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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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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.

The following are studies of failed EHS implementation.

Understanding the critical issues that have led to the failure of various EHS objective implementations can allow the identification of potential problems in similar cases. An example is The National Program for IT by the National Health Service in the UK. This program was designed to computerize patient records and operationalize the national health information system. It then encountered numerous challenges that threatened the project's progression, including technical challenges, high costs, and structural and personnel resistance. Who knows that this program was shut down because of large losses and the inability to achieve the specified goals?

Such issues have also been observed in KSA regarding the execution of EHS solutions. For example, a large teaching hospital in Riyadh faced some problems related to the new EHR system because of the lack of proper training and education of health care employees. The system was hardly popular, meaning that extra measures were required to protect the staff and enhance the system. Therefore, this case underlines the need for extensive training and recurrent consequent support to fully implement an EHS.

Thus, tackling emerging technical, organizational, and human issues as well as exploring past failures and difficulties can help KSA healthcare organizations adopt improved practices for EHS implementation. Therefore, this study seeks to offer suggestions that can help in these endeavors and enhance the practice of healthcare delivery in the region.

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 2.0. 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.

1. 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: 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.

Justification for the Selection of These Questions

Contemporary Trends in EHS Implementation: This is important in evaluating the current practice to know what is prevailing in the current parity and areas that need to be reviewed in EHS implementation. This question is useful for understanding the domain of EHS technologies and their incorporation into the healthcare sector to precede the analysis.

Main Challenges to EHS Implementation: It is critical to understand these barriers in order to be able to come up with ways of handling them. This question addresses the barriers to the implementation of EHS strategies and practices, looking at the technical, organizational, and human issues that are involved when adopting these strategies.

Effectiveness of Change Management Methodologies: Thus, the assessment of change management methodologies is essential to determine which strategies can combat recognized barriers. As the aim of this question is to compare different strategies and analyze how effective they are in increasing the level of EHS use, the findings will be useful for healthcare organizations.

Best Practices for Change Management: Emphasizing strategies in change management helps to ensure that adopting successful methods to support the implementation of EHS is possible for healthcare organizations. This question was designed to bring together the best practices and offer recommendations based on the research and analysis of the available literature.

In answering these questions, the study will strive to achieve the following objectives: determine the status of EHS adoption in KSA, with specific reference to the challenges

encountered; assess the efficiency of the change management practices used in the implementation process; and catalog-relevant and successful KSA change management practices in EHS adoption. The study will have a practical impact as the recommendations provided will help healthcare organizations teach and inform policymakers and guide Researchers in the Kingdom of Saudi Arabia to enhance the provision of health care.

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.

The basis of this presumption is that anticipations of change that can effectively incorporate the views of the staff working in the healthcare facility can support a more efficient implementation of EHS. To be more precise, these strategies include the following: to ensure that healthcare professionals accept change, the latter must be planned and implemented with their help, and the representatives of the corresponding field must be trained and supported constantly, while all modifications must be explained. This subsequently disposes of a higher rate of adoption of EHS systems as the staff feels more support and informed of the new systems rolled out by their employer.

As support to this hypothesis, prior studies highlight that the amount of investment in any other complete change management project in health care organizations leads to a higher degree of EHS acceptance and user satisfaction. The effectiveness of these methodologies is based on their capacity to manage social issues that tend to interfere with technology implementation, including reluctance to change, self-instilled doubts about new systems, and caller concerns with workload volume. Thus, the elimination of these barriers would enhance the application and use of EHS in Saudi Arabia's healthcare system with the aid of effective change-management models.

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.

Education and coaching are also necessary for an effective EHS regime. They ensure that health care professionals are trained to use the new systems, hence eliminating the fear and resistance that comes with change. On the other hand, lack of adequate training fosters a lack of confidence in EHS and the involvement of more errors and frustration among the staff, thus encouraging resistance.

The hypothesis also entails that to support and successfully adopt an EHS, it is necessary to invest in fast and vast training initiatives as well as ceaseless support. It is recommended that Staff Development programs suit the different needs of the many user groups in a HealthCare Organization to prepare and focus the entire HC team of employees for the changeover to EHS. However, after-training support in the form of help desks, follow-up training sessions, and buddy training can also assist in maintaining user interest and co-acceptance in the long run.

This hypothesis has been proven by a number of empirical studies that state that healthcare organizations incorporate detailed training and support systems, whereby users derive a higher acceptance of EHS. Therefore, it is important to deal with training and support concerns to avoid resistance and achieve success in EHS in healthcare organizations.

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.

These issues are what change-management interventions, such as stakeholder management, communication management, and management sponsorship, should be addressed to prevent resistance. It is a process of identifying and influencing key stakeholders in the decision-making process concerning EHS, such as the healthcare staff. This means that by engaging the stakeholders in the change process and seeking feedback, the necessary commitment of the personnel is created and opposition is reduced.

However, this is not the only factor that must be managed. The fourth is communication, which facilitates change. This minimizes dreading and guessing through regular and clear communication with staff about the advantages of EHS, the schedule, and how it concerns employees. Thus, keeping up with the updates and asking for a response promotes the staff's appreciation of the change at work.

Another requirement that must be met in change management is managing sponsorship at the managerial level. The ES-HS support by the Mantonya senior leaders and managers to model best practices of the EHS implementation means a lot to the staff because it will be a clear testimony that the change matters to the company. Another way that management sponsorship can help is by offering resources and authority to resolve any problems that may occur during the change, also minimizing resistance.

This hypothesis can also be argued with the help of corresponding evidence, which implies that the application of detailed change management plans results in less resistance and increased EHS usage in healthcare organizations. The matters of concern being specific to healthcare staff as implementers of the EHS would go a long way in creating a positive frame of mind towards the methodologies proposed in this paper for the subsequent positive effects on the implementation of EHS.

Justification for the Selection of These Hypotheses

The identification of these hypotheses is based on the argument that all the factors they encompass relate to the evaluation of the antecedents that determine EHS adoption in Saudi Arabia's healthcare industry. Each hypothesis relates to a component of the adoption process, that is, the efficiency of change management with regard to training and support and the management of change resistance.

Relevance to EHS Adoption: The first hypothesis raised for this study is that comprehension of the performance of change management frameworks is critical in determining practices ideal for supporting change to EHS. Thus, evaluating these strategies will enable the study to make recommendations to healthcare organizations seeking to enhance their adoption processes.

Impact of Training and Support: The hypothesis concerning training and support (Hypothesis 2) is a typical issue of resistance to the implementation of EHS solutions. Through the analysis of the training, support, and user acceptance, this study can reveal the significance of proper funding in these areas, which will contribute to the successful implementation of the technology.

Mitigation of Resistance: However, stakeholder resistance is a major and well-known barrier in the process of technology adoption. In Hypothesis 3, attention is paid to the definition of those factors that can affect resistance to change and employees' moods to accept EHS favorably. This is important to guarantee that healthcare staff embrace new systems and actually use them in practice.

Thus, the following research hypotheses have been introduced to contribute to the understanding of factors that affect the decision to adopt EHS in Saudi Arabia: The identified findings will hold vast implications for healthcare organizations, health policy makers, and scholars and will help to push

forward the delivery of health care through the effective execution of new technologies for the successful execution of tasks.

Theoretical Framework Supporting Each Hypothesis

The theoretical background for this study is well anchored in resilient scientific change management models, the Change Management Model by Kurt Lewin and the Eight-Step Model by John Kotter. These theories provide a systematic framework for analyzing and facilitating changes in an organization for the efficient implementation of EHS in healthcare organizations.

The Model used in this study is Kurt's Lewin's change-management model.

Kurt Lewin's Change Management Model is one of the oldest yet most effective theoretical models of change that originate in the middle of the 20th century. Lewin's model is composed of three key stages: The three often used models of managing change are Unfreeze, Change, and Refreeze. All these stages are very important in order to make a clean handover and ensure that new practices are sustained.

1. **Unfreeze:** This first process is organizational attunement in that it prepares the organization to accept the need for change. They found that the process of transformation commences by disassembling the current state and creating a new structure of functioning. In

the case of EHS adoption, it implies determining the current state in terms of healthcare services, acknowledging the imperatives to digitalize, and considering artificial resistance to change. At this stage, it is essential to raise material and inform healthcare staff about the necessity and importance of these changes to eliminate any desire for stagnation at the workplace.

2. Change (Transition): After the organization is unfrozen, it can proceed to the change process, which is the transition phase. This stage entails the adoption of new frameworks and standards, such as the EHS, and must be anchored on effective change management strategies that ensure staff support in the health facility. This may involve training sessions and periodic interactions with target individuals, which may be staff or stakeholders working with the new systems.

3. Refreeze: The last is integration where people are ensured that the new course needs to be maintained after the change has occurred. In this way, new behavior and practice become part of the organizational culture, thus becoming a new way of doing things. In the case of EHS adoption, this implies constant encouragement of the new systems in the organization to retain new practices and to avoid cases where the staff returns to older habits.

Change management is a critical aspect in the management of organizational change and can be described based on Kotter's eight-step change model.

The theory that can be attributed to leading organizational change effectively and comprehensively is John Kotter's 8-Step Change Model that was developed in the nineties. In our case of EHS adoption, the framework provided in the book is quite relevant because each of the eight steps presents a unique action that organizations can undertake to undertake the change process.

1. Creating a Sense of Urgency: The first is to create awareness and make people understand that things must change and the consequences of not changing. This is important in facilitating the adoption of EHS because healthcare staff would feel compelled to embrace the change, in this case, converting to digital systems.

2. Building a Guiding Coalition: The support of the members of an influential and elitist community is highly important in enabling change. This coalition can be used to lead the change, allay resistance, and ensure the provision of resources that supplement the EHS.

3. Develop a Vision and Strategy: Developing a vision and plan for change assists in organizing the organization and directing the entire process. Regarding EHS adoption, this would comprise the advantages of EHS, the method of its application, and the possible result.

4. Communicate the Change Vision: Communication should be done to ensure that all staff embrace the change vision. This involves touching point meetings, feedback mechanisms, complaint channels, and more communication mechanisms to ensure that all the concerns raised and staff are maintained throughout the entire process of implementation of EHS.

5. Empower Employees for Broad-Based Action: Breaking resistance is another vital aspect of change, since options such as eradicating barriers and encouraging employees to act are essential in changing the status quo. Ensuring staff support and educational preparations for new EHS systems can be effectively used by healthcare staff.

6. Generate Short-Term Wins: Generation of short-term win-win situations is part of the solution for generating change and realizing the achievements thus made. With regard to EHS adoption, this might indicate the first sign of increased efficiency and better patient outcomes and data.

7. Consolidate Gains and Produce More Change: As continuation of the analyses of the short-term wins identified in the previous step, the aim of this step is to build on the changes and sustainability of change management. Momentum creates awareness of the change process, thus guaranteeing that the change is properly operational in the organization.

8. Anchor New Approaches in the Culture: Last but not least, the behaviors and practices associated with the change are institutionalized, hence making the change long-term. For EHS adoption, this translates the normal usage of EHS into a routine process of healthcare delivery and frequently reminds the guardians of healthcare facilities about the advantages of using EHS.

Certain theoretical frameworks were applied to the hypotheses.

Therefore, this study should employ Lewin's and Kotter's theories in the context of EHS adoption to provide great insights into the factors affecting methods to support change management success. They are based on these theoretical frameworks, as they help systematize the approach to the analysis of the adoption process.

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

Theoretical Support: Among the models discussed in the course, Kotter's creation of a sense of urgency corresponds with Lewin's unfreezing stage, as does the identification of a coalition and the formulation of a vision. The next step, employee empowerment and recognizing short-term results, helps the organization move to the transition stage, while obliterating new strategies into the organizational culture corresponds to the refreezing stage. Combined, these findings suggest that practitioners pay attention to changing management procedures as a way of improving EHS uptake.

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

Theoretical Support: Lewin's change stage also indicates that reinforcement is important during the change process by training people to understand new systems. A noteworthy integration of Kotter's ideas for empowering employees and communicating the vision of change is the need for resource provision to ensure that staff implement the EHS intervention effectively. This hypothesis coincides with the two frameworks, in which training and support are central tools to deal with resistance and ensure implementation success.

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

Theoretical Support: Regarding the factors that have not been discussed by the two authors, it is significant to note that both Lewin's and Kotter's models view resistance to change as a major factor. In Lewin's change process model, the mobilization stage precedes the implementation phase and the source of resistance within an organization; on the other hand, Kotter's change management model focuses on enlisting the support of key individuals, communication, and enlisting the necessary resources, and the change agents' efforts to change

employee attitudes are to help decrease resistance to change. This hypothesis is supported by the theoretical model's focus on tackling human issues and engaging employees in change to reduce resistance.

Finally, this theoretical orientation of the study is grounded in Lewin's change management theories and Kotter's theories. From these theories, one can obtain a framework for dealing with the challenges and issues present in the implementation of EHS in healthcare organizations. To this end, the hypotheses are expressed as follows: By applying these frameworks to the study hypotheses, this research seeks to provide a detailed understanding of the factors that affect the success of change management methodologies, the results of training and support, and measures that need to be taken to reduce resistance to change. It establishes the theoretical framework of the study, creating an understanding of the current principles of organizational change in EHS strategies valuable for furthering the Kingdom of Saudi Arabia's EHS development.

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)

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.

Alshahrani et al. (2019):

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):

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 et al., (2014)

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.

Alanezi (2021).

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):

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):

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):

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.

Altuwaijri et al. (2011):

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.

Al-Shehri (2012):

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.

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.

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 will be 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. **Interview Guides:** Interview schedules will be loosely structured to encourage broad and comprehensive discussions with the participants. This will also be beneficial to the guides, because they will incorporate questions that will lead users to consider certain features of change management and EHS adoption.
3. **Focus Group Protocols:** Specific procedures will be established on how focus group discussions will be conducted, the responses, and the moderation of the focus group discussions.
4. **Data Analysis Software:** SPSS was used for quantitative data analysis, while qualitative interviews and focus group data were coded and analyzed using the NVivo tool.

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.

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