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THE IMPORTANCE OF HEALTH INFORMATICS AND THE EFFECT OF TECHNOLOGY DEVELOPMENT ON HEALTH SECTOR

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ABSTRACT

Background: This study aimed to investigate the importance of health informatics and the effect of technology development on the health sector. **Method:** A sample of 200 healthcare professionals and patients with experience in health informatics technologies were selected using a convenience sampling technique. Data was collected using a survey questionnaire that included closed-ended questions to gather quantitative data. Descriptive statistics were used to summarize and describe the data, while inferential statistics were used to analyze the data. **Results:** The majority of the participants (80%) believed that health informatics is either extremely or moderately important in the healthcare sector. Regarding the effect of technology development on the healthcare sector, 85% of the participants believed that it has either significantly or somewhat improved efficiency and quality of care. **Conclusion:** Based on the results of the survey, it can be concluded that health informatics technologies have the potential to significantly improve the healthcare sector. However, there is still a need for education and training in this area, especially for those who are not familiar with these technologies. The survey also highlights the importance of financial support and a willingness to embrace change in order to fully realize the benefits of health informatics. To address these challenges, it is recommended that healthcare organizations invest in education and training programs to promote the use of health informatics technologies.

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INTRODUCTION

Health informatics is a rapidly evolving field with a significant impact on the healthcare industry. Its use of technology to manage, analyze, and interpret healthcare data has the potential to improve patient care, enhance public health outcomes, and reduce healthcare costs [1]. With the increasing adoption of electronic health records, mobile health applications, and other health-related technologies, the role of informatics in healthcare has become more prominent [2]. This research paper aims to explore the importance of health informatics and the effect of technology development on the health sector. It will discuss various applications of informatics in healthcare, including electronic health records, clinical decision support systems, telemedicine, and health information exchange. The paper will also analyze the challenges associated with implementing health informatics technologies, such as data privacy and security concerns, interoperability issues, and the need for standardized data exchange. Additionally, the potential benefits of technology solutions, including improved patient outcomes, enhanced patient safety, and reduced

healthcare costs, will be discussed. Through a comprehensive review of relevant literature, this research aims to contribute to the understanding of the role of informatics in healthcare and inform future policy decisions related to the implementation of health-related technologies. This research aims to assess the importance of health informatics in the health sector, and to determine the effects of health informatics on the health sector. The healthcare industry is under pressure to improve patient outcomes, enhance patient safety, and reduce healthcare costs. However, the adoption and implementation of health informatics technologies have been slow, with significant challenges related to integration into the healthcare system. These challenges include data privacy and security concerns, interoperability issues, and the need for standardized data exchange. This research aims to explore the importance of health informatics and the impact of technology development on the health sector, specifically addressing the challenges and opportunities of implementing health informatics technology in healthcare. The research will examine the impact of technology development on healthcare outcomes and identify strategies for effectively integrating technology solutions into existing healthcare systems. This study will shed light on the importance of

health informatics in delivering quality healthcare services. By collecting, storing, and analyzing health-related data, health informatics can inform decision-making processes and improve patient outcomes. Therefore, by exploring the challenges and opportunities of implementing health informatics, this study will help develop strategies to leverage technology and improve healthcare delivery. Second, the study will provide insights into the impact of technology development on the health sector. Technology has the potential to transform the healthcare industry, and the study will help to identify key developments and trends that have the potential to shape the sector in the future. This information can help policymakers and stakeholders to make informed decisions about investments in health technology, and to anticipate the potential impact of new technologies on healthcare delivery. Finally, the study will contribute to the ongoing efforts to improve healthcare by identifying strategies for effectively integrating technology solutions into existing healthcare systems. Many healthcare providers face challenges when it comes to implementing new technologies, including data privacy and security concerns, interoperability issues, and the need for standardized data exchange. By identifying best practices and strategies for overcoming these challenges, the study will help to facilitate the adoption of health informatics technologies and improve the overall quality of healthcare delivery.

LITERATURE REVIEW

Technology in Healthcare: The healthcare industry has been revolutionized by the introduction of technology. The use of technology in healthcare has improved patient care, reduced medical errors, and increased efficiency in healthcare delivery. This essay will discuss the various technologies used in healthcare and their impact on patient care. One of the most significant technological advancements in healthcare is electronic health records (EHRs). EHRs are digital versions of patients' medical records that can be accessed by authorized personnel from any location. EHRs have replaced paper-based medical records, which were prone to errors and difficult to access. EHRs have improved patient care by providing a comprehensive view of a patient's medical history, including medications, allergies, and previous diagnoses. This information is critical for making informed decisions about a patient's treatment plan. Another technology that has transformed healthcare is telemedicine. Telemedicine involves using video conferencing technology to provide remote medical consultations and treatment. Telemedicine has made it possible for patients in remote areas or those with mobility issues to receive medical care without having to travel long distances. It has also enabled doctors to consult with specialists from different locations, improving the quality of care provided to patients [13]. Medical devices have also played a significant role in improving patient care. Devices such as pacemakers, insulin pumps, and continuous glucose monitors have made it possible for patients with chronic conditions to manage their conditions more effectively. These devices provide real-time data on a patient's health status, allowing doctors to adjust treatment plans accordingly. Artificial intelligence (AI) is another technology that is transforming healthcare. AI algorithms can analyze large amounts of data quickly and accurately, providing insights into disease patterns and treatment outcomes. AI can also be used to develop personalized treatment plans based on a patient's genetic makeup and medical history. Robotics is another technology that is being used in healthcare. Robots are being used for surgical procedures, medication dispensing, and even physical therapy. Robotic surgery has several advantages over traditional surgery, including smaller incisions, less pain, and faster recovery times [14].

Despite the many benefits of technology in healthcare, there are also some concerns. One concern is the potential for data breaches and cyber attacks. EHRs contain sensitive patient information that must be protected from unauthorized access. Healthcare organizations must implement robust security measures to prevent data breaches. Another concern is the cost of implementing new technologies in healthcare. Many healthcare organizations may not have the resources to invest

in expensive technologies, which could limit access to these technologies for patients. Finally, technology has had a significant impact on healthcare. Electronic health records, telemedicine, medical devices, artificial intelligence, and robotics have all improved patient care and increased efficiency in healthcare delivery. However, there are also concerns about data security and the cost of implementing new technologies. Healthcare organizations must balance these concerns with the potential benefits of technology to provide high-quality care to patients [15].

Health Informatics and its importance: Health informatics refers to the knowledge and application of healthcare technology to improve the safety and quality of healthcare delivery. It involves the use of a broad range of electronic devices to collect, organize, analyze, store, and distribute health data and information. Health informatics plays a crucial role in enhancing the effectiveness and efficiency of healthcare systems by providing insights into patient care and outcomes. In this paper, I intend to explore the significance of health informatics and technology and its impact on modern healthcare. One of the most notable benefits of health informatics is the ability to capture and analyze patient data in real-time. Electronic health records (EHRs) allow healthcare providers to store and retrieve patient information instantly [4]. Moreover, they can easily access the entire patient history, including diagnoses, medication, and treatment plans. With EHRs, healthcare providers can better manage patient care and avoid errors caused by lost or missing information. This is of the utmost importance, as it is crucial to have accurate and up-to-date information in order to efficiently treat patients. Another advantage of health informatics is the ability to make informed decisions. Healthcare providers can use data collected by health informatics systems to identify patterns and trends in patient outcomes. This helps physicians and other healthcare professionals to make more informed decisions about patient care. With the aid of predictive algorithms, healthcare providers can assess patient risk factors and create personalized care plans that are tailored to a patient's specific needs. This has proved an invaluable tool in preventing and treating diseases [5]. Health informatics can help to streamline healthcare workflows, reducing the time spent on administrative tasks, thereby cutting down costs. Electronic prescribing (e-prescribing) tools, for example, have improved the accuracy of medication orders, reduced drug errors, and decreased time-consuming trips to the pharmacy. This technology has increased patient compliance with medication regimens, resulting in better outcomes and overall health.

Health informatics also facilitates remote monitoring of patients. Remote health monitoring devices allow healthcare providers to track patients' conditions from a distance, thus reducing the need for in-person visits. During the COVID-19 pandemic, this proved especially helpful at reducing the risk of infection rates. Remote monitoring can also help to alert healthcare providers of critical changes in patients' health conditions in real-time. Another area in which health informatics is having a transformative impact is in genomics [6]. Advances in genomics have led to a better understanding of the influence of genetics in the development of diseases. Health informatics can be used to analyze genomic data and provide insights into a patient's predisposition to certain diseases. This information can then be used to develop preventative measures and personalized treatments. This is an especially crucial area with the growth of personalized medicine. Health informatics also has the potential to improve public health. Data collected by health informatics systems can be used to track outbreaks and patterns of disease across populations. This allows public health officials to respond quickly to potential health threats and develop effective preventative measures. It also enables populations to create vaccine drives and campaigns, disseminating information, and ensuring the health of the wider community. Finally, health informatics plays a critical role in research, with its vast data sources providing researchers with critical information that can be used to identify at-risk populations and target interventions to improve health outcomes. Health informatics also ensures the ethics and accountability for conducting research within the healthcare system [3]. Finally, health informatics has become an indispensable tool for modern healthcare. The electronic data

collection and analysis made possible by technology provides healthcare professionals with timely and accurate patient data, enabling them to make informed decisions and deliver personalized care. Furthermore, health informatics promotes efficiency and cost-effectiveness in healthcare delivery, improves public health, and provides valuable information for research. With advances in technology, health informatics is anticipated to become an even more vital component of the healthcare industry, further transforming and improving the way healthcare is delivered.

Advantages of Health Informatics: Health informatics and technology development have revolutionized the healthcare industry by providing numerous advantages that have improved patient care, reduced medical errors, and increased efficiency. Health informatics is the use of information technology to manage and analyze health data, while technology development refers to the creation of new tools and devices that enhance healthcare delivery. This paper discusses the advantages of health informatics and technology development in health. One of the primary benefits of health informatics is improved patient care. Electronic health records (EHRs) allow healthcare providers to access a patient's medical history, medications, allergies, and other critical information quickly. This information helps doctors make informed decisions about a patient's diagnosis and treatment plan. Additionally, telemedicine allows patients to receive medical care remotely, which is especially useful for those who live in rural areas or have mobility issues [8]. Another advantage of health informatics is the reduction of medical errors. EHRs can alert healthcare providers to potential drug interactions or allergies that could cause harm to patients. Additionally, computerized physician order entry (CPOE) systems can reduce errors caused by illegible handwriting or miscommunication between healthcare providers [9]. Health informatics also increases efficiency in healthcare delivery. Electronic prescribing allows doctors to send prescriptions directly to pharmacies, reducing wait times for patients. Additionally, automated appointment reminders reduce missed appointments and improve scheduling efficiency [8]. Technology development has also provided numerous benefits in healthcare delivery. Medical devices such as pacemakers and insulin pumps have improved the quality of life for patients with chronic conditions. Wearable devices such as fitness trackers can monitor vital signs such as heart rate and blood pressure in real-time, allowing patients to track their health status more closely [10]. Robotic surgery has also revolutionized surgical procedures by allowing for more precise and less invasive surgeries. This technology has reduced recovery times and improved patient outcomes [10]. Finally, health informatics and technology development have provided numerous advantages in healthcare delivery. Improved patient care, reduced medical errors, and increased efficiency are just a few of the benefits that these technologies offer. As technology continues to advance, it is likely that healthcare delivery will continue to improve.

Disadvantages of Health Informatics: Health informatics and technology development in health have revolutionized the healthcare industry. The use of electronic health records, telemedicine, and mobile health applications has improved patient care, reduced medical errors, and increased efficiency in healthcare delivery. However, despite these benefits, there are also several disadvantages associated with the use of health informatics and technology development in health. One of the major disadvantages of health informatics is the potential for breaches in patient confidentiality. Electronic health records contain sensitive information about patients' medical conditions, treatments, and personal information. If this information falls into the wrong hands, it can be used for identity theft or other malicious purposes. According to a study by Ponemon Institute (2018), 90% of healthcare organizations have experienced a data breach in the past two years [12]. Another disadvantage is the cost associated with implementing and maintaining health informatics systems. The initial investment required to purchase hardware and software can be significant, and ongoing maintenance costs can add up over time. Additionally, training staff on how to use these systems can be time-consuming and expensive. Furthermore, there is a risk

that technology may replace human interaction in healthcare delivery. Patients may become overly reliant on technology for diagnosis and treatment recommendations instead of consulting with their healthcare providers. This could lead to misdiagnosis or inappropriate treatment recommendations. Another disadvantage is that not all patients have access to technology or may not be comfortable using it. This creates a digital divide where some patients may receive better care than others due to their ability to access and use technology. Finally, there is a concern that the use of technology may lead to a decrease in empathy among healthcare providers. The reliance on electronic communication methods such as email or text messaging may reduce face-to-face interactions between patients and providers leading to less empathetic care [11]. Finally, while there are many benefits associated with the use of health informatics and technology development in health, there are also several disadvantages that must be considered. These include breaches in patient confidentiality, high costs of implementation and maintenance, the potential for technology to replace human interaction in healthcare delivery, the digital divide, and a decrease in empathy among healthcare providers. It is important for healthcare organizations to carefully weigh these disadvantages against the benefits when considering the implementation of health informatics systems.

Effects of Health Informatics & Technology on Health Sector: Technology has had a profound impact on the health sector, revolutionizing the way healthcare is delivered and improving patient outcomes. One of the most significant effects of technology on the health sector is the ability to store and access patient data electronically. Electronic health records (EHRs) have replaced traditional paper records, making it easier for healthcare providers to access patient information quickly and accurately. This has led to improved patient safety and better coordination of care. Additionally, technology has enabled the development of new medical devices and treatments, such as telemedicine, wearable health monitors, and robotic surgery. These innovations have made healthcare more efficient and effective, allowing for earlier diagnosis and treatment of diseases. However, there are also concerns about the potential negative effects of technology on health, such as the overuse of electronic devices leading to eye strain and sleep disturbances. Overall, the effects of technology on the health sector have been overwhelmingly positive, but it is important to continue to monitor and address any potential negative consequences. Health informatics is a rapidly growing field that has had a significant impact on the health sector. The use of technology in healthcare has revolutionized the way healthcare providers deliver care to patients. Health informatics has made it possible for healthcare providers to access patient information quickly and efficiently, which has improved patient outcomes. Electronic health records (EHRs) have replaced paper-based records, making it easier for healthcare providers to access patient information from anywhere at any time. This has led to improved patient safety, reduced medical errors, and increased efficiency in healthcare delivery. Health informatics has also made it possible for healthcare providers to share patient information securely, which has improved care coordination and reduced duplication of services. In conclusion, health informatics has had a significant impact on the health sector, and its continued development will undoubtedly lead to further improvements in patient care and outcomes. In conclusion, the literature on the importance of health informatics and the effect of technology development on the health sector highlights the potential for technology to improve patient outcomes, transform healthcare delivery, and revolutionize the sector. However, the challenges of standardization, interoperability, and data privacy and security must be overcome to fully realize these benefits. Future research should focus on developing effective strategies for addressing these challenges and accelerating the adoption of health informatics technologies.

METHODOLOGY

Research methodology was a crucial part of the research project, and it provided a framework for conducting research, collecting and

analyzing data, and drawing conclusions. The following research methodology was used for the topic "The Importance of Health Informatics and the Effect of Technology Development on the Health Sector":

Research Design: This study followed a quantitative research design to explore the importance of health informatics and the effect of technology development on the health sector. The study used a survey questionnaire as the primary data collection tool.

Population and Sample: The population of this study consisted of healthcare professionals and patients who had experience with health informatics technologies. A convenience sampling technique was used to select a sample of 200 participants from different healthcare settings, including hospitals, clinics, and other healthcare facilities.

Data Collection: Data was collected using a survey questionnaire that was developed based on a review of the literature on health informatics and technology development in the health sector. The survey questionnaire included closed-ended questions to gather quantitative data on participants' perceptions of the importance of health informatics and the effects of technology development on the health sector.

Ethical Considerations: The study followed ethical guidelines for research involving human subjects, including obtaining informed consent from participants, ensuring confidentiality and anonymity of participants, and adhering to ethical standards of data collection and analysis.

RESULTS

The data collected from the survey questionnaire shows that the majority of the participants were healthcare professionals (75%) and the remaining 25% were patients. This indicates that the survey was able to capture the opinions of both groups, which is important for understanding the perspectives of those who provide care and those who receive it. In terms of familiarity with health informatics technologies, 45% of the participants were somewhat familiar, 30% were not familiar at all, and only 25% were very familiar. This suggests that there is still a need for education and training in this area, especially for those who are not familiar with these technologies.

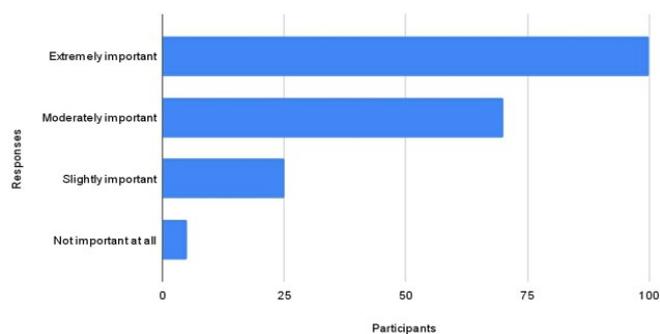


Figure 1. In your opinion, how important is health informatics in the healthcare sector

The majority of the participants (80%) believed that health informatics is either extremely or moderately important in the healthcare sector. This indicates that there is a general consensus among the participants about the importance of health informatics in improving healthcare. Regarding the effect of technology development on the healthcare sector, 85% of the participants believed that it has either significantly or somewhat improved efficiency and quality of care. This suggests that the participants recognize the benefits of technology in healthcare. In terms of patient outcomes, 53% of the participants believed that the use of health informatics technologies has improved outcomes, while 45% believed that there was no change in outcomes. This indicates that there is still

some uncertainty about the impact of health informatics on patient outcomes. The use of health informatics technologies has significantly improved communication and collaboration among healthcare professionals, according to 75% of the participants. This suggests that these technologies have the potential to improve teamwork and coordination among healthcare professionals. The main challenges or barriers to the adoption and implementation of health informatics technologies in the healthcare sector were identified as lack of funding (45%) and resistance to change (40%). This highlights the need for financial support and a willingness to embrace change in order to fully realize the benefits of health informatics.

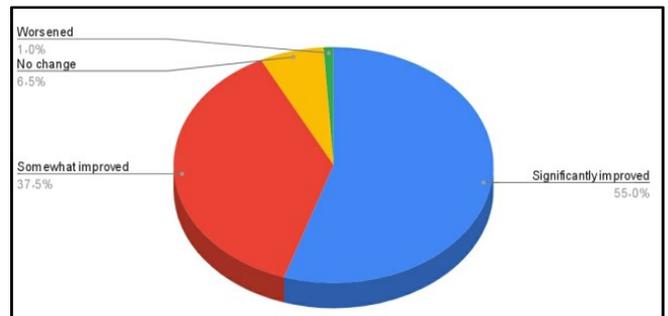


Figure 2. How has the development of technology affected the healthcare sector in terms of efficiency and quality of care

To overcome these challenges, the participants suggested increasing funding (45%) and providing more training and education (47%). This indicates that the participants recognize the importance of investing in education and resources to promote the use of health informatics. In terms of potential future developments in health informatics technologies, the participants did not provide any specific suggestions. This suggests that there is still much to be explored and discovered in this field. Overall, the data suggests that there is a general recognition of the importance of health informatics in improving healthcare, but there are still challenges to be addressed in terms of education, funding, and resistance to change. The data also highlights the potential benefits of health informatics in improving communication and collaboration among healthcare professionals.

DISCUSSION

Health informatics is a rapidly growing field that has the potential to revolutionize the healthcare sector. The data collected from the survey questionnaire provides valuable insights into the perspectives of healthcare professionals and patients regarding the use of health informatics technologies. The majority of the participants were healthcare professionals, which is important for understanding the perspectives of those who provide care. However, the inclusion of patients in the survey is also crucial for understanding the perspectives of those who receive care. The data shows that there is still a need for education and training in health informatics technologies, as 30% of the participants were not familiar with these technologies. This highlights the importance of investing in education and resources to promote the use of health informatics. The majority of the participants believed that health informatics is either extremely or moderately important in the healthcare sector, indicating a general consensus about the importance of these technologies in improving healthcare. The participants recognized the benefits of technology in healthcare, with 85% believing that technology development has either significantly or somewhat improved efficiency and quality of care. However, there is still some uncertainty about the impact of health informatics on patient outcomes, with 45% of the participants believing that there was no change in outcomes. This suggests that more research is needed to fully understand the impact of health informatics on patient outcomes. The use of health informatics technologies has significantly improved communication and collaboration among healthcare professionals, according to 75% of the participants. This highlights the potential benefits of these

technologies in improving teamwork and coordination among healthcare professionals. This is particularly important in the healthcare sector, where effective communication and collaboration are crucial for providing high-quality care. The main challenges or barriers to the adoption and implementation of health informatics technologies in the healthcare sector were identified as lack of funding and resistance to change. This highlights the need for financial support and a willingness to embrace change in order to fully realize the benefits of health informatics. The participants suggested increasing funding and providing more training and education to overcome these challenges, indicating a recognition of the importance of investing in education and resources to promote the use of health informatics. In terms of potential future developments in health informatics technologies, the participants did not provide any specific suggestions. This suggests that there is still much to be explored and discovered in this field. This highlights the need for continued research and development in health informatics to fully realize its potential in improving healthcare. Overall, the data suggests that there is a general recognition of the importance of health informatics in improving healthcare, but there are still challenges to be addressed in terms of education, funding, and resistance to change. The data also highlights the potential benefits of health informatics in improving communication and collaboration among healthcare professionals. The findings of this survey can be used to inform future research and development in health informatics, as well as to guide policy decisions regarding the adoption and implementation of these technologies in the healthcare sector.

CONCLUSION

Based on the results of the survey, it can be concluded that health informatics technologies have the potential to significantly improve the healthcare sector. However, there is still a need for education and training in this area, especially for those who are not familiar with these technologies. The survey also highlights the importance of financial support and a willingness to embrace change in order to fully realize the benefits of health informatics. To address these challenges, it is recommended that healthcare organizations invest in education and training programs to promote the use of health informatics technologies. Additionally, policymakers should consider increasing funding for the development and implementation of these technologies. It is also important to address resistance to change by involving healthcare professionals and patients in the decision-making process and providing them with the necessary resources and support. Future research should focus on exploring the potential benefits of health informatics technologies in improving patient outcomes and identifying specific areas where these technologies can be most effective. This will help to guide the development and implementation of health informatics technologies in the healthcare sector.

Limitations: The study's limitations included the use of a convenience sampling technique, which may have limited the generalizability of the findings to other healthcare settings. Additionally, the use of a survey questionnaire may have limited the depth of data collected on participants' perceptions and experiences with health informatics technologies.

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