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AI IN HEALTHCARE: ENHANCING PATIENT INTERACTION AND SAFETY

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ABSTRACT:

Objective: The primary objective of this research is to investigate the impact of artificial intelligence (AI) on the patient experience within healthcare services.

Methods: This study employs an integrative approach, drawing from modern institutional frameworks to explore the influence of AI on patient interactions within healthcare settings. Data were sourced from documents, utilizing databases such as LILACS and Medline to identify relevant healthcare literature. Five articles were selected from the gathered samples to illustrate the significance of adopting new technologies in enhancing patient experiences.

Results: The analysis highlights the importance of AI in transforming traditional healthcare management techniques, leading to improved patient safety and quality of care. Despite the limited number of studies on this topic, the selected articles underscore the potential benefits of incorporating AI-driven solutions in healthcare practices.

Conclusion: This study contributes to ongoing research by providing both informative and interpretive insights into the role of AI in shaping the patient experience. Moreover, it emphasizes the need for further empirical investigations to elucidate the real-world impact of AI technologies on patient outcomes and satisfaction levels.

Keywords: Patient Experience; Health Care; Artificial Intelligence

INTRODUCTION:

The primary objective of the research is to find out how AI changes people's experiences. Recently, the patient experience has become an important part of how people judge the quality and excellence of healthcare organizations' care, going beyond the professional side. These two modern institutional lines form the basis of the study's theoretical framework. They are briefly mentioned below (Eswaran & Khang, 2024).

For starters, at the well-known Beryl Institute, patient experience is the sum of all patient contacts with healthcare services and how that patient rates these interactions. We came up with this description after looking at studies and questions with patients and coworkers to find important parts that could help guide clinical work. Today, the main topics are how patients and their families feel about different stages of care, interactions between people, and how organizations work. As mentioned earlier, the pros at the Institute created, checked, and improved the definition (Constable, Shum, & Clark, 2024; Lysø, Hesjedal, Skolbekken, & Solbjør, 2024).

Second, the Department for Health Services Improvement (IHI) says every person in a hospital, from a customer service worker to the CEO, affects the patient trip. Hospitals hope the results of care delivery reviews will improve if they see the procedure as a period of trust, collaboration, shared decision-making, coordinated effective transitions, and efficiency.

The treatment received by patients is unique and depends on numerous variables that contribute to making up healthcare encounters, including the setting, the exchanges with clinicians, and the way care is managed. In this way, the definition's "sum of all interactions" shows how the patient experience is interactive and changes over time (El-Tallawy et al., 2024; Rogalla, Cadour, & Kim, 2024)

In this way, IHI came up with the "triple aim" idea in 2008. This is a way to describe new ways to improve health systems. The approach depends on the premise that the cost of healthcare per person should go down or stay the same while the wellness of the community and the

experience of patients should get better. Quality, safety, costs, and care outcomes are all part of the triple goal, meaning patients should be at the centre of care. Its principles involve preparing for high-quality patient care while cutting down on the expense of tests, hospital stays, and treatments that aren't needed (Martelli et al., 2024; Rony, Kayesh, Bala, Akter, & Parvin, 2024).

For the model to work, healthcare organizations need to be very good at what they do, and everyone needs to be a part of the set processes so that work is rewarding and gets done. Including the client experience as a quality measure has become increasingly significant in healthcare facilities. So, doctors can give better care and collect data that helps customer-focused healthcare organizations by listening to and learning from their patients' experiences (Jacob, Sneed, & Pathak, 2024; Shafik, Hidayatullah, Kalinaki, & Aslam, 2024).

In this way of thinking, automating processes and replacing old management techniques and instruments with new systems and technologies that improve the standard of services offered allows for the creation of a wide range of solutions that make patients safer, cut down on mistakes, and find areas where things aren't working well. As healthcare moves towards digital transformation, a mindset of innovation linked to better patient experience grows constantly. So, health technologies need to be looked at in terms of how they can help improve care and make it more efficient (Feinstein, Katz, Demaria, & Hofer, 2024; Tan et al., 2024).

It's important to note that Artificial Intelligence (AI) has made it much easier to process and store data over the years. AI is a tool that could help avoid and treat illnesses in new and positive ways. AI is a field of information technology that tries to make machines that can solve issues and make decisions as humans do, using programmes created by professionals.Combining (Aklilu et al., 2024; Baumgart, 2024).

AI with medical technologies has many benefits, such as better organization and security for data storage, help with diagnosis through report and image interpretation, communication technologies to send data to doctors and patients far away, and the ability for clinical decision-making platforms to connect symptoms. This means that if we want to improve the experience of patients, we need to come up with ways to connect how a person interacts with the medical system with the current digital change (Qureshi & Khan, 2024; Yilma, Kim, Cupchik, & Leiva, 2024).

Based on the above-mentioned theoretical tripod, this study aims to look at and talk about the medical literature's proof on the subject, lay the foundation for further research, and

work together to improve healthcare. To do this, theory and analytical paths have been chosen, shown below (Sardesai, Russo, Martin, & Sardesai, 2024).

METHODOLOGY:

A technique needs a theoretical direction, and there are usually two ways to go about this: one is qualitative, and the other is quantitative. As with any system, a collection is something that grows over time. That's why every humanities scientist needs to know the first and most important principle of a qualitative preference: move slowly, that is, choose, analyze, and choose (Bauer & Arts) once more (Reza & Bokhari, 2024).

Since this study is based on an integrated review of the literature and document samples found in PubMed and the Virtual Health Library (VHL), it can be considered qualitative (descriptive and explanatory). There were five steps we tried to follow when writing the revision (Papadopoulou et al., 2024).

- answering the main question;
- choosing which articles to include and exclude (sample selection);
- deciding what data to get from the chosen articles;
- evaluating the texts that were included;
- analyzing the results;
- and talking about and presenting the review

The study was also guided by the question, "How can the use of artificial intelligence in healthcare change the patient experience?". The Medical Literature Analysis and Retrieval System Online (MEDLINE) and Latin American and Caribbean Literature in Health Sciences (LILACS) were used to look for scientific articles in the medical field. The goal was to reach more articles. With these instruments, I found sources that were fairly new and related to the subject that I was researching (Mese, 2024; Zhang, Cui, Wu, & Ji, 2024).

As you may know, the VHL is a group of health sciences information sources that meet the technical and scientific information needs of workers and students in the area. It is run by the Latin American Centre for Health Sciences Information (BIREME). The National Library of Medicine (NLM) makes MEDLINE a worldwide medical and biomedical literature database. It has citation references and abstracts of magazine names from the US and 70 other countries (Knudsen, Ghaffar, Ma, & Hung, 2024; Ramírez & Islam, 2024).

There is only one MEDLINE database, and the search tool may differ for each one. The NLM has chosen PubMed as its platform. Another database, LILACS, is part of the BIREME System and works with other databases. It has health-related literature written in Latin American and Caribbean nations and can show data from research relevant to Brazil (Jawaid, Skorburg, O'Doherty, & Friesen, 2024).

Along with the chosen sources, other relevant sources were also looked for to help with research paths, such as the "saturation" of the data. This idea of context is another important thing that should be thought about. In Silva's own words: (Suram, Rajampetakasham, Nalluri, Babu Mupparaju, & Katta, 2024)

"There are different schools of thought about what context means, but they all agree on one thing: context has both cognitive and social aspects. Contexts have mental structures that form from what we learn from others and our feelings and thoughts about the world and humanity (the cultural context). So, it's not just a subjective group, but also one that most people share."

The sources that were looked at had to be full articles from the same cultural background available online in the chosen databases and published in English between 2010 and 2020. The suggested topic had to be in the title, abstract, or keywords of these articles. Articles that were already published or didn't talk about the suggested topic were thrown out.

In March 2020, the pieces were looked over (Wimpfheimer & Kimmel, 2024).

The buzzwords were "patient experience," "healthcare," and "artificial intelligence." There was an "AND" between each word. The study was done online, and from the samples I looked at, I chose five articles that I then turned into data by meeting the inclusion criteria.

The knowledge gathered from these papers was turned into data for this study through a database made in Microsoft Office Excel 2013. The database had variables as follows: (Ashayeri, Jafarizadeh, Yousefi, Farhadi, & Javadzadeh, 2024).

a. The title of the piece;
b. The year it was published;
c. Database;
d. Study plan and final thoughts.

Bauer and Arts say that the word "saturation" describes "the method for solving the contradictory nature of the theoretical corpus" in the renowned chapter called "The creation of the corpus: an approach for the gathering of subjective data." Again, the two writers say, "In a

society that is changing, there are new as well as old social settings that are coming into being." To see new social environments, sociologists must use their imagination and understanding of history (Uchikov et al., 2024).

This fits the new situation that needs a new reading because of the changes the "coronavirus" is causing on our planet. The literature in the field was used to analyze the data. In the context of a qualitative study, the results were presented, and the material was discussed in a descriptive and interpretive way (Bansal, Gupta, & Anand, 2024).

RESULTS:

This literature study looked at five papers that fulfilled the earlier set criteria for selection. Here is a general outline of the written data that was looked at. The articles chosen for this study can all be found in the MEDLINE database. Now, let's look at TABLE I: THE DATABASE, which shows the names of the scientific papers chosen for this study (Lysen & Wyatt, 2024).

1.	The shift to digital in healthcare: plans for current and future IT systems
2.	The prospects of OB/GYN in 2020: a more clear picture
3.	Using mood analysis to get information about how patients feel from online comments
4.	Use distributed thinking to understand how a home medical gadget interacts with safety-critical things.
5.	Care paths before and after surgery: changing care to reach the "triple aim"

FIGURE 1: THE DATASET

All the works found were published in the last seven years; none were written before that, at least not about the subject of this study. The review articles were published in four different types of scientific journals: three were medical journals, one was a biomedical journal, and one was a magazine from a different field (chemistry). All of the investigations identified through the database search are descriptive, which means they all use a descriptive research method (Choudhary et al., 2024; Sharmila Nirojini, Kanaga, Devika, & Pradeep, 2024).

This kind of study doesn't change the thing being studied, but the researcher does suggest changing something, which shows that the thing being studied might change: the view of the patient. This supports the work plan shown below. All the studies talked about how important it is to use new tools to improve the patient experience. But one piece pointed out that companies going digital is a key way for healthcare institutions to change to meet the needs of each patient and make new business models (Bereska et al., 2024; Mika, Gola, Gil-Mika, Wilk, & Misiołłek, 2024).

The Triple Objective is a significant objective to enhance medical care amid the difficulties of new technologies, as shown by two studies. One of the research projects talked about how more and more people are using online sites to talk about how they feel regarding their experiences with healthcare and use an AI tool to look at what they have to say. For improved outcomes for patients with portable medical devices, other studies have looked at the requirement to design innovations that consider how they will be used (Marco-Ruiz et al., 2024; Sharma, 2024).

TITLE	YEAR	DATABASE	DESIGN	CONCLUSION
Digital Transformation in Healthcare Architectures of Current and Future Information Technologies	2019	MEDLINE	Descriptive	Healthcare workers still have to figure out how to improve patient outcomes while cutting costs. Demands include managing the population's chronic diseases, new technologies, and giving people more control over their healthcare. As technologies like big data, AI, and machine learning become more common, institutions must change to keep up with exponential growth. To adapt to this change smartly, institutions must go digital and use

				platforms that help them handle patients, employees, and management processes.
The future of obstetrics/gynaecology in 2020: a clearer vision. Transformational forces and thriving in the new system.	2015	MEDLINE	Descriptive	The article offers changes that should be made to women's health care to meet future needs. These changes must be built on Triple-A, as well as how care is delivered and payments are made. The writers talk about how to use clinical tools as part of a new healthcare system that must go digital to improve communication, information access, and evaluations of clinical care. This would let doctors and patients share information and give each other more personalized care at a lower cost. The authors conclude that gynaecology and obstetrics professionals must become comfortable with technology to work with the new system. They also say that these professionals should have leadership and caring skills.
Use of Sentiment Analysis to Capture Patient Experience From Free-Text	2013	MEDLINE	Descriptive	The work shows that it is possible to figure out how patients feel by reading their online comments about different parts of their hospital care. Using machine learning to look at and guess evaluations finds

Comments Posted Online				connections and similarities with how patients' experiences are recorded in more traditional ways, like questionnaires. Also, the literature is increasingly interested in getting the patients' point of view by looking at what they write on review sites, social media sites, and blogs. The study opens up new ways to look at how well healthcare systems work in the future.
Understanding safety-critical interactions with a home medical device through Distributed Cognition	2015	MEDLINE	Descriptive	It's getting increasingly important to know how patients use medical equipment at home as care moves out of hospitals and into people's homes. A theoretical tool called "Distributed Cognition" was used in interviews as part of this study to find out how kidney disease patients interact with medical devices like home hemodialysis technology (Home Hemodialysis Technology) and what could be done to improve patients' experience using this equipment. Ultimately, the writers say that to ensure that devices are easy to use and safe, we need technology that considers the situations and settings in which they will be used.

Peri-operative Care Pathways: Re-Engineering Care to Achieve the Triple Aim'	2019	MEDLINE	Descriptive	The Institute for Healthcare Improvement's "triple aim challenge" is seen by healthcare workers as a chance to lower costs while improving the health and experience of patients. To effectively organize these goals, we will need to collect data and use research tools to guide that data. The writers think that this challenge will have a big impact on the way patients feel about their care, both in terms of the health and value of care that is given with standardized and individualized care, while also having to deal with the problems that come with new technologies and ways of working.

TABLE II. DISTRIBUTION OF ARTICLES INCLUDED IN THE REVIEW

(second title, year, database, design, conclusion)

TABLE II: THE ORDER OF THE ARTICLES IN THE REVIEW

(following title, year, database, approach conclusion)

DISCUSSION:

The results show that there isn't much research on the topic that was looked into. However, the authors think the topic is important because global health is transforming digitally. They think that technological improvements may be to blame for how healthcare organizations are changing to meet patients' needs. Some thoughts should be added to this. The LILACS library did not add any information to the study. This database, which has books from Latin America, might give results close to what happens in Brazil (Nikolić, Stanimirović, & Stoimenov, 2024; Sharma, 2024).

Also, the subject has only been talked about recently; no articles from before 2013 exist. This shows again that more research needs to be done on the subject. In terms of the review's main goal to look into how artificial intelligence affects a patient's experience, the researchers appear to agree on how to use technology to make the individual's journey as well as medical care more personalized while also lowering costs and improving outcomes (Gupta et al., 2024).

So, suggestions for quality improvement can be looked at from different points of view, such as service experiences and hospital procedure management evaluations and statistics. The patient journey evaluation is an instrument for management that helps to make all parts of care better and more innovative. Because of these changes, healthcare organizations are now working towards three goals: improving the coordination of care, putting resources towards successful health improvement measures, and lowering costs (Bordukova, Makarov, Rodriguez-Esteban, Schmich, & Menden, 2024; Wong & Williams, 2024).

You can combine and assimilate all processes, costs, and patient outcomes with an IT platform. This lets you measure outcomes and costs at different points in the trip. Using processing information and predetermined algorithms, AI is being used in healthcare in search of new ways to solve medical and organizational problems. It also makes it possible to accurately identify and treat health problems in individuals and groups (Bumm et al., 2024).

Nowadays, more and more people use their phones and apps to talk to family, friends, and service providers, making it more important to use technology to get health information. Online healthcare institutions offer a place to create, collect, and share healthcare material through different digital channels, which is a huge opportunity for healthcare technology. Digital media should become more and more important for health promotion as they become more popular and used (Gabrani, Gupta, Vyas, & Arya, 2024; Mira et al., 2024).

The progress of technology has made it possible to create clinical decision-support tools in healthcare, make medical records available to users, and make it easy to extract data. It creates a good value loop when you measure outcomes and expertise in addressing health problems over time. This leads to improvement and new ideas. Because of this, it is clear that using technology can make care better, keep patients safe, and improve their health (Wenderott, Krups, Luetkens, & Weigl, 2024).

CONCLUSION:

Publications on the subject are in their early stages, but they can be seen as useful from a socioeconomic point of view to improve the patient experience. Healthcare is changing quickly and drastically, and people want better healthcare. The study is meant to be a starting point for further study, particularly since it includes real-world data that can be used to measure patient experience and get a different point of view on the problem.

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