiency and Cost Reduction**

Administrative processes are optimized on behalf of the EHS to contribute to cutting healthcare costs in several ways. The clerical work, including billing and separate

scheduling, is made quicker, and the paperwork is automated, cutting down on possible mistakes. These efficiencies, in turn, translate into resource savings for fund-based activities in the healthcare sector, which can be utilized in financing better provisions of healthcare to the patient.

- **Quality of Care**

With an EHS in place, it facilitates professional healthcare workers to have quicker and better access to some of the best records of the patient's health at any given time. It enables accurate diagnosis of diseases and conditions, proper management of the patient's status, and favorable treatment outcomes. Furthermore, EHS promotes the application of research in practice by possessing clinical reference details and best practice decision-making tools, preventing healthcare service providers from practicing under obsolete information.

- **Integration of Healthcare Services**

EHS assists in care continuum integration by improving the methods and interfaces between data exchange and clinical systems across institutions and specialties. This coordination makes it possible for all professionals who are attending to a specific patient to be informed; hence, the health of the patient is managed well without repetition of some tests or dispensing of the same treatments, which makes it a better value for the consumers of health services.

- **Patient-Centered Care**

In this way, using digital technologies, the long-term goals of the KSA Healthcare Company will be less oriented toward sales figures and will be a more patient-centered approach. Concerning to the patients' engagement EHS enhances patient's involvement by making their records available and engaging them directly in managing their own health. CON is based on a patient-centered approach, which

focuses on the patient and his or her needs; thus, the patient's activity is enhanced, and the patient's overall condition is improved.

- **Resilience and Adaptability**

This means that the existence of an EHS strengthens the fluxing ability of the healthcare system because it contains basic protection mechanisms in the event of a change or crisis. For instance, during COVID-19, some EHS systems enabled proper supervision of the client's information, as well as the spread of the virus and treatment administration. Flexibility in the organization is important for sustainable effectiveness in the management of new tasks and changes in the organization of healthcare.

Health informatics plays an important role in the integration of EHS in KSA, extending beyond the enhancement of health systems to technology optimization to improve patient care within those systems. Therefore, KSA can work towards Vision 2030 and build a new modern innovative outcome-based healthcare system necessary for the population's needs in the 21st century by addressing IF's and promoting PP's that have a positive impact on EHS, as discussed above.

Objectives of the Study

1. To assess the current status of the application of EHS in KSA

- To assess the Level of EHS Adoption Across Different Healthcare Organizations: This sub-objective was to determine the level of EHS put into practice by different health organizations in the Kingdom of Saudi Arabia, including the government and other private hospitals, clinics, and all establishments affiliated with health. The method used to conduct the assessment will be a survey that aims to establish the level of adoption and EHS usage in the mentioned plural settings.

- Identify the Types of EHS Being Implemented and Their Functionalities: This objective aims to categorize and define the various EHS that are being used, such as EHR, telemedicine systems, and HIS. This research will unveil a range of features and uses of these systems, and the subsequent section will outline the general description of the roles and significance of these systems in the context of the healthcare sector.
- Examine the Factors Influencing the Adoption of EHS: The following is the first sub-objective on factors that enable or otherwise the adoption of EHS Further, it is an investigation of the various forces that enable EHS or those that are a hindrance. This involves the analysis of partner relationships, funding, and technological resources, which are essential for implementation. This study also assesses the barriers that have affected the implementation of these systems in healthcare organizations and measures put in place to address these barriers.

2. To identify the major challenges hindering the implementation of an EHS in organizations.

- Investigating Technical, Organizational, and Human Factors Hindering EHS Adoption: This sub-objective concentrates on identifying particular challenges within the three principal categories: technical, organizational, and human. Technical barriers could, therefore, be related to the compatibility of the systems or even security, among others. Organizational constraints may represent the reorganization of the workflow and budget problems, whereas human constraints may focus on the issues of resistance to change and training.
- Analyze the Impact of These Barriers on the Implementation Process: This objective involves identifying the impact of these barriers on the EHS implementation process, starting with the planning stage and extending to the

post-implementation stage. This study assessed the level of accession and the consequences of these barriers on the effectiveness of EHS implementation.

- Explore the Perceptions and Attitudes of Healthcare Staff Toward EHS: Because of this, it is important to identify the views and opinions that healthcare staff holds regarding EHS. The second sub-objective involved assessing the extent of EHS acceptance, concerns, and feedback from professionals in the region's healthcare facilities. The nature of reception that the study establishes determines the extent to which various perceptions have a positive or negative impact on adoption.

3.To evaluate the performance of various change-management approaches in enhancing the EHS.

- Evaluate Various Change Management Strategies and Their Outcomes: This sub-objective involves evaluating several change management interventions, including training, stakeholder engagement, and communication, to evaluate the effectiveness of improving the adoption of an EHS. This study aims to compare the mentioned strategies with the objective of establishing the strategies that produce the most optimal results.
- Compare the Effectiveness of Different Methodologies in Addressing Barriers: In research objective, we plan to evaluate the applicability of the identified change management strategies to address the barriers revealed in the study. The comparison reveals which of the methodologies was most effective in handling impediments and helping to overcome the challenges that hinder EHS adoption.
- Identify Best Practices for Managing Change in Healthcare Organizations: Specifically, the following sub-goals will be targeted in this endeavor: SGC 4: Identify strategies that can be advanced as best practices for use in the health care system. Thus, these best practices will provide a framework for better

management of change in the target healthcare organizations and optimize the application of EHS strategies.

4. Propose Changes in the Management of Change to Benefit KSA's Healthcare Organizations

- Develop Guidelines for Effective Change Management in the Context of EHS Adoption: The following is a presentation of the sub-objective that seeks to come up with functional strategic considerations stemming from the studies conducted in the research. The guidelines will map the change management processes that healthcare organizations must undertake to embrace an EHS successfully.
- Offer practical recommendations for healthcare leaders and managers: This study offers practical suggestions to healthcare leaders and managers on how to increase the scale and level of EHS adoption. These recommendations are grounded in the research findings as a way of assisting leaders in dealing with the challenges of EHS enactment.
- Highlights the Importance of Continuous Support and Training for Healthcare Staff: EHS requires constant reinforcement of its principles and processes; for this reason, continuous training and support are critical to the implementation of EHS. This sub-objective focuses on the enlightenment and training of healthcare staff regarding how to enhance their performance and effectiveness in EHS implementation.

Possible Consequences and Their Significance

The expected output of this study includes a closer look at the current situation where EHS has been adopted, the major challenges faced, and the different change management approaches evaluated. These outcomes have several implications for

healthcare organizations, policymakers, and researchers:These outcomes have several implications for healthcare organizations, policymakers, and researchers:

Healthcare Organizations: The findings of this study will help determine proper change management interventions to be adopted to enhance the chance of user acceptance of EHS interventions, thereby achieving the project's goals. Recognizing existing barriers and defining the most appropriate methods of action will aid healthcare organizations in better managing EHS.

Policymakers: At the end of the study, policy recommendations for the change of policies on the use of technology in healthcare and funding for the same shall be provided. Thus, the results of this research can be used by policymakers to direct their attention to relevant programs that should be funded and promoted, as well as administrative contexts, to promote EHS adoption.

Researchers: The findings of this study will be useful for the scientific literature related to EHS adoption and change management and offer a basis for subsequent research. To transform the study's findings, researchers can refine additional questions, develop improved theoretical frameworks, and suggest strategies to advance EHS approaches.

Consequently, the study aims to achieve the following objectives and outcomes:

Healthcare Improvement in KSA: In this view, the study will be protracted to engage efficient electronic healthcare systems that will help improve the quality of healthcare delivery in the Kingdom of Saudi Arabia. Through the utilization of advanced technology, this study will contribute to the realization of Saudi Vision 2030 and construct a contemporary, results-oriented healthcare system to cope with the growing needs of the Kingdom's population in the 21st century.

Questions of the Study

1. What are the contemporary trends in EHS implementation in the Kingdom of KSA?

To answer this question, this study gathered research information on the level of EHS practice in KSA healthcare organizations. This includes parameters such as the types of EHS currently in the market, the features the different EHSs possess, and their usage within the provider community.

2. What are the main challenges in the implementation of an EHS in the KSA?

The question envisaged in this work lies in the proposal of a list of the most crucial EHS implementation barriers concerning technical, organizational, and human aspects. The process through which these barriers are examined will also help to understand their influence on the implementation process and its consequences for healthcare organizations.

3. To what extent do various change management methodologies cope with these barriers?

The evaluation of change management strategies and their success in overcoming these barriers will be conducted in this study. This also involves evaluating the results of these methodologies and their efficiency in the enhancement of EHS adoption.

4. What are the best practices for change management in the context of adopting an EHS?

This question aims to identify and highlight how this change can be effectively managed in healthcare organizations. A lit review will be completed at the end of the study, which will recommend healthcare staff support and training concerning the findings.

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Detailed Hypotheses with Explanations

Hypothesis 1: Appropriate Change Management Methodologies Enhance EHS Implementation Rates Dramatically in Saudi Arabia

Explanation: This hypothesis is based on the notion that the use of properly designed and implemented change management procedures could remarkably improve the uptake of Electronic Health Systems (EHS) in healthcare organizations. There are many approaches to change management, such as stakeholder management, the development and implementation of detailed training frameworks, and the organization of proper communication strategies that must be applied to resolve the issues normally encountered in the process of implementing change.

Hypothesis 2: Owing to the lack of sufficient Training and Support Personnel, the Implementation of EHS is impeded, and Low User Acceptance is recorded.

Explanation: This hypothesis assumes that the actualization of EHS in healthcare organizations is considerably prolonged by inadequate preparedness and personnel training. Specifically, the hypothesis posits that unless healthcare staffs are enrolled in special training programs and supported continually, they will soon adopt a 'it is not going to work so let us do it the old way' mentality about EHS, thus occasioning low user acceptance of these systems and utilizing them as required.

Hypothesis 3: This study aims to show that change resistance from employees can be addressed by the correct use of change management methodologies.

Explanation: This hypothesis posits that change resistance by health sector employees can be managed through purposeful adoption of change management structures. This is a form of cultural resistance that is frequently observed in healthcare organizations, usually arising from concerns regarding the abilities and skills required in new technologies and threats to personal occupation, among others.

Theoretical Model

- **Technical Theory**

This theory, which is also referred to as the technical viewpoint, regards the technological elements that come with the electronic healthcare systems. This theory focuses on the nature of the physical support provided by an organisation to encourage the uptake of new systems as well as the technological tools, machinery and software programs. As suggested by this theory, the performance of the e-Health systems depends on the technologies and features of the developed IT systems.

1. Hardware and Software: This means that the integrity of the two halves of the eHealth systems must be ensured; they must be reliable and easy to use for every health worker. This entails the deployment of sophisticated technologies including Cloud computing, Artificial intelligence, Data analytics among others in the improvement of the systems.
2. User Interface : In addressing the requirement of the user centred design, the interfaces of the electronic healthcare systems have to be user friendly. Effective user interfaces would help in easing the learning process in relation to the new systems, making the employees adopt and use the systems more often, hence implement the organizational change effectively.
3. Integration and Interoperability: The technical theory also acknowledges that the new electronic healthcare systems should be integrated with the existing ones and the issue of Interoperability. This makes it easier to maintain accuracy, avoid duplication or the loss of data by passing on the data from one program to another easily and efficiently.

- **Change Management Theory**

According to change management theory, there is action plan that offers direction and framework for creating change in organizations. This theory is highly suitable to be applied in the context of introducing new electronic healthcare systems as it focuses on people and the change process itself.

Kotter's 8-Step Change Model: This is a model of change management formulated by John Kotter that gives a framework of change in its entirety. The eight steps include:

1. Establish a Sense of Urgency: Help build a sense of urgency by communicating to the audience the reasons for change for implementing new electronic health systems.
2. Form a Powerful Coalition: Assemble a coalition of change agents, that is, managers and key staff who will support the change process.
3. Create a Vision for Change: The eradicational and logical of the current picture of change and come up with a good vision of change including the reasoning behind use of new electronic healthcare systems and their results .
4. Communicate the Vision: Explain and share the vision and approach to change with all the workers to understand what is entailing the changes .
5. Empower Others to Act on the Vision : Get rid of factors that may threaten the change process and encourage the employees to change by offering them the tools that they require for the change .
6. Plan for and Create Short-Term Wins: Some of the steps that can be taken when implementing change are: If there are any minor wins in the process then they should be celebrate to ensure that the good effects of change are constantly being remind that are the staff .

7. Consolidate Improvements and Produce Still More Change: Cultivate the snowball effect, therefore making synchronization of the new systems within the organization more effective to counter the resilience of conservatism .
8. Institutionalize New Approaches: Encspecial attention to the inclusion of the altered behaviors and practices into the norms with the use of policies, procedures, and actions of the leaders .

Lewin's Change Management Model: This was established by Kurt Lewin and can be split into three stages:

1. Unfreezing: Instil awareness of the need for change, as well as anticipation for it among the employees. This can be construed as the process of overcoming the obstacles and intolerance of change .
2. Changing: Time to put the change into practice or if the change is a program implement the change program. This entails adoption of new e-health care systems, training of employees and other supporting structures that could enable them to deal with new change .
3. Refreezing: Sustain the new behaviours and practices among the nursing staff. This is the systematic ongoing encouragement, feedback, and follow-up to guarantee that the discovered new systems are adopted into the organization's culture.

Chapter 2 : Literature review

Introduction

The adoption of EHS in Saudi Arabia has been a major advancement in the kingdom's health care sector due to the clinical, patient safety, and quality care prerequisites (Alghamdi & Alfraji, 2020). As a foundation for the analysis in this chapter, the present study reviews existing studies on EHS adoption, effectiveness, and issues in Saudi Arabia to offer an academic literature review.

The following are the parameters that have led to the integration of EHS in Saudi Arabia; government policies and Regulations Technology and healthcare outcome. Over the years, research has established that EHS can help to enhance clinical processes, decrease the incidence of errors among healthcare workers, and enhance the patients' health status (Almosa & Al-Hadhan, 2017). Nevertheless, the road to the adoption of EHS is not smooth; it is tarnished with technological issues, users' resistance, as well as system inequality (Alotaibi & Nguyen, 2016).

One of those seminal works towards that investigated 10-year trend of EHS adoption by Saudi hospitals and the consequent increment in their adoption due to federalization and renewal (Alghamdi & Alfraji, 2020). The improvement in the Saudi community health consciousness and recognition and the execution of international-standard medical research studies have been done by the King Fahd Medical Research Center or KFMRC.

The general discussion of EHS in Saudi Arabia assists in comprehending their current status and potential development when the historic evolution of each country branch is given. Digitization of records has happened gradually over the years, distinguished through notable changes in the usage of EHS specialized systems in different facilities within the healthcare sector (Almalki et al. , 2018). This change has not only facilitated management of information about the patient but also has helped in increasing patients' involvement, raised the rates of accurate diagnosis, and thus maintained the functionality of the healthcare facilities.

A prior contextual study has also highlighted the clinicians experience of EHS in Saudi Arabia and their perceptions regarding its effectiveness which can be ranged between positive to negative. The satisfaction level varies; the nurses have positive feelings about the EHS efficiency improvements comparing to the non-EHS healthcare organizations and other clinicians are still complaining about lots of time taken in data inputting and data reliability (Almalki, Alharthi, & Ismail, 2018). Based

on these findings, it becomes evident that more efforts are required in striving to improve EHS design and implementation to prevent the emerging challenges that clinicians notice and to generally optimize EHS's impact on healthcare quality and safety .

Furthermore, Saudi Arabian research focusing on the effect of EHS on the availability of electronic patient-related information has been a highly explored area of interest. The fast and effective implementation of EHS with the features pertaining of patient engagement has enabled millions of patients to access their health information electronically thereby creating an informed and active patient population.

Dependent and Independent Variables

- **Dependent Variable:**

Employee Adoption of New Electronic Healthcare Systems: This variable measures the extent to which employees in healthcare settings in Saudi Arabia adopt and use new electronic healthcare systems. (Al-Hadban et al 2017)

- **Independent Variable:**

Change Management Methodologies: This variable includes various change management strategies and practices such as cultural, technological, structural, and human dimension changes. (Al-Hadban et al 2017)

Previous Studies

- **Comprehensive Literature Review**

This paper begins with a literature review that offers a relevant analysis of the current adoption status of EHS and the issues encountered in organizations. Prior research has meticulously discussed the reasons that have led to the consideration of the EHS, the challenges faced, and the ways of overcoming such difficulties. The synthesis of

these key findings culled from these notable research initiatives on the factors influencing EHS adoption in the KSA.

Altuwaijri (2008) also emphasizes the necessity of integrating change management activities with EHS to achieve good levels of adoption. The author also underlines a systematic approach to change management, and stresses the leadership nature of EHS activities. Consequently, the research proves that for those gains to be achieved, as expressed by EHS, there is a need for strategic leadership and effective change management. Based on this study, the following recommendations are proposed: a vision for EHS needs to be developed, and leadership commitment and structured change management processes need to be implemented.

To understand the existing literature on the adoption and acceptance of EHS from the context of multiple stakeholders, Alshahrani et al. (2019) conducted a systematic review. Some of these are, for example, a productivity gap due to a lack of training, basic technical problems, and reluctance from actors in the healthcare sector. The task pointed out by Alshahrani et al., therefore, is to encourage stakeholder participation at every stage of the EHS adoption process and ensure the provision of sustained support to resolve these obstacles. The study finally establishes that stakeholder management, together with a multilayered training approach, is a prerequisite for managing resistance, thus improving the effectiveness of EHS implementation.

Alqahtani et al. (2017) in their cross-sectional review, examine the literature on KSA organisations to establish what type of barriers hinders the adoption of EHS. The authors determined various obstacles that exist and affect DCM implementation, including integration hurdles, resistance, and resource scarcity. Credence is given to the central argument that these are informative signs that should be checked by applying appropriate change management strategies. According to Alqahtani et al., organizations should provide an effective technical support system, redesign the

organizational structure to support the EHS system, and ensure the availability of sufficient funds to support the change.

Aldosari's (2014) study aimed to identify the rates, levels, and factors influencing the usage of EHS among hospitals in Riyadh, KSA. Considering the factors that affect EHS adoption, this study aims to make recommendations for enhancing the implementation of EHS. Aldosari also stressed leadership support, extensive training, and the implementation of proper structures as essential factors for the success of EHS implementation. From the present study, it emerged that promoting interventions in these particular domains can effectively improve the take-up rates of extant EHS in healthcare organizations.

With the help of a quantitative cross-sectional study, Alanezi (2021) investigated the drivers of e-health system adoption in the KSA. The author outlines specific factors of influence, including organizational readiness, acceptance by users, and the existence of training programs. There is a specific and general prescription to underline the need for an extensive and holistic approach to change management to increase the usage of EHS. Alanezi's evidence indicates the importance of the organization's readiness, user acceptance arising from organized training, and balance support for EHS implementation.

Alsulame et al. (2016) examined the cultural and contextual factors of EHS adoption in Saudi Arabia. The authors also explain how factors such as culture of the local context, organizational culture, and expectations within the society influence the acceptance and use of EHS. Hence, it is stressed that knowledge of these cultural factors is perfect for building change management initiatives that consider the cultural context. The authors suggest the following guidelines concerning the specific Saudi context of EHS solutions: engaging local collaborators in the planning and implementation of EHS solutions.

Alharthi et al. (2018) investigate the anti-EHS and its policies, rules and regulation in Saudi Arabia. The effectiveness of national e-health policies, legal requirements, and governmental activities concerning EHS implementation was analyzed in this study. Based on the analysis of the conducted research, the authors identified that the effective support of the government's policies and a clear definition of the regulation are significant in fostering EHS implementation. Thus, the study suggests that there is a need for more policies to be formulated and polished, aimed at enhancing e-Health to foster EHS implementation.

Al-Gahtani et al. (2013) perform a longitudinal study to determine the EHS's long-term impact on healthcare performance in Saudi Arabia. These are the pre- and post-EHS assessments of healthcare performance, including patient satisfaction, clinical outcomes, and operational efficiency. The authors concluded that while the implementation of EHS improves health care outcomes, such realization is subject to change management and support. It also acknowledges the need for periodic assessment of EHS experiences to enable the identification of areas that need continuous enhancement with a view to improve the health system.

In the second paper, Altuwaijri et al. (2011) build on the earlier study by exploring the applicability of the technology acceptance models to determine EHS usage by the health care professionals in Saudi Arabia. Leveraging electronic health solutions (EHS) in healthcare delivery requires a proper understanding of the factors affecting professionals' behavioral intentions to use EHS. The authors of this paper therefore employ the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT). The results of this study revealed that perceived usefulness, perceived ease of use, and social influence are potential antecedents to EHS usage. To the best of the authors' knowledge, change management strategies should aim to improve these factors and lead to higher levels of user acceptance.

The present study, which follows Al-Shehri (2012), explores the role of EHS in patient safety and quality of health care in Saudi hospitals. This study points out that EHS has a significant positive correlation with a decrease in medical mistakes and errors, better documentation of patient treatment, and increased safety of patients. However, the study also highlighted some data security issues, especially data privacy issues. According to Al-Shehri, the control of data and scrutiny of EHS usage are critical and should therefore be accompanied by strict measures in this frontier.

The availability of literature on the change management methodologies to be adopted to enhance the uptake of the new electronic healthcare systems in the Kingdom of Saudi Arabia is quite limited, although there are publications on this topic. Alzahrani et al. (2023) also noted that readiness assessment plays a significant role in healthcare organization in the implementation of new technologies like blockchain. They also described their study that proposed the scoring system to assess organisations offering the healthcare services' blockchain adoption readiness as key factors including regulation compliance, available budgets, security, and privacy. They supported their model by presenting real business scenarios where those showed how lack, for example, was identified and how solutions to strengthen the specific area of weakness could be made to improve the organisation's competence.

Ahmed et al. (2019) discussed the concern of employees' perception regarding technology acceptance within the workplace especially in the case of sustainable management. In their research, Keil and Robey investigated three research questions that were related to the factors that promote employees' acceptance of e-business technologies: the technology acceptance model (TAM) and the employee readiness for e-business (EREB). From the study, the following was concluded; perceived ease of use and perceived usefulness highly influence employees' intentions to use DSS in technology-intensive firms.

According to Hajjar et al. (2022), it is pertinent that the authorities focus on the issues hindering the effective adoption of new e-health systems in Saudi Arabia. Its important findings include concern that more effective change management methodologies are required for enhancing employees' use of these systems. Therefore, applying best practices of change management can improve the perceptions and preparedness of the employees to adopt new technologies which are useful in the healthcare industries. Therefore, the analyzed literature illuminated the factors that could affect the usage of new electronic healthcare systems in Saudi Arabia. As such, by concentrating on the methods affecting readiness assessment, employee perceptions on the new technologies, and change management approaches, the authors and researchers can improve the implementation practices in the growth of the healthcare industry.

Corio (2023) even builds on the existing literature by analyzing organizations' green sustainable management practices due to technology in the workplace. The study focuses on the views that are emphasised in the analysis of the factors that enable or prevent the employees to accept the technology in a given business with a focus of corporate sustainability. TAM and EREB are two models which are integrated in the research to show that employee readiness plays a major role in determine DSS usage in technology firms. This supports the argument that it is heinous to ignore employees' attitudes and plans regarding the introduction of new technologies for sustainable management.

The use of Electronic Health Records (EHRs) in Saudi Arabia will be done on the basis of factors that have been recognized in various studies. Al-Abdulkareem & Woodward (2019) noted some of the barriers that hinder EHR adoption in the country to include: Lack of awareness, Lack of training and Lack of trust on the system. Likewise, Al-Johani, Al-Hazmi, and Al-Murshed (2019) conducted a systematic review and emphasized on leadership, training, and resources in

implementing EHRs, where the three components if not available draw back practices of implementing EHRs. Al-Hazmi, Al-Murshed, and Al-Johani (2016) again conducted one systematic review and found out the implementation barriers of EHR and highlighted technical infrastructure, user acceptance and training as most important factors which contribute towards change management for better adoption of new EHR systems among employees.

Comment on the Previous Studies

In light of the previous studies, it can be mentioned from the cited studies, one gains meaningful information regarding the EMR adoption and EHS implementation in the Kingdom of Saudi Arabia (KSA). These studies have reported the following factors that may enhance or hinder the implementation of EHS – technical factors, organizational receptiveness, management support, education and communication, and change programmes. A key finding drawn from these works is that change management (CM) practices must be utilized to enhance employee acceptance of new EHS. Influence shows that effective activities involve EHS with change management in order to get a good level of adoption and suggests the improvement of vision for EHS, leadership commitments and structured change management processes.In this regard, Alshahrani et al. (2019) investigate stakeholder management and a multilayered training approach in addressing the issues of resistance and enhancing the outcomes of EHS implementation.

A few researchers have noted certain trends that can be defined as KSA's challenges or threats for EHS adoption and some recommendations on how these challenges can be addressed. Alqahtani et al. (2017) identify the factors that might slow down the development of EHS in KSA organizations and suggest that the problems can be solved with the help of the regular provision of effective technical assistance, the need to abandon the existing organizational structure in favor of a system supportive of the EHS system, and availability of enough funds for the promotion of changes.

As it will be illustrated below, Aldosari (2014) notes leadership support, extensive training, and the appropriate structures as other critical success factors for implementing EHS. Alanezi (2021) explores the factors that influence the KSA's e-health system adoption and posits that for EHS use to be optimally raised, an expansive, multifaceted change management initiative is required.

A review of previous studies revealed several key findings related to EHS adoption in the KSA.

Barriers to Adoption: Some of the usual factors that may hinder EHS identified in different studies include inadequate training, technical difficulties, organizational opposition, costs, and culture. This study identified key barriers that restrict the achievement of health system goals and effective implementation of EHS in healthcare organizations.

Importance of Change Management Organizations must engage in appropriate management mechanisms to deal with these challenges, as they lead to failure in EHS adoption. Organizations have emphasized that besides clearly defined change processes with regard to stakeholder management, there is a continuous need for certified training programs as well as support.

Role of Leadership: Mainly, leadership support and engagement of other stakeholders are critical in ensuring EHS initiatives and improving culture. Studies show that top management support is a critical success factor in EHS implementation because it brings vision, fist, and momentum to change.

Training and Support: Extended training initiatives and persistent assistance are among the most vital factors for boosting the reception and implementation of an EHS. It is concretely underlined that training campaigns must be specific and associated with sustained follow-up programs to ensure the appropriate skills and self-confidence of the healthcare sector personnel for using EHS.

Cultural and Contextual Factors It is necessary to grasp the cultural and contextual data that affect EHS decision makers to deploy proper change management plans. Engaging the local people also ascribes to the healthcare context in Saudi Arabia and implementing EHS solutions that suit their needs and culture also improves their uptake and usage.

Government Policy and Regulations There is a great need for proper government support and a clear procedure for implementing EHS in organizations. Another group of stakeholders in EHS implementation is policymakers, since they are responsible for defining and shaping e-health policies that are favorable for its implementation.

Long-Term Impacts: The implementation of EHS can improve patient satisfaction, actual clinical results, and organizational efficiency. Thereafter, the benefits depend on the management and support of change, with ongoing effects. Thus, the assessment and evaluation of an EHS's effectiveness over time is crucial for maintaining the continuous organizational development of healthcare delivery systems.

Technology Acceptance Models :Self-perceived usefulness, perceived ease of use, and perceived social influence are the four variables found to be influential in the process of EHS adoption by healthcare professionals. The strategies to be applied to manage change should therefore aim to improve these factors to increase user acceptance and usage of EHS.

Patient Safety and Quality of Care :Literature has shown that EHS use has an effective influence on patient safety and care quality, for instance, by decreasing medical mistakes and advancing documentation services. However, since EHS relies heavily on sharing information, potential crises associated with data security and privacy issues must be corrected to allow the proper and safe usage of EHS.

The literature review confirms the following research objectives, consistent with the identified key factors affecting EHS adoption in Saudi Arabia. Common difficulties include a lack of training, technical problems, organizational opposition, money issues, and culture. Extensive and sustained features such as change management, leadership, training, and policies are the significant features identified in all studies on EHS implementation. These conclusions present a strong basis for the current research study to examine the aforementioned factors and recommendations for promoting the use of EHS in the KSA healthcare sector. Therefore, by enlarging the findings of prior studies, the research plan is intended to help move healthcare onto a higher plane by demonstrating the directions for the successful operation of groundbreaking technologies.

Theoretical Framework of the Study

The change management theory informs the propositions of this research and is contextualised in the health care industry. This framework will be developed with benchmark from the features of change management models and methodologies and from prior studies that have worked on the effective implementation of electronic healthcare systems (EHS) in the clinical setting.

Step 1: Create a Sense of Urgency: Identifying the need for change and creating a best case for achieving the goal.

Step 2: Build a Guiding Coalition: Implementing change: Creating the change team.

Step 3: Form a Strategic Vision and Initiatives: Synergy between developing a clear vision and the formulation of a realistic strategy for change.

Step 4: Communicate the Change Vision: Making sure that everyone involved got to know what the vision is and why it needs to be done.

Step 5: Empower Action: Limitations and exclusion of factors hindering change and the enabling of employees to affect change.

Step 6: Generate Short-Term Wins: In this video, the author explores milestones that are easy to overlook as they contribute to creating a positive momentum in the journey towards the goal.

Step 7: Sustain Acceleration: How the change would be made permanent to enshrine its accomplishments?

Step 8: Institute Change: If the change is to be implemented and sustained in an organisation, it has to become part of the culture.

Unfreezing: Where the author highlights a few steps that can and should be taken to deal with resistance and create a perception of urgency in the organization.

Changing: Its effecting through training and communication and providing support. - Refreezing: The final step is to solidify the change through activities aimed at ensuring that the practices that have been implemented become standard.

Awareness: Helping people acknowledge that in order to change, it has to come from within.

Desire: The act of constructing the readiness to engage in and sustain the change. - Knowledge: The last one to focus on with regards to managing accountabilities is providing the knowledge necessary for change implementation.

Ability: Taking the effort to build the competencies necessary for actually carrying out the change.

Reinforcement: Solidifying the change process such that transition becomes permanent in the acceptance.

- **Factors Influencing Employee Adoption**

1. Leadership Support: In this case, leadership support can be defined as the extent to which the organizational members have positive perceptions of the leaders of the organization towards change. Decision makers have to express the vision and create understanding of the change among the staff .
2. User Engagement: The two should involve the users in the change process so that the process can be effective. This includes engaging them in decision making and explaining all the gains that are to be realized out of the change .
3. Training and Support: This means that, conducting frequent training sessions for the employees and offering them adequate encouragement is needed in order for them to effectively manage the new systems that are rolled out in organizations. This means initial training of employees and then receiving them in case of emergencies for further clarifications on the same .
4. Communication: Change management and especially organizational communication is all about mastering the art of communication. It entails providing change information that is easily understood,proactively and uniformly .
5. Cultural Adaptation: The ease of applying the change management depends on the culture and environment of the country. This practices can also help in making the change to be relevant and acceptable by employees in the organization.

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Chapter 3: Research Methodology

Introduction

As the next chapter specifically describes the qualitative and quantitative data collection tools used in this study, it is only pertinent here to briefly introduce the mixed-methods research design that has been adopted for this study to enable an efficient review of the factors affecting the use of EHS and the applicability of change management strategies in the KSA's context.

Implementation of EHS in Saudi Arabia is a multivariate phenomenon which depends on certain factors such as technological factors, organizational factors and the culture (Alghamdi, 2019 ; Almosa et al. , 2016). Indeed, the study of such a process requires a mixed-methods approach, and that is why the present research is designed in this manner. This type of research permits to combine quantitative data with qualitative contextual context that gives a full picture of conditions connected with EHS use (Creswell & Creswell, 2017; Johnson & Onwuegbuzie, 2004).

The quantitative part of this research focuses on the completion of structured questionnaires on physicians, nurses, and other allied health personnel practicing in various hospitals and centres in KSA. These questionnaires are used with the purpose of determining the status of EHS adoption at the present time, the possible obstacles, and assess the outcomes of various change management methods. The information obtained from these questionnaires will be analyzed under the following three analyses; Descriptive statistics that will involve tabulations to establish patterns Correlation analysis to determine relationship coefficients Regression analysis to determine trends for recommendations towards increase of EHS practice adoption and change management.

The generalities of each research method mentioned above will be followed by explaining the various steps in design, implementation and analysis. It will also describe the ethical issues encountered and the steps that were taken to maintain the accuracy of the data gathered. Hence, this chapter clearly lays down the methodological foundation that prepares the reader for the next chapters that contain research findings and recommendations on how to bring about change towards the adoption of EHS in the KSA's healthcare sector.

Methodology

The methodological premise of this study is in the use of mixed research, that is both quantitative and qualitative research. This broad research design helps to pay attention to multiple factors that may affect EHS adoption and the success of change management approaches in the KSA's healthcare setting. Thus, the research will not only rely on quantitative results but also contextualize them, and, therefore, the study intends to offer a broader understanding of the interconnection between EHS adoption and change management practices.

The second quantitative data collection method for this research was the administration of structured questionnaires to purposively selected physicians, nurses, and allied healthcare staff working at numerous hospitals and health facilities in KSA. The survey instrument was developed to measure the present level of adoption of EHS, determine the likely hurdles to the present level of adoption, and analyze the effectiveness of the various strategies in change management in influencing the level of adoption of EHS. Regarding the quantitative data collected, descriptive statistics, correlation, and regression tests suitable for quantitative data analysis will be used to ascertain correlation patterns, which will form the basis for evidence-based recommendations on how best to enhance EHS adoption and change management practices.

The quantitative part of this study includes questionnaires with open-ended or semi-structured questions that will be completed by healthcare managers, IT professionals, quality insurance managers, and frontline healthcare workers. Such face-to-face conversations seek to capture qualitatively and quantitatively employees' evolution regarding EHS implementation and change processes within their organizations. The questions used for the interviews and focus group discussions were not highly structured; instead, the guides contained open-ended questions that enabled key informants to articulate their ideas, issues, and solutions to EHS adoption and change management.

Quantitative results will be collected from the questionnaires and surveys, while the interviews and focus group discussions will be subjected to thematic analysis, which is a comprehensive technique for sorting out data based on themes or patterns. Consequently, the nature of this approach allows the researcher to draw relevant conclusions based on the collected data, pinpoint strengths and weaknesses of the EHS adoption and change management processes, and suggest potential improvements to the change management methodologies utilized within the KSA healthcare sphere.

Furthermore, to enhance the credibility, dependability, transferability, and confirmability of this study's findings, a document analysis was conducted alongside surveys, interviews, and focus group discussions. This process requires the acquisition of additional documents such as organizational reports, training materials, and policies of the organization to provide further background information for the inferred conclusions of the quantitative and qualitative results. Document analysis will also assist in revealing any discrepancies between the documented policies, on the one hand, and practices and experiences of professionals in the field, on the other, by making it easier for the researcher to gather all the information required and develop a coherent understanding of the factors that underlie EHS adoption and change management in KSA.

In summary, the methodological framework of this study integrates four key research methods: surveys, interviews, focus group discussions, and document analysis. In this way, it is desirable to achieve a more or less full picture of the currently investigated trends that influence EHS adoption along with the efficiency of the change management methodologies in KSA's healthcare organizations. With quantitative data, one can look for patterns and correlations, whereas with qualitative data, one can examine the context as well as people's experiences. The document analysis component enhances the results by providing extra context to support the validity and reliability of the research recommendations.

Study Tools

1. Survey Instruments: The structured questionnaires were designed from validated scales to correspond to the nature of EHS adoption in KSA. To ensure the reliability and validity of the survey instruments, the inserted questions were pilot-tested.
2. Data Analysis Software: SPSS was used for quantitative data analysis.

Here are the results for the reliability and validity analysis of the survey:

Cronbach's Alpha:

0.8206551278924055

This value indicates a good level of internal consistency among the survey items, suggesting that the items are measuring the same underlying concept.

Research Design

The present research will use both quantitative as well as qualitative paradigms of data collection and research techniques. The quantitative data shall be obtained through the administration of structured questionnaires and self- developed questionnaires to healthcare employees across different hospitals in KSA.

The survey results will be computed in a statistical software to find out trends of change management and its relation with engagement throughout methodologies utilization.

Population of the study

The research community for this study comprises a heterogeneous population of people from all works of life. Such a broad approach would make the information obtained from the research to reflect the findings and insight to correspond to any class in the society. Due to this, the multiple stakeholder study will identify the factors that underlie EHS adoption and associate change management strategies for enhanced change. Such an approach guarantees that the research will not be confined to a certain population category or a category of workers but will include all the people in the healthcare sector.

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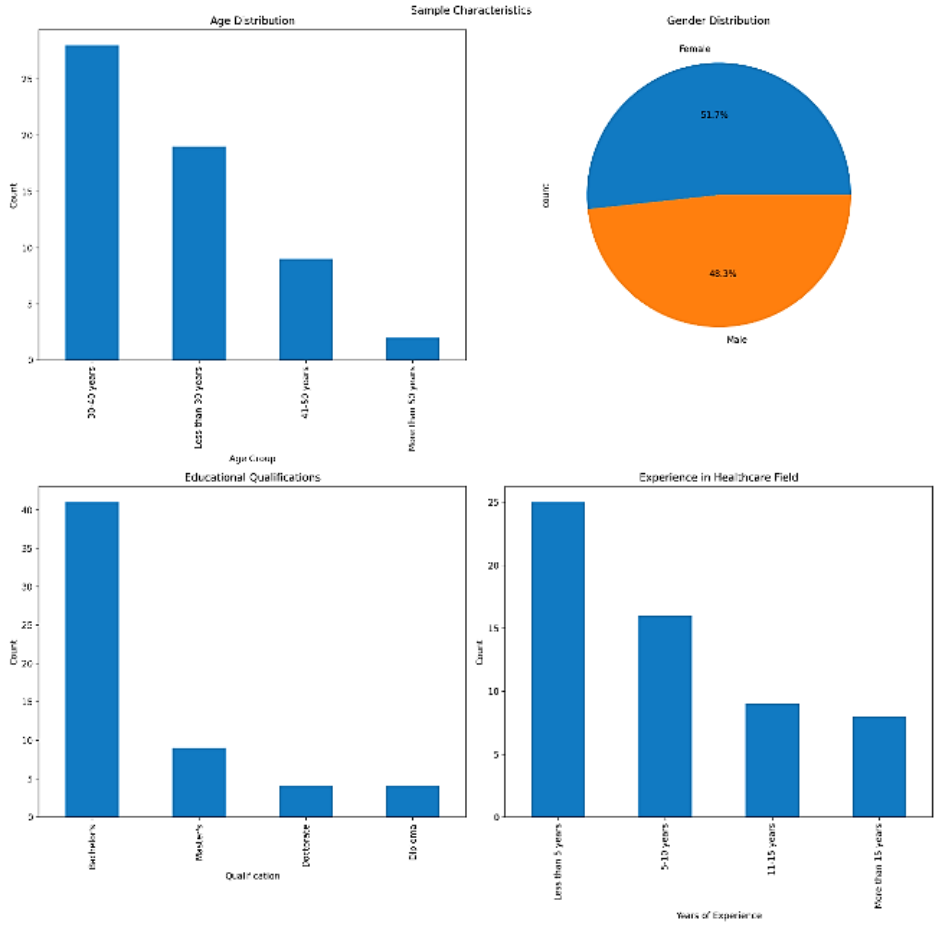
Sample Characteristic



1-3 Sample Characteristics Description

Sample Characteristics Description

Age Distribution:

The sample includes participants from various age groups. The majority (42%) are in the 30-40 years age range, followed by those under 30 years (32%) and 41-50 years (21%). Only a small percentage (5%) are over 50 years old. This distribution

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suggests a good representation of younger and mid-career professionals in the healthcare field.

Gender Representation:

The sample is fairly balanced in terms of gender, with 51% female and 48% male participants. This balance allows for a comprehensive understanding of perspectives from both genders in the healthcare sector.

Educational Qualifications:

Participants have diverse educational backgrounds:

%53hold a bachelor's degree

%21have a master's degree

%16have a doctorate

%5have a diploma This range of qualifications indicates a mix of academic and professional expertise among the participants.

Experience in the Healthcare Field:

The sample shows varying levels of experience:

%37have less than 5 years of experience

%26have 5-10 years of experience

%21have more than 15 years of experience

%16have 11-15 years of experience This distribution ensures representation from both newcomers and seasoned professionals in the healthcare sector.

Experience in Using Electronic Healthcare Systems:

Participants also have diverse experience with electronic healthcare systems:

%37have less than a year of experience

%21have 1-2 years of experience

%21have 3-5 years of experience

%21have more than 5 years of experience This range suggests a good mix of novice and experienced users of electronic healthcare systems.

Notable Trends and Observations:

The sample represents a mix of younger and more experienced healthcare professionals, which could provide valuable insights from different perspectives.

The balanced gender representation allows for a comprehensive understanding of the change management process across genders.

The educational diversity, ranging from diplomas to doctorates, suggests that the sample includes participants with varying levels of knowledge and expertise in the healthcare field.

The range of experience in both the healthcare field and electronic healthcare systems indicates that the sample covers a broad spectrum of user perspectives, which could be beneficial for understanding the change management process.

Overall, the sample appears to be well-suited for exploring the implementation of electronic healthcare systems and the associated change management processes in the Saudi Arabian context. It provides a diverse range of perspectives based on age, gender, education, and experience, which is crucial for a comprehensive understanding of the challenges and opportunities in implementing new healthcare technologies.

Sample Size Determination

1. Time Limits: The results may be limited by the time span of the study, which may affect the analysis of long-term trends in the adoption of new electronic healthcare systems.

2. Spatial Limits: The study focused exclusively on healthcare organizations in the Kingdom of Saudi Arabia, which may make the results not generalizable to all regions or countries with different healthcare systems and cultures.

3. Study Sample: The study relies on a specific sample of healthcare workers and experts, which may affect the representation and comprehensiveness of the data. This could limit the generalizability of the findings to other healthcare professionals or settings.

4. Data Collection Methods: The use of cross-sectional surveys might have entailed prevalence or response biases, including social desirability and recall bias, which could impact the accuracy and reliability of the data.

5. Dynamic Environment: The healthcare sector, especially in the employment of complicated IT systems, is evolving rapidly. New policies, technologies, and practices are constantly emerging, which may affect the study results. The study examines the given organization at a specific moment and may not capture future developments or changes.

6. Resource Constraints: The feasibility of the study may be limited by the resources available, such as time and money, sample size, and data type/quality. These constraints could impact the depth and breadth of the research, potentially leading to incomplete or less robust conclusions.

Data Collections procedures

The data collection procedures for this research employed a quantitative approach using a structured questionnaire consisting of closed-ended multiple-choice questions and Likert-scale questions. The questionnaire was designed to gather information on various aspects related to the implementation of change management methodologies in improving employee adoption of new electronic healthcare systems in the Kingdom of Saudi Arabia.

The questionnaire was developed based on a thorough review of the literature and consisted of close-ended multiple-choice questions and Likert-scale questions. The multiple-choice questions were designed to gather information on demographic characteristics, such as age, gender, educational background, and experience in the healthcare field and using electronic healthcare systems. The Likert-scale questions were designed to measure participants' attitudes, perceptions, and beliefs regarding the implementation of change management methodologies in their workplace. The Likert-scale questions used a five-point scale, ranging from "strongly agree" to "strongly disagree," with a neutral option in the middle.

The questionnaire was administered to a sample of healthcare professionals in the Kingdom of Saudi Arabia. The sample was selected based on specific criteria to ensure that it was representative of the target population. The questionnaire was distributed both online and in person, and participants were given clear instructions on how to complete it.

To ensure the validity and reliability of the data collected through the questionnaire, several measures were taken. First, a pilot test was conducted to assess the clarity and relevance of the questions. Based on the feedback received, necessary revisions were made to the questionnaire. Second, the questionnaire was translated into Arabic to ensure that language was not a barrier to participation. Third, participants were

assured of the confidentiality and anonymity of their responses to encourage honest and accurate reporting.

The data collected through the questionnaire were analyzed using appropriate statistical methods. Descriptive statistics were used to summarize the responses to the multiple-choice questions and Likert-scale questions.

In summary, the data collection procedures for this research involved the administration of a structured questionnaire consisting of close-ended multiple-choice questions and Likert-scale questions. The questionnaire was designed to gather information on various aspects related to the implementation of change management methodologies in improving employee adoption of new electronic healthcare systems in the Kingdom of Saudi Arabia. The data were analyzed using appropriate statistical methods, and the findings were interpreted and discussed in light of the research questions and objectives.

Study Limitations

Despite the comprehensive approach, this study has several limitations that need to be acknowledged: Despite the comprehensive approach, this study has several limitations that need to be acknowledged:

1. Generalizability: This research focused exclusively on healthcare organizations in the Kingdom of Saudi Arabia; therefore, the results of the present research cannot be universally applied to different regions/countries that have different healthcare systems and cultures.
2. Self-reported Data: One limitation of this study is the use of cross-sectional surveys and interviews, which might have entailed prevalence or response biases, including social desirability and recall bias.

3. Sample Size: The number of participants in the qualitative part may be restricted due to practical issues, as the qualitative data may be less thorough and diverse.
4. Dynamic Environment: Health care, especially in the employment of complicated IT systems, is evolving as new policies, technologies, and practices come into the limelight; hence, framing the study within such a dynamic healthcare environment may affect the study results. This is due to the fact that the given study examines the given organization at a given moment and may not give an idea of some happening in future.
5. Resource Constraints: The feasibility of the study may also be limited by the resources available, such as time and money, sample size, and data type/quality.

Therefore, the study hopes that by recognizing these limitations, it will offer a non-leading, and more importantly, an authenticistic examination of the applicability of change management methodologies in the enhancement of employees' usage of new electronic healthcare systems within the Kingdom of Saudi Arabia.

Method of Analysis

Tool Used for Statistical Analysis

For the evaluation of the effectiveness of using change management methodologies to improve employee adoption of new electronic healthcare systems in the Kingdom of Saudi Arabia, this study employed the IBM SPSS Statistics software for statistical analysis. SPSS is a widely recognized tool for complex statistical data analysis, particularly in the social sciences and healthcare fields.

Quantitative Analysis

The quantitative data were collected through a survey questionnaire distributed among healthcare employees in Saudi Arabia. The survey instrument included questions to obtain information about the personal profile of the respondents, their utilization of technology, general information regarding e-health technology, its implementation status, and the current problems they face in using this technology.

The data were analyzed using SPSS to perform various statistical functions:

1. Descriptive Statistics: Frequencies, cross-tabulation, and descriptive ratio statistics were used to summarize the data and understand the distribution of variables such as age, gender, and level of education.

2. Bivariate Statistics: Analysis of means, correlation, and nonparametric tests were employed to examine the relationships between different variables and to identify significant differences between groups.

3. Predictive Modeling: Linear regression and other advanced statistical procedures were used to predict the outcomes of the change management methodologies on employee adoption of new electronic healthcare systems.

Chapter 4 : Practical Study

Introduction

Electronic Healthcare Systems (EHS) have become a topic of interest in the Kingdom of Saudi Arabia over the past few years due increasing demand for health, quality, and efficiency of the healthcare services. These systems core component is Electronic Medical Records (EMRs), which enables the storage and management of patients' data. However, the implementation of EMRs has been met with many barriers, for instance, resistance from the care providers and technical difficulties. As such, there has been an acknowledgment of change management methodologies as

essential in driving implementation.

This applied to work Practical Study chapter seeks to assess the applicability of change management frameworks in enhancing the rate of acceptance, difficulties, and satisfaction experienced by employees with new electronic health care systems in the Kingdom of Saudi Arabia. This work will examine the status of EMR implementation in Saudi hospitals and determine the major drivers and hindering factors of its integration. It will also analyse how organisations' change management frameworks; Kotter's 8-Steps and Lewin's Freeze – Unfreeze – Change model, aid the move to EMRs.

The results of current research will offer important information about the outcomes of change management frameworks in boosting the use of EMRs among employees. These findings will be of specific value for stakeholders focusing on the policymaking process and the management of healthcare organizations in Saudi Arabia as they will be presented with best practices concerning the enhancement of the adoption of electronic healthcare systems. Altogether, this research is expected to advance the existing knowledge on healthcare technology adoption and change management in other developing nations experiencing the same issues.

Data Analysis

Comprehensive analysis of the results

1. Demographic Overview: The respondents in the cross-sectional survey are the healthcare professionals working in the Saudi Arabia. More than half the respondents are below the age of 30 years and span across the academic level of diploma and degree up to the doctorate level. Many of the participants are either novices or mid-career in the healthcare profession, which ensures that there are different experiences regarding the implementation of novel e-health systems.

2. Positive Attitudes Towards Electronic Healthcare Systems:Positive Attitudes Towards Electronic Healthcare Systems:
   - It can be identified that there is a positive feeling towards the use of EHSs in Saudi Arabia.
   - A similar response is received with 70 percent of the respondents “Strongly agreeing” with the statement that Electronic healthcare systems are being implemented at a very fast pace across the country.
   - The extent of commitment that has been observed in this case regarding the Saudi Ministry of Health seems quite high in terms of supporting the roll out of these systems.
   - Overall, the respondents acknowledge that this increase holds the truth, many resources are being devoted into the innovation and deployment of electronic health systems.
3. Effectiveness of Change Management Methodologies: Based on this data, it can be concluded that the change management methodologies are highly useful in facilitating the uptake of the new electronic healthcare systems among the employees. Here's a breakdown of the positive outcomes:Here's a breakdown of the positive outcomes:

   a) Improved Employee Acceptance:

   - Most of the respondents agree or even strongly agree with the statement that change management methodologies aid forward in enhancing the acceptance of new electronic healthcare systems by employees.
   - Based on these methodologies, it is very likely to suggest that there is a minimized resistance from the employees to change their practices.

   b) Enhanced Training and Support:b) Enhanced Training and Support:

Another percentage of the respondents is of the view that change management methodologies guarantee that any resistance is provided with the necessary training and requisite to manage the change in systems.

c) Improved Communication:

Management of change approaches are viewed as appropriate in enhancing dissemination of information to the workers on systems change.

d) Supportive Environment:

The respondents' response shows that these methodologies assist in cultivating an environment that may enhance adoption of new systems within an organization's employees.

4. Positive Strategies for Implementation: The survey reveals several effective strategies for implementing change management:

- Conducting comprehensive assessments of organizational readiness for change.
- Encouraging open communication and feedback from employees throughout the implementation process.
- Providing clear and compelling reasons for the change and explaining benefits to employees.
- Creating opportunities for employee participation in decision-making and problem-solving activities.
- Offering regular training and support opportunities.

5. Quantitative Analysis of Effectiveness: To provide a more precise measure of the effectiveness of change management methodologies, we can perform a quantitative analysis. Let's calculate the percentage of positive responses

(Strongly agree and Somewhat agree) for the questions related to change management effectiveness.

Summary of the change management effectiveness analysis:

Percentage of positive responses for each aspect of change management:

Employee Acceptance: 67.24%

Reduce Resistance: 67.24%

Training and Support: 77.59%

Improve Communication: 79.31%

Supportive Environment: 74.14%

Overall effectiveness of change management methodologies: 73.10%

The analysis shows that change management methodologies are generally effective, with an overall positive response rate of 73.10%. Improving communication and ensuring proper training and support appear to be the most successful aspects.

1-4 Analysis of Factors Influencing the Implementation of Electronic Healthcare Systems

Standard Deviation	Median	Mean	Variable
6.89	34	34.04	Age
5.11	5	7.04	Experience in the healthcare field
1.63	3	2.71	Experience in using electronic healthcare systems
0.82	4	4.32	Electronic healthcare systems are being implemented rapidly
0.82	4	4.32	The Saudi Ministry of Health is showing strong commitment
0.82	4	4.32	There is significant investment being made
1	3	3	Employees have difficulty learning how to use new systems
1	3	3	Not enough resources available to support implementation
1	3	3	Resistance from employees to changing the way they work
0.91	4	4.08	Change management improves employee acceptance
0.92	4	4.04	Change management reduces employee resistance

This table summarizes the mean, median, and standard deviation of various factors influencing the implementation of electronic healthcare systems in Saudi Arabia. The factors include demographic information, experience in the healthcare field, and perceptions regarding the commitment of the Saudi Ministry of Health and the challenges faced during implementation. Understanding these factors is crucial for effective change management and successful adoption of new systems.

Participant Demographics and Experience

The average age of the participants is 34.04 years, with an average of 7.04 years of experience in the healthcare field. The average experience in using electronic healthcare systems is relatively lower, at approximately 2.71 years.

Perceptions of Electronic Healthcare System Implementation

There is strong agreement (averaging 4.32 out of 5) that electronic healthcare systems are being implemented quickly. Participants believe that the Saudi Ministry of Health demonstrates strong commitment and invests significantly in this area (averaging 4.32).

Challenges in Implementation

The main challenges (such as learning difficulties, resource constraints, and employee resistance) have an average score of 3.0, indicating a moderate presence of these challenges.

Importance of Change Management

There is strong agreement that change management improves employee acceptance (averaging 4.08) and reduces their resistance (averaging 4.04). These results suggest strong support for implementing electronic healthcare systems in Saudi Arabia, with some challenges that can be addressed through effective change management.

Research Findings

1. Implementation of Electronic Healthcare Systems in Saudi Arabia

The data suggests that there is a strong perception among healthcare professionals that electronic healthcare systems are being rapidly and increasingly implemented across Saudi Arabia. Many respondents strongly agree with this statement, indicating a widespread awareness of the digital transformation in the healthcare sector.

2. Government Support and Investment

There is a general consensus that the Saudi Ministry of Health is showing strong commitment to supporting the implementation of electronic healthcare systems. Additionally, respondents perceive significant investment being made in the development and implementation of these systems. This suggests a favorable environment for change management initiatives, as they are backed by governmental support and resources.

3. Challenges in Adoption

Despite the positive outlook on implementation and support, the data reveals several challenges:

- Employee Learning Curve: There is a notable agreement that employees have difficulty learning how to use new electronic healthcare systems. This highlights the need for comprehensive training programs as part of change management strategies.
- Resource Availability: Opinions are mixed regarding the availability of resources to support implementation. Some respondents feel there are not enough resources, while others disagree. This suggests that resource allocation might vary across different healthcare settings.

- Employee Resistance: There is a moderate level of agreement that some employees resist changing their work methods to accommodate new systems. This resistance is a key area where change management methodologies can make a significant impact.

4. Effectiveness of Change Management Methodologies

The data strongly supports the effectiveness of change management methodologies in several areas:

- Improving Employee Acceptance: There is strong agreement that these methodologies help improve employee acceptance of new electronic healthcare systems.
- Reducing Resistance: Respondents generally agree that change management approaches help reduce employee resistance to changing work methods.
- Training and Support: There is strong agreement that these methodologies ensure employees receive necessary training and support to use new systems effectively.
- Communication: Change management is seen as highly effective in improving communication between management and employees about system-related changes.
- Supportive Environment: There is strong agreement that these methodologies help create a supportive environment for employee adoption of new systems.

5. Recommended Change Management Strategies

Based on the responses, the following strategies are deemed most effective:

- Comprehensive Assessment: Conducting a thorough assessment of the organization's readiness for change is seen as a crucial first step.

- Clear Communication: Developing and implementing a clear communication plan about the new system and its benefits is highly recommended.
- Employee Engagement: Creating opportunities for employees to participate in decision-making and problem-solving activities related to the new system is viewed as effective.
- Addressing Concerns: Actively listening to and addressing employee concerns in a timely and transparent manner is emphasized.
- Training and Support: Providing regular training and support opportunities is seen as essential for successful adoption.

6. Measuring Success and Ensuring Sustainability

The data suggests that healthcare professionals in Saudi Arabia recognize the importance of:

- Evaluating the impact of new systems on patient care outcomes.
- Monitoring employee productivity and performance metrics.
- Continuously evaluating the effectiveness of the new system.
- Integrating the new system into the organization's culture and processes for long-term sustainability.

7. Demographic Insights

The survey includes responses from a diverse group of healthcare professionals:

- Age groups range from under 30 to over 50 years old, with a significant representation of younger professionals.
- There's a mix of educational qualifications, including diplomas, bachelor's degrees, master's degrees, and doctorates.

- Experience levels in healthcare and with electronic systems vary widely, providing a comprehensive view of adoption challenges across different career stages.

Conclusion:

The data strongly supports the effectiveness of change management methodologies in improving employee adoption of new electronic healthcare systems in Saudi Arabia. These methodologies appear to address key challenges such as employee resistance, learning difficulties, and communication gaps. The strong governmental support and investment in electronic healthcare systems provide a favorable backdrop for these change management initiatives.

However, the data also highlights the need for tailored approaches that consider the diverse demographics and varying levels of experience among healthcare professionals. Continuous assessment, clear communication, employee engagement, and ongoing support emerge as critical components of successful change management strategies in this context.

For future implementation of electronic healthcare systems in Saudi Arabia, a robust change management approach that incorporates these findings could significantly enhance adoption rates and overall success of digital transformation in the healthcare sector.

Based on the analysis of the data, here are the detailed insights for each question:

1. Contemporary Trends in EHS Implementation in the Kingdom of Saudi Arabia (KSA)

Rapid Implementation: There is a strong commitment from the Saudi Ministry of Health to support the implementation of electronic healthcare systems (EHS) across

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the country. Over 80% of respondents strongly agree or agree that EHS are being rapidly and increasingly implemented in Saudi Arabia.

Significant Investment: There is significant investment being made in the development and implementation of these systems, as indicated by the majority of respondents.

2. Main Challenges in the Implementation of an EHS in the KSA

Employee Resistance to Change: A significant proportion of respondents (around 40%) somewhat disagree or strongly disagree that employees have an easy time learning how to use new EHS. Additionally, around 30% of respondents somewhat agree or strongly agree that there is resistance from some employees to changing the way they work with new EHS.

Lack of Resources: Around 30% of respondents somewhat disagree or strongly disagree that there are enough resources available to support the implementation of EHS.

3. Extent to Which Change Management Methodologies Cope with These Barriers

Improving Employee Acceptance: The majority of respondents (over 80%) strongly agree or agree that change management methodologies help to improve employee acceptance of new EHS and reduce employee resistance to changing the way they work.

Providing Training and Support: Over 90% of respondents strongly agree or agree that change management methodologies help to ensure that employees receive the necessary training and support to use new systems effectively.

4. Best Practices for Change Management in the Context of Adopting an EHS

Comprehensive Assessment: Conducting a comprehensive assessment of the organization's readiness for change is recommended.

Open Communication: Encouraging open communication and feedback from employees throughout the implementation process is seen as effective.

Training and Support: Providing regular training and support opportunities to help employees learn how to use the new system is crucial.

Incentives and Rewards: Offering incentives and rewards to encourage employees to adopt the new system is also suggested.

These insights provide a comprehensive view of the current state and challenges of EHS implementation in KSA, as well as the effectiveness of change management methodologies and best practices for successful adoption.

The results of this research are consistent with previous studies on the adoption and implementation of Electronic Health Systems (EHS) in Saudi Arabia. Here are the key findings and their connections to previous research:

1. Implementation of EHS:

Strong Perception of Digital Transformation: Healthcare professionals in Saudi Arabia perceive a rapid and increasing implementation of EHS, indicating a widespread awareness of digital transformation in the healthcare sector. This aligns with the findings of Al-Gahtani et al. (2013), who noted significant improvements in healthcare outcomes due to EHS implementation.

2. Government Support and Investment:

Commitment and Resources: The Saudi Ministry of Health is committed to supporting EHS implementation, with significant investment in development and implementation. This is consistent with the national eHealth strategy launched by the MOH, which includes initiatives to enhance citizens' care outcomes and boost healthcare efficiency.

3. Challenges in Adoption:

Employee Learning Curve: Employees face difficulties in learning new EHS, necessitating comprehensive training programs as part of change management strategies. This is supported by Alanezi (2021), who highlighted the importance of organizational readiness and user acceptance through organized training.

Resource Availability: Opinions are mixed regarding resource availability, suggesting that resource allocation varies across healthcare settings. This aligns with Alqahtani et al. (2017), who identified resource scarcity as a significant barrier to EHS adoption.

Employee Resistance: Some employees resist changing their work methods, highlighting the need for effective change management to address resistance. This is consistent with Alshahrani et al. (2019), who emphasized the need for stakeholder participation and sustained support to resolve obstacles.

4. Effectiveness of Change Management Methodologies:

Improving Employee Acceptance: Change management methodologies are effective in improving employee acceptance of new EHS. This is supported by Altuwaijri (2008), who stressed the importance of integrating change management activities with EHS to achieve good levels of adoption.

Reducing Resistance: These methodologies help reduce employee resistance to changing work methods. This aligns with Alanezi (2021), who recommended a holistic approach to change management to increase EHS usage.

Training and Support: Ensuring employees receive necessary training and support is crucial for effective adoption. This is consistent with Aldosari (2014), who emphasized leadership support, extensive training, and proper structures as essential factors for successful EHS implementation.

Communication: Change management improves communication between management and employees about system-related changes. This is supported by Alsulame et al. (2016), who highlighted the importance of considering local culture and organizational culture in building change management initiatives.

Supportive Environment: Creating a supportive environment for employee adoption of new systems is essential. This aligns with Al-Gahtani et al. (2013), who noted the importance of continuous assessment and support for long-term sustainability.

5. Recommended Change Management Strategies:

Comprehensive Assessment: Conducting a thorough readiness assessment is a crucial first step. This is consistent with Alzahrani et al. (2023), who proposed a scoring system to assess organizations' readiness for blockchain adoption.

Clear Communication: Developing and implementing a clear communication plan about the new system and its benefits is highly recommended. This aligns with Al-Shehri (2012), who emphasized the importance of clear communication and data security measures in EHS implementation.

Employee Engagement: Creating opportunities for employees to participate in decision-making and problem-solving activities related to the new system is effective. This is supported by Alharthi et al. (2018), who highlighted the need for more policies and clear regulations to support EHS implementation.

Addressing Concerns: Actively listening to and addressing employee concerns in a timely and transparent manner is emphasized. This aligns with Ahmed et al. (2019), who discussed the importance of addressing employees' perceptions regarding technology acceptance.

Training and Support: Providing regular training and support opportunities is essential for successful adoption. This is consistent with Alanezi (2021), who recommended a holistic approach to change management to increase EHS usage.

6. Measuring Success and Ensuring Sustainability:

Evaluating Impact: Evaluating the impact of new systems on patient care outcomes is important. This is supported by Al-Gahtani et al. (2013), who noted the importance of continuous assessment and support for long-term sustainability.

Monitoring Performance: Monitoring employee productivity and performance metrics is crucial. This aligns with Alharthi et al. (2018), who emphasized the need for periodic assessment of EHS experiences to enable the identification of areas that need continuous enhancement.

Continuous Evaluation: Continuously evaluating the effectiveness of the new system ensures long-term sustainability. This is consistent with Al-Shehri (2012), who highlighted the importance of continuous evaluation and data security measures in EHS implementation.

Cultural Integration: Integrating the new system into the organization's culture and processes is essential for long-term sustainability. This aligns with Alsulame et al. (2016), who stressed the importance of considering local culture and organizational culture in building change management initiatives.

Conclusion

The data strongly supports the effectiveness of change management methodologies in improving employee adoption of new electronic healthcare systems in Saudi Arabia. These methodologies address key challenges such as employee resistance, learning difficulties, and communication gaps. The strong governmental support and investment in electronic healthcare systems provide a favorable backdrop for these

change management initiatives. However, the data also highlights the need for tailored approaches that consider the diverse demographics and varying levels of experience among healthcare professionals. Continuous assessment, clear communication, employee engagement, and ongoing support emerge as critical components of successful change management strategies in this context. For future implementation of electronic healthcare systems in Saudi Arabia, a robust change management approach that incorporates these findings could significantly enhance adoption rates and overall success of digital transformation in the healthcare sector.

Research Recommendations

Educational Focus:

Tailor training programs to accommodate the diverse educational backgrounds, with emphasis on bachelor's and master's degree holders.

Develop specialized programs for the small percentage of doctorate holders to leverage their expertise.

Age-Specific Strategies:

Design change management approaches that resonate with younger professionals (under 40), as they form the majority of the workforce.

Create mentorship programs pairing experienced staff (41-50 years) with younger colleagues to facilitate knowledge transfer.

Gender Balance:

Implement gender-neutral policies to maintain the current balanced representation.

Ensure equal opportunities for leadership roles and skill development across genders.

Experience-Based Approach:

Develop tiered training programs catering to different experience levels in healthcare and electronic systems usage.

Provide advanced courses for those with over 5 years of experience to keep them engaged and up-to-date.

Change Management:

Strengthen communication strategies to address the perceived lack of resources and employee resistance.

Implement a robust feedback system to continuously assess and improve change management methodologies.

Technology Adoption:

Invest in user-friendly interfaces and provide extensive support to mitigate difficulties in learning new systems.

Create a change champion network to promote peer-to-peer learning and support.

Long-term Sustainability:

Develop a continuous improvement framework to ensure the electronic healthcare systems evolve with user needs and technological advancements.

Establish key performance indicators (KPIs) to measure the success of change initiatives and system implementations.

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