A Study on the Adoption of Electronic Health Records (EHRs) And the
Perceptions of Medical Staff and Patients

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ABSTRACT

The information and communication technology has diffused in all sectors of the economy including the medical and health care. India has exceeding done well in the field of information technology as it ranks second in the world in the number of internet users and smart mobile users next only to China. The greater usage electronic tools such as computer, tablets, smart phones, and internet have resulted in the transition from the paper-based record system to digital based record system or EHRs.

The present research has been conducted among the selected medical staff and the patients to understand their perceptions about the adoption of the electronic health records by the hospitals and medical professionals. The research was based on a sample of 25 medical staff and 25 patients.

The findings of the research revealed that both the medical staff as well as the patients are highly positive and optimistic about the benefits of the electronic health records even though there are some issues and challenges faced by both. The mean score of the medical staff was 2.62 and that of patient was 2.47 indicating a higher level of satisfaction. However, the mean score was less than the maximum used in the research which was 03 indicating some reservations and issues faced by both the medical staff as well as the patients.

There is a need to further enhance the adoption of the electronic health records by providing incentives, training to staff, standardisation of norms, greater collaboration with public and private hospitals, policy framework, making it compulsory for all to adopt it in the best interest of the patients and quality health care services.

1   INTRODUCTION:

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(i) **Meaning of Electronic Health Records (EHRs):** It refers to recording of all the patients' health data in digital format. It includes patient's medical history over the period covering all earlier visits to the hospital or the health centres. It covers patient's information related to demographics (name, gender, age, weight, contact number), medical history, medications, immunisation status, laboratory results and radiology results, vital readings, progress note etc. Such data can be easily accessed by all doctors and medical staff of the hospitals which help them to take informed decisions.

(ii) **Driving Forces of Adoption of Electronic Health Records:** The various factors which have contributed to the adoption of electronic health records are the Government initiatives such as Aayushman Bharat and Digital India, rapid expansion of internet connectivity, need of data standardisation, rising demand for quality health care, rise in telemedicine, integration of AI and Analytics, medical insurance and claim processing, raising efficiency and productivity, emergence of globalised private hospitals, global accreditation, research and development, patient empowerment and engagement etc.

(iii) **Benefits of Electronic Health Records:** There are many benefits of maintaining electronic health records. These include reducing medication errors, improving legibility and accuracy, better co-ordination among hospitals and departments, quick access to important data, better quality of patient's care, cost control etc.

(iv) **Major Challenges:** There are many challenges in the adoption of electronic health records which include higher capital investment, technical issues, data security and data privacy, resistance from medical staff for change, data accuracy and interoperability, need for continuous training and development etc

2   OBJECTIVES OF THE RESEARCH:
The objectives of the present research are:

(1) To review the status of the adoption of electronic health records in the country.
(2) To find out the major driving forces for the adoption of electronic health records.
(3) To evaluate the perceptions of the medical staff and the patients about the electronic health records.
(4) To assess the benefits and challenges of adopting electronic health records (EHRs).
(5) To suggest measures for the enhancement of the adoption of electronic health records in the health care sector.

3 REVIEWS OF LITERATURE: The review of literature covered on the subject can be seen as below:

(1)   Dr C K Gomathy (2022) analysed the impact of the use of electronic health

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records on medical and surgical care results during the period 2008 to 2011.The research was conducted in the American hospitals. The research indicated various positive impact of adopting the EHRs on patients and medical service delivery system. It minimises the need to maintain physical records or paper work, reduced errors in the records, minimise the time taken, better patient care, retrieve data whenever needed etc. There are few challenges involved such as high initial capital investment, training and development of medical staff, security of patient's data etc.

(2)   Queen Elizabeth Enanhoro (2023) examines the impact of electronic health records on the patient's outcome. The research also highlights the benefits and the challenges of electronic health records. The benefits include reduced record keeping efforts and time, elimination of paper work, more focus on patient's care, higher efficiency, faster patient's processing, reduced waiting time, reduced errors in records maintained. The challenges include higher cost of implementing software, hardware, training of manpower, maintenance, and disruptions.

(3)   Soumya Upadhyay (2022) explored the opinion of the health care practioners about the electronic health care records on the quality of health care services and safety of the patients. The research was qualitative research. It covered the views of doctors, nurses, hospital staff. The coverage was hospitals, health clinics, medical centres etc. The findings of the research revealed that nurses had positive and

favourable views on the electronic health records while other staff considered it as time consuming and issues related to integration of records in the system.

(4)   Shriyanda Ratnayake (2019) evaluated the impact of electronic health records on the patient's services in four public hospitals in Sri Lanka. The country has well developed medical health system. The research was qualitative as well as quantitative research. The samples covered 33 medical staff and 68 patients selected randomly from the four government hospitals.

Research revealed that majority of the sample respondents had good knowledge about the electronic health records.85 % of the patients experienced some improvement in the health care services such as speedy health care and quality of services. They also experienced reduction in the waiting time and higher level of satisfaction.

(5)   Manisha Wadhwa (2020) presented a concept paper on the available published data on the electronic health care system.
The research covered government initiatives, benefits, and challenges of electronic health records. The various elements of electronic health records include ICT infrastructure, policy guidelines and framework about the health, IT and privacy, health standards, research, and education.

(6)   Lawrence Nduva Munyaka (2024) conducted descriptive research to assess the impact of electronic health records in service delivery in Government hospitals in

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Kenya. The research was descriptive research based on a sample of 341 respondents. The research was based on the primary as well as the secondary data. The respondents covered include doctors, medical specialists, nurses, laboratory assistants, nutritionist, dentists, registrars, public health officers.

The research revealed that the use of electronic health data has reduced paper work (mean score 3.96), enhances information collection (mean score 4.13), improves efficiency of the medical staff (mean score 4.17), help in auditing (mean score 4.12), minimising errors in missing data (mean score 4.12). Thus, there is a positive relationship between the adoption of the electronic health records and delivery of health services.

4 RESEARCH METHODOLOGY: The research methodology adopted for the present research can be seen as below:

(1) **Research Design:** The research design adopted for the present research is a blend of descriptive research design as well as exploratory research design. It is descriptive as it describes the present status of the adoption of electronic health records in the country. It is exploratory as it explores the perception of the medical staff and the patients about the electronic health records.

(2) **Sources of Data:** The research has used both the sources of data namely primary sources as well as the secondary sources. The primary data was collected from selected sample respondents with the help of a structured closed ended questionnaire prepared for these purposes. The secondary data was collected through the various published records available on the subject from the government as well as the private sources.

(3) **Sampling Method and sample Size:** The sampling method used for the present research was non random sampling which include convenience sampling method. The size of the sample was 50 respondents which included 25 medical staff and 25 patients. Medical staff include doctors, nurses, and other administrative staff of the hospitals.

(4) **Preparation of the Questionnaire**: A closed ended questionnaire with 30 questions was prepared and canvassed among the selected sample respondents. The questionnaire included three level of Likert scale namely strongly agreed, neutral and strongly disagreed.

(5) **Data Analysis**: The data collected from the sample respondents was processed and tabulated. It was analysed in terms of the mean score for medical staff as well as the patients. The data has been presented in tabular format as well.

(6) **Limitations:** Some of the limitations of the present research are:

(i)   The research has focused on the quantitative aspects of the problem at hand rather   than qualitative aspects.

(ii)   The size of the sample is too small as a large sample would have given more insights   into the perceptions   of the respondents.

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(iii)   The findings of the research cannot be generalised to the entire population.

(iv)   There is always some issue of intervener's bias and respondent's bias.

5 DATA ANALYSIS: The details regarding the data analysis can be seen from the following tables.

(1) **Demographic Profile of the Sample Respondents:** The demographic profile of the sample respondents (medical staff and patients) can be seen from the table given below:

Table No 1

Demographic Profile of the Respondents

SN	Description	Nos	%
1	**Gender Classification**		
	Male	32	64
	Female	18	36
2	**Age Composition**		
	Less than 30 years	12	24
	31 years to 40 years	18	36
	41 years to 50 years	15	30
	More than 51 years	05	10
3	**Level of Income (Annual)**		
	Less than Rs 3 lakh	15	30
	Rs 3 lakh to Rs 5 lakh	22	44
	Rs 5 lakh to Rs 8 lakh	09	18
	More than Rs 8 lakh	04	08
4	**Nature of Occupation**		
	Private services	36	72
	Government services	08	16
	Business/self employed	04	08
	Unemployed	02	04
5	**Level of education**		
	Graduate	15	30
	Post Graduate	10	20
	Professional Qualification	25	50

Inferences: The following inferences have been drawn from the above table.

(1) Respondents included more male than female accounting for 64 % and 36 % respectively.

(2) Majority of the respondents were in the age group 31 to 40 years accounting for 36 % of the total. It is followed by age group 41 to 50 years accounting for 30 % of the total sample.

(3) Regarding the level of income majority of the respondents are in the income group Rs 3 lakh to Rs 5 lakh accounting for 44 % of the total.

(4) Majority of the respondents are in private services accounting for 72 % of the total.

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(5) The sample respondents are highly qualified as 50 % are professionals and 20 % are post graduate.

(2) Perception of the Medical Staff: The perceptions of the medical staff regarding the electronic health records can be seen from the table given below:

Table No 2

Perceptions of the Medical Staff

SN	DESCRIPTION	SA (03)	N (02)	SDA (01)
1	Aware of the concept of Electronic Health Records	25	00	00
2	Using the EHRs at daily work	20	02	03
3	Easier to learn and adopt EHRs in practice	23	01	01
4	Training is provided for using EHRs	18	04	03
5	There is considerable saving of time due to use of EHRs	20	02	03
6	Help in maintaining accurate patient's data	16	04	05
7	Result in better communication among medical staff	20	03	02
8	Face some issues while adopting EHRs	16	04	05
9	Patients have full trust in EHRs maintained by medical staff	18	03	04
10	There are some issues about the privacy of patient's data	16	05	04
11	Satisfied with the present system of maintaining EHRs	16	04	05
12	EHRs should be made compulsory	20	02	03
13	EHRs are highly cost effective	18	04	03
14	EHRs contributes to improved health services	16	04	05
15	EHRs is the future of the health care sector	20	03	02
	Mean Score of the Medical Staff	282 846 984/375 2.62	45 90	48 48

Inferences: It can be observed from the above data that the perceptions of the medical staff are highly positive as there are many benefits of adopting the electronic health records for the medical staff as well as all other stakeholders in the health care sector. Medical staff have acquired sufficient training for the use of the electronic health records. Medical staff is highly satisfied with the current usage of the electronic health records. It is highly

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cost effective and it contributes to improved health services. There are some issues related to the privacy of patient's data. Medical staff also face some technical issues in the adoption of the electronic health records. However, there is good

score of the medical staff for the electronic health records is 2.62 which is highly positive and satisfactory.

(3) Perceptions of the Patients: The opinion expressed by the patients about the electronic health records can be seen from

Table No 3

Perceptions of the Patients

SN	Description	SA (03)	N (02)	SDA (01)
1	Aware of the electronic health records	16	04	05
2	EHRs are used by my doctors for my checkup	18	04	03
3	Contributed to better health services	15	05	05
4	Doctors take better decisions because of EHRs	14	06	05
5	Doctors give more time for medical check up	18	04	03
6	Cannot fully understand EHRs	18	02	05
7	Satisfied with the current use of EHRs	12	06	07
8	Privacy of data is major issue in EHRs	20	02	03
9	Resulted in saving in medical expenses	16	04	05
10	Trust that medical records are safe	14	06	05
11	Doctors share information more easily	17	04	04
12	Prefer EHRs as compared to more paper work	16	06	03
13	Often faced some issues in EHRs	12	06	07
14	EHRs should be used in all the hospitals	18	04	03
15	Highly positive about the future of EHRs	20	02	03

future for the electronic health records in the health care sector. The overall mean

Inferences: It can be seen from the above table that patients are aware of the electronic health records being maintained by the hospitals and doctors. Patients believe that electronic health records have contributed to better health services. According to them doctors give more time

the following table.

for the medical check-up. However, patients cannot fully understand the system and the contents of the electronic health records. Patients feel that electronic health records have resulted in saving in medical expenses incurred for medical tests. The overall mean score of the patients is 2.47.

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6   SUMMARY AND CONCLUSION:

From the above study the following conclusions can be drawn:

(i)   Electronic health records imply the maintaining all patients' data pertaining to medical history and test in some digital form which can be of great help to the medial staff and the doctors to take better informed decisions. There is a growing trend of adopting electronic health records due the government initiatives, establishment of national and global accredited hospitals, patient empowerment and better quality of health services.

(ii)   The survey among the medical staff and the patients about their perception of the adoption of electronic health records found that both are highly positive and optimistic about EHRs.The benefits of such data are more than the cost involved in maintaining such information. The mean score of the perception of the medical staff was much higher than the mean score of patients. The mean score of the medical staff was 2.62 while of patient 2.47 indicating higher level of satisfaction from electronic health records. However the mean score was less than 3.0 in the research indicating some reservations on the part of both the medical staff as well as patients.

(iii)   There are some challenges involved in the adoption of EHRs such as high investment in the infrastructure, lack of training, lack of technical skills, resistance to change on the part of the medical staff, data privacy, data integration into the system. Lack of standard methods etc.

(iv)   Thus, adoption of the electronic data is the need of the hour for all the hospitals and other stakeholders. Some of the suggestions to enhance the adoption of the electronic health records are offering incentives to the hospitals, making compulsory and binding, providing regular training to the medical staff, collaboration between public and private hospitals, policy guidelines and standardisation of electronic records, creating greater awareness among the staff as well as patients, provision of technology support and so on.

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