THIS STUDY INVESTIGATES THE USE OF COMPUTERS IN EVALUATING IMPROVEMENTS IN PATIENT CARE WITHIN HOSPITAL SETTINGS

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ABSTRACT

This article details the findings of a study that looked at how hospitals are using computers to monitor their own performance in terms of patient care improvement. The main objective of this research is to discover if hospitals can improve patient care by using computers. To kick off the investigation, a literature review is included about healthcare IT applications. This class includes tools for clinical decision assistance, electronic health records, and telemedicine. It may debate these technologies on any number of fronts, including their pros and cons, their impact on healthcare costs, and patient outcomes. Section 2 presents a case study of a healthcare institution that has adopted an electronic system to better serve its patients based on the research's findings. Telemedicine, EHRs, and clinical decision support are all features of the system. By analyzing metrics including diagnostic accuracy and efficiency, patient happiness, and healthcare provider cooperation, this research hopes to determine the system's impact on patient care. The study's findings suggest that hospitals might gain a lot by using IT solutions that improve patient care. Among the many benefits of computerized patient care systems are better treatment coordination amongst healthcare practitioners, more precise diagnoses, and satisfied patients. Resistance to change, high expenses, and the need of training are some of the challenges that the research identifies as preventing the widespread use of these systems. Taken together, the findings of this study provide valuable insight for healthcare providers considering the use of electronic devices to improve patient care in institutional settings.

Keywords: *Patient care, clinical decision support systems, electronic health records, computerized patient care software.*

1. INTRODUCTION

Finding ways that computers may improve patient care in hospitals was the driving force behind this study. An effort to record the investigation's results is this article. As part of their research, the student is interested in finding out more about the many ways in which healthcare facilities may use computers to enhance the standard of care they provide. The initial stage of the research is to explore the existing literature on a range of healthcare-related computer-related subjects, such as

telemedicine, electronic medical records, and systems that aid in clinical decision-making. This portion of the investigation includes the search. The researcher analyzes these technologies to find out more about their benefits and drawbacks, how they influence healthcare expenses and patient outcomes, and so on. The next section of the report presents a case study of a healthcare facility that has recently completed the implementation of an EHR system. The system includes components such as electronic health records, telemedicine capabilities, and clinical decision support tools. Better treatment coordination across different healthcare providers, quicker and more accurate diagnoses, and greater levels of patient satisfaction overall are some of the results that result from the study's examination of how a system influences patient outcomes (Abubaker et al., 2022). According to the results of the study, hospitals and other healthcare institutions may gain substantially from using IT strategies that enhance patient care. Greater diagnostic and therapeutic efficiency, enhanced provider-to-provider communication, and contented patients are all possible outcomes of a fully computerized patient healthcare system. Furthermore, research has shown that computerized patient care systems reduce the likelihood of medical mistakes. Nevertheless, the report's computer use does bring to light some of the difficulties in implementing these methodologies. Individuals' resistance to change, the expense of making the necessary adjustments, and the time and effort required for training are all obstacles. When taken as a whole, the findings provide insight on how hospitals and other medical facilities may enhance patient care via the use of IT. Additionally, the findings might be useful for medical practitioners considering these systems. Electronic health records, clinical decision support systems, and telemedicine capabilities have been widely implemented by several healthcare providers and hospitals in the last few years, making computer usage increasingly prevalent in the healthcare industry. Decisions may become more accurate and effective, treatment may be better coordinated among medical professionals, and patients' well-being may improve as a result of these

improvements. The practicality and usefulness of new technologies continue to be concerns for healthcare practitioners, even if these technologies may provide many benefits (Peiffer-Smadja et al., 2020).

2. BACKGROUND OF THE STUDY

Computers' role in healthcare has grown substantially during the last several years. One possible reason for this is because healthcare providers are always looking for methods to make their services more efficient, safer, and less expensive for patients. The present status of healthcare delivery may be drastically changed by certain computerized patient care technologies as EHRs, telemedicine, and clinical decision support systems (Pudjihartono, 2022). They do this by allowing for more regular contact between doctors, making ensuring patients can easily access their information, and providing treatment that is unique to each individual. Despite the promising future of computerized patient care systems, several barriers prevent their widespread adoption. Challenges that need to be addressed include healthcare practitioners' need for specialized training, the high costs of implementing these systems, worries about the privacy and security of patient data, and the resistance to change from both patients and healthcare providers. By the study's conclusion, the investigator hopes to have a firmer grasp on the ways in which healthcare institutions are using IT to monitor and assess the efficacy of care delivery improvements for patients. Finding out what benefits and drawbacks of computerized patient care systems are for healthcare facilities is the main objective of this study. Examine the impact of these systems on patient care by thinking about healthcare practitioners' efficiency, patient pleasure, and patient outcomes. Learn how hospitals may successfully implement EPCs, including strategies for

overcoming resistance and increasing uptake. This study aims to contribute significantly to the growing body of literature exploring the function of healthcare IT, according to the researchers. Students are also interested in teaching medical staff how to use computers and other tech to better care for patients in hospitals. The main goal is to assist healthcare practitioners in making informed decisions about the use of digital patient care solutions. Since the healthcare industry has recently seen a meteoric rise in popularity, it stands to reason that students would also be interested in helping to bring new digital technology into this sector. The quality of treatment that patients get has been improved by medical professionals via the use of many technological tools, including telemedicine, EHRs, and CDSSs. Although these technologies have great potential for advancement, medical professionals remain skeptical about their effectiveness and feasibility. Concerns over the time and resources required for training and system maintenance, in addition to the costs of deploying these systems, have been expressed by many service providers. Consider the medical field; certain people, as stated by Kvedar J. C. (2018), are reluctant to shift and prefer to use antiquated paper-based procedures. As a result of the COVID-19 pandemic, digital health technologies have grown in significance in the provision of healthcare. With more and more people choosing to isolate themselves from others, telemedicine has emerged as a vital resource for providing patients with treatment from a distance. More than that, electronic health records (EHRs) have made it more easier for medical professionals to remotely access patient data and records. Given the rapid advancements in medical technology, it is crucial to evaluate the impact of computers on patient care in order to comprehend how these tools influence healthcare delivery and the results for patients. The current corpus of research is being supplemented by this study, which intends to examine the implementation of automated patient care systems in healthcare

facilities. The main objective is to analyze the benefits and drawbacks of these technologies and discover ways to maximize their potential to improve patient care (Smith et al., 2018).

3. LITERATURE REVIEW

The purpose of this literature review is to address the current state of patient care in hospitals and how computers may enhance it, as indicated by the title of the paper. Possible topics for the literature review include: In their pursuit of patient care, hospitals now encounter the following challenges: Problems in communicating with patients, inadequate hospital resources, and medical errors are all potential subjects for this research study. Healthcare facilities have several challenges when it comes to providing patients with high-quality treatment. These include communication breakdowns, insufficient resources, and medical errors. Medical errors: The three main entrance sites for medical errors are the diagnosis process, treatment, and the subsequent follow-up. Factors such as healthcare workers' inadequate training, inconsistent processes, and misconceptions may contribute to their emergence. Patients may suffer life-altering repercussions such as disability, injury, or even death due to medical errors. Difficulty conveying ideas: For first-rate healthcare, it is crucial that physicians, patients, and family members be able to communicate well with one another. When medical staff encounter cultural differences, linguistic barriers, or a lack of fundamental communication skills, it may lead to communication disruptions. Medical blunders, misunderstandings, and poor patient outcomes may result from disputes like these. Boundaries of the resources that are accessible: In hospitals, issues with resources including money, equipment, and personnel are prevalent. Possible results of these limitations include less patient access, increased wait times, and service delays. Quality of treatment may suffer if healthcare providers are unable to provide optimal care due to a lack of resources (Wang & Avillach, 2021). More and

more, healthcare organizations are relying on EHRs and other forms of health information technology (IT) to keep tabs on patients and analyze their data for value-based, coordinated care. A study conducted by the American Hospital Association in 2016 brought attention to this pattern. The University of Michigan also discovered that outpatient care expenditures decreased by 3% after moving from paper to electronic health records. These problems bring attention to the importance of finding and executing effective solutions to enhance patient care in institutional settings. Computing and other forms of contemporary technology have the potential to alleviate some of these issues by facilitating better communication, decreasing the occurrence of medical errors, and optimizing the use of scarce resources (Weis et al., 2020).

4. RESEARCH QUESTION

- How does coordination impact patient care in hospitals?

5. RESEARCH METHODOLOGY

Quantitative research refers to studies that examine numerical readings of variables using one or more statistical models. The social environment may be better understood via quantitative research. Quantitative approaches are often used by academics to study problems that impact particular individuals. Objective data presented in a graphical format is a byproduct of quantitative research. Numbers are crucial to quantitative research and must be collected and analyzed in a systematic way. Averages, predictions, correlations, and extrapolating findings to larger groups are all possible with their help.

5.1 Research design: In order to analyse quantitative data, SPSS version 25 was used. The direction and severity of the statistical association were determined using the odds ratio and the 95% confidence interval. researchers reported a statistically significant level at $p < 0.05$. To identify the primary features of the data, a descriptive analysis was used. Data acquired by surveys, polls, and questionnaires, or by modifying existing statistical data using computing tools, is often assessed mathematically, numerically, or statistically using quantitative methods.

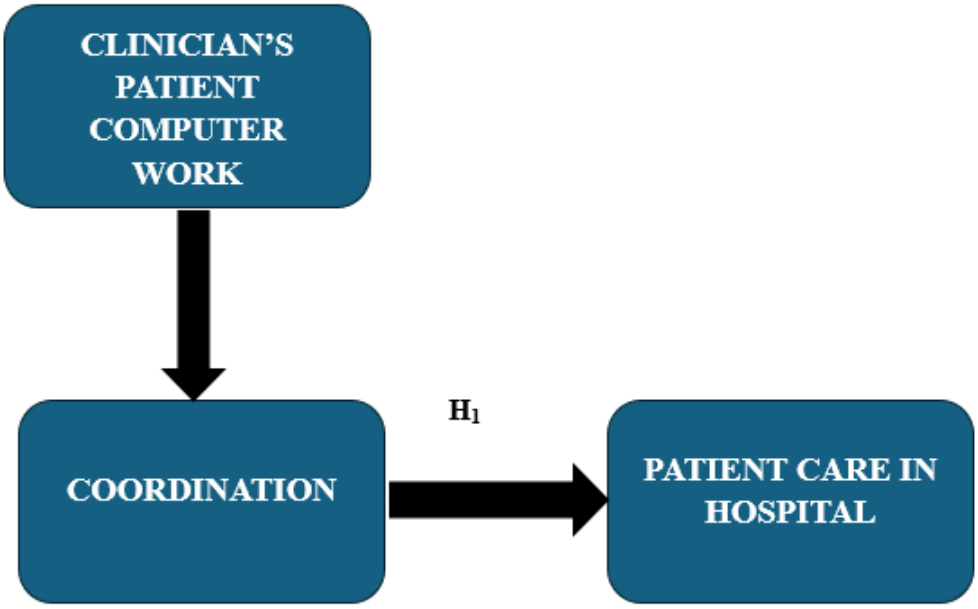
5.2 Sampling: After pilot research with 56 Chinese Researcher, 768 Rao-soft pupils were included in the final Investors. Male and female Researcher were picked at random and then given a total of 924 surveys to fill out. A total of 850 questionnaires were used for the calculation after 882 were received and 32 were rejected due to incompleteness.

5.3 Data and Measurement: A questionnaire survey functioned as the primary data collection instrument for the investigation. The survey had two sections: (A) General demographic information and (B) Responses on online and non-online channel factors on a 5-point Likert scale. Secondary data was collected from several sources, mostly focusing on internet databases.

5.4 Statistical Software: The statistical analysis was conducted using SPSS 25 and MS-Excel.

5.5 Statistical Tools: To grasp the fundamental character of the data, descriptive analysis was used. The researcher is required to analyse the data using ANOVA.

6. CONCEPTUAL FRAMEWORK



7. RESULT

❖ Factor Analysis

One typical use of Factor Analysis (FA) is to verify the existence of latent components in observable data. When there are no easily observable visual or diagnostic markers, it is common practice to utilise regression coefficients to produce ratings. In FA, models are essential for success. Finding mistakes, intrusions, and obvious connections are the aims of modelling. One way to assess datasets produced by multiple regression studies is with the use of the Kaiser-Meyer-Olkin (KMO) Test. They verify that the model and sample variables are representative. According to the numbers, there is data duplication. When the proportions are less, the data is easier to understand. For KMO, the output is a number between zero and one. If the KMO value is between

0.8 and 1, then the sample size should be enough. These are the permissible boundaries, according to Kaiser: The following are the acceptance criteria set by Kaiser:

A pitiful 0.050 to 0.059, below average 0.60 to 0.69

Middle grades often fall within the range of 0.70-0.79.

With a quality point score ranging from 0.80 to 0.89.

They marvel at the range of 0.90 to 1.00.

Table1: KMO and Bartlett's Test

Testing for KMO and Bartlett's

Sampling Adequacy Measured by Kaiser-Meyer-Olkin .793

The results of Bartlett's test of sphericity are as follows: approx. chi-square

df=190

sig.=.000

This establishes the validity of assertions made only for the purpose of sampling. To ensure the relevance of the correlation matrices, researchers used Bartlett's Test of Sphericity. Kaiser-Meyer-Olkin states that a result of 0.793 indicates that the sample is adequate. The p-value is 0.00, as per Bartlett's sphericity test. A favorable result from Bartlett's sphericity test indicates that the correlation matrix is not an identity matrix.

Table: KMO and Bartlett's

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.793
Bartlett's Test of Sphericity	Approx. Chi-Square	3252.968
	df	190
	Sig.	.000

The overall significance of the correlation matrices was further confirmed by using Bartlett's Test of Sphericity. A value of 0.793 is the Kaiser-Meyer-Olkin sampling adequacy. By using Bartlett's sphericity test, researchers found a p-value of 0.00. A significant test result from Bartlett's sphericity test demonstrated that the correlation matrix is not a correlation matrix.

- **Independent variable**

Clinician's Patient computer Record

Data stored in a database pertaining to patients is known as a computer-based patient record (CPR). Personal information and financial data are included with a patient's medical history. The information comes from bills and laboratory findings. Medical data input, electronic communication systems, and databases are all interconnected via it. Care quality improvement, decreased organizational expense, and data stream implementation are all aims of CPR. Two things that a CPR system should provide are data mining and strong connectivity. This electronic medical record system, which is replacing paper records, should address clinical requirements. A CPR

enhances revenue management by increasing administrative efficiency and productivity. The phrase "computer-based patient record" was first used by the Institute of Medicine (IOM) in their 1991 article "Computer-based Patient Records: An Essential Technology for Health Care" (Smith & Kirby, 2020)

❖ Factor

Coordination

Managers are responsible for coordinating the efforts of their employees to guarantee that all divisions and teams are operating in harmony. Consequently, all departments, organizations, and personnel are working together. It also adds cohesion to the many activities and tasks that make up the organization's goal-attainment process. Any collective activity relies on coordination. There is no need for coordination while a person is working. Thus, this may state that the coordinating function is the provision of unity of action via the ordered organization of efforts in pursuit of a single objective (Blanco-González et al., 2023). In order for an organization to function at its best, each department must work in tandem with the others. In order to minimize friction, it is necessary to coordinate the many conflict-reduction initiatives of different departments. In most organizations, the core function is carried out by a number of different departments. Consequently, it is crucial that they work in tandem. Departments may operate in silos or at incongruous times if they are not coordinated (Vandenberg et al., 2020).

❖ Dependent Variable

Patient Care in Hospitals

One of the most important people involved in healthcare is the patient. The goal of patient care is to ensure the patient is comfortable and well-taken care of. People have an intrinsic right to privacy

and to be treated with respect. The goal of the atient care management program is to empower patients to be active participants in their own healthcare by providing a range of comprehensive health services. These services include primary care practices (including appointment scheduling), short-term case management, and chronic illness care management. By simply following the clear directions given to them by their reliable physicians and other caregivers, patients are better equipped to be active participants in their own healthcare with the support of care management plans. With the support of patient care management, new models of healthcare delivery might emerge that prioritize patient autonomy and the use of evidence-based practices (Matheny et al., 2020).

❖ Relationship between Patient Care in Hospitals and coordinator

One may compare a patient care coordinator to the "glue" that keeps the healthcare system functioning smoothly. In order to make patients feel supported, they coordinate with physicians, schedule visits, and oversee treatment regimens. Care coordination makes healthcare easier to understand and more accessible by making sure all the parts of the plan are working together for the best possible results. A patient care coordinator's ability to mediate conflicts is crucial to the success of their job. To make sure that all members of the healthcare team are on the same page, they link primary care physicians, specialists, and hospital personnel. Consistent, well-coordinated treatment that is simple to manage is what patients get when they have open lines of communication with all members of the care team. Care coordinators are essential in DPC for guaranteeing proactive, ongoing care. Their job is to facilitate communication between the patient's primary care physician, specialists, and themselves. The coordinator's role is to monitor

the patient's therapy, keep clinicians informed, and schedule visits with an eye on preventing health problems from becoming worse (Hautz et al., 2019).

- ***H_{01}: There is no significant relationship between Patient Care in Hospitals and coordinator***
- ***H_1: There is a significant relationship between Patient Care in Hospitals and coordinator***

Table 2: H_1 ANOVA Test

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	39588.620	335	5655.517	611.212	.000
Within Groups	492.770	514	5.356		
Total	40081.390	849			

The results are significant in this study. The p-value of 0.000 (below the 0.05 alpha threshold) indicates that the F value of 611.212 is almost significant. Thus, it follows that "***H_1: There is a significant relationship between Patient Care in Hospitals and coordinator"*** is accepted and the null hypothesis is rejected.

8. CONCLUSION

The core argument is included inside this. This study aims to address the research questions posed in the introduction by drawing conclusions from the data collected and evaluating the use of computers to measure improvements in patient care inside hospital settings. The article will

conclude with a concise summary of the study's main findings and some insightful discussion on the ways hospitals have adjusted to the increasing use of computers in patient care. The study's conclusion may include the following information based on the results: The impact that computer technology has had on the evolution of patient outcomes and experiences: Healthcare companies that use computer technology may see an increase in patient satisfaction, a reduction in medical mistakes, and better communication amongst staff members, according to the study's findings. Examining the technological practices of healthcare providers: According to the results, healthcare workers who often use computers in their jobs are more likely to see the positive side of technology's impact on patient care and to act on that optimism. The study's participants may be more satisfied with their treatment and have better health results if they use computers to be an active member of their healthcare team. This study is driven by the need to identify challenges related to the adoption and usage of healthcare IT. Problems may arise due to a lack of resources, strained relationships, or chances for professional development. In addition to analyzing the study's consequences for medical IT, the researcher will find recommendations for further study and clinical practice in the conclusion. The conclusion will seek to provide a comprehensive overview by discussing the study's results in relation to patient care in hospitals (Haug & Drazen, 2023).

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