Making the Paper-to-Digital Shift in India: Acceptance and adoption of Electronic Health Records System (EHRs) by Physicians

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Abstract - This study explores the adoption of electronic health records system, an emerging technology and its usage in the improvement of healthcare process in the Indian setting. Electronic Health Record (EHR) is a systematised digital version of a patient's complete medical history. It is a record containing all the aspects of patient care provided by physicians in a healthcare centre, maintained by the providers. Electronic Health Records system provides a means for improving healthcare standards, especially with regard to a developing nation. In the landscape of developing countries, like India, these kinds of technology evolution will bring major change by offering better healthcare services. The researchers through this study have called attention to examine the adoption of ICT, Electronic Health Records system in particular, by medical doctors at their workspace applying TAM model.

Keywords – *TAM Model, E-health, Electronic Health Record, ICT, Database management system, New Media.*

I. INTRODUCTION

Evolution of technology has revolutionised global healthcare, and continues to improve healthcare practices around the world. Technology-collaborated healthcare is being the keystone of services offered to prevent, diagnose and treat various illnesses and diseases. Incessant advancements in the field of information and communication technologies (ICT), involving the internet, technical devices, computer systems, have made larger impact on medical practices and the care provided therein. This has steered towards a new dimension for technological implementation in the field of medicine, states the World Health Organization (2018). According to Schopf, Nedreb, Hufthammer, *et al.* (2019), physicians play important roles in contributing to the development of a nation's socioeconomic and political stature. Technology is a significant tool which helps them access and use pertinent data necessary to intensify their professional knowledge. ICT

usage can be highly efficacious if healthcare workers equip the opportunities offered by it, to meet their needs.

According to Graber ML, Byrne C, Johnston D (2017), it was observed that medical doctors use information and communication technology as an important instrument in their profession, to maintain the patient database, as a communicative means, to update and upgrade their knowledge. Developing countries are now coming around to realise that they have to hold ICT to deal with the problems related to access, quality and cost of healthcare. Nohr C, Koch S, Vimarlund V, Gilstad H, Faxvaag (2018) additionally assert that ICT adoption in the health sector across developing countries are aiding dissemination of knowledge with increased access to health information technology.

Information and Communications Technology (ICT) has created a paradigm shift in the way patient clinical data is captured, stored, used and disseminated. Evidently, there has been a gradual shift from paper-based records to electronic records. A number of terms have been used to describe the move from paper based records to electronic records. Some of these terms are: Automated Health Records (AHR), Computer-based Patient Record (CPR), Electronic Medical Record (EMR), and Electronic Health Record (EHR).

ELECTRONIC MEDICAL RECORD (EMR)

Electronic Medical Record is an electronic record system used by the medical practitioners to record the clinical information of their patients, including identification details, prescriptions, laboratory test results, etc. (World Health Organization and Regional Office for the Western Pacific 2006).

EMR is potentially one of the major accelerators in the transformation of healthcare with regard to technology and its acceptance. From a patient care standpoint, EMR generally improves the accuracy of information, supports clinical decision-making and improves the accessibility of information for continuity of care. Ober KP and Applegate WB (2015) opine from an operational perspective that EMR provide essential healthcare statistics, pivotal for the planning and management of healthcare services. A good EMR shall have to meet several expectations, like meticulous patient documentation, common templates, regulatory compliance, prevention of medication errors, order sets, disease coding, billing, clinical pathway utilization, medico-legal defensibility, adaptive learning capability, optimized workflow, simplicity, incorporation of clinical images, multiple input interfaces (notes, test reports, etc.), seamless connectivity among clinical investigation platforms, input speed at the point of entry, and the most important of all,

data compilation for analysis and research, all with time-efficiency and effectiveness with a user- and patient-friendly interface, Zhang X (2016) Ober KP, Applegate WB (2015).

ELECTRONIC HEALTH RECORD (EHR)

An Electronic Health Record (EHR) is basically a compilation of various medical reports that get generated during any clinical consultations (Vikaspedia 2019). It refers to a real time, distinctive, longitudinal health documentation of the complete personal health data, including family medical history, physical and medical examination, diagnosis, laboratory results, allergies, if any, immunization, treatment, follow up etc. of a patient in a digital format. The information is electronically created and maintained by the healthcare providers over the course of his/her consultations and admissions. As digital records of health information, EHRs contain a lot more than all the information commonly found on a paper chart. They can also contain other relevant information, such as insurance information, demographic data, and even data imported from personal wellness devices.

The power of an EHR lies in how it is shared rather than the data contained in it. They can make health information readily available and accessible to authorized healthcare providers, across practices in health organizations, helping with information related to clinical decisions, thereby offering coordinated care. It can be shared between labs, specialists, imaging facilities, pharmacies, and emergency facilities.

According to the World Health Organization (2004) it is an established fact that information and communication technologies are the backbone of the current information system. Their scope is also extremely vast. Healthcare facilities have been largely benefited by the evolvement of ICT. Information and communication technology has brought a major paradigm shift in the healthcare scenario of the entire world, and definitely the developing countries are not an exception. Researchers, Thanuskodi (2010) K. Radhakrishna, B. R. Goud, A. Kasthuri, (2014) explored that information and communication technologies are evolving at a tremendous rate in India. It is very difficult to determine the size and distribution of medical professionals who have access to ICT.

This paradigmatic shift focuses on the adoption of electronic health records system by medical doctors in the field of medicine to enhance their profession. This shift in the approach to the study on the adoption of electronic health records system in the field of medicine by medical doctors is considered a meaningful approach and such a study on an empirical ground becomes a much needed one in a country like India. In this task, the present investigation explores the adoption and acceptance of electronic health records

system by medical doctors in their profession applying TAM model. It is precisely on this premise that the present study assumes importance and is being set to arrive at meaningful inferences and a conclusion.

OBJECTIVES OF THE STUDY

- To identify if there is any difference in adoption of Electronic Health Records system among medical doctors.
- To measure the difference between the users' demographics (gender and work sector) and the dependent variables (Electronic Health Records system).
- To find the relationship between the adoption and acceptance of Electronic Health Records system.

REVIEW OF LITERATURE

Technology Acceptance Model (TAM), acceptance of technology has been used by researchers from different backgrounds. According to Huang, Chen & Hsieh (2014), TAM was developed by Davis, 1989, Davis, Bagozzi & Warshaw, 1989. It describes acceptance as users' decision about how and when they will adopt and use technology. The Technology Acceptance Model, according to Vathanophas & Pacharapha (2010), is an adaptation of the generalized TRA (Theory of Reasoned Action) proposed to specify user acceptance and usage behaviour for information technology. Various studies focus on information technology acceptance such as Arman, A. A., & Hartati, S., 2015; Mammen & Weeks, 2014; Liu and Cheng, 2015; Vathanophas & Pacharapha, 2010. The Technology Acceptance Model (TAM), as agreed by Holden & Karsh (2010) and Hu et al. (1999), and cited by Steininger et al. (2014), is a suitable approach to predict and explain physicians' reactions to Health IT (HIT), particularly, in Electronic Health Records (EHR) and Electronic Medical Record (EMR). This was also supported by Davis (1993), as user acceptance is often the pivotal factor to determine the success or failure of an information system.

Electronic Medical Record, an electronic system with applications that manipulate or process any information for the purpose of coordinating healthcare and health-related services of a particular individual (Castillo, Martínez-Garcia, & Pulido, 2010). It is basically the digital version of Patient Medical Records that contain the demographic information, history, treatment, medication, progress note, etc. of a patient seeking medical care.

The amount of information processing in hospitals, especially in larger ones and should not be underestimated. J. M. Peeters, J. W. Krijgsman, A. E. Brabers et al., (2016) noticed the reality of information processing in healthcare environment for past several years has been seen a great change over from paper-based processing and storage to computer based processing and storage. This helps the doctor to trace the history of the patient very easily even though the patient visited the hospital long back (Perceived Usefulness and Ease of Use (PE, EU). In yet another study by S. Foldy, S. Grannis, D. Ross, and T. Smith (2014) espoused there are many advantages in adopting EHR , it is very easy accessible, there is no need for big place to store the data or need not to worry about maintaining the paper based data base were possible for more risk (PE).

According to E. Parkin (2016) explains that ERC includes information about patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports etc. and this gives evidence-based decision support, quality management, and outcomes reporting (Perceived Usefulness (PU) Rinner C, Sauter SK, Endel G, Heinze G (2016). The main advantages for using Electronic Medical Record is to reduce medical errors, facilitating access, supporting clinical decisions and others (PU). E. C. Chambers, B. C. Wong, R. W. Riley et al., (2015) denotes that EHR systems provide access to health records to health care professionals and administration. EHRs can be distinguished in many ways, such as the Electronic Medical Record (EMR), Personal Health Record (PHR) etc (Perceived Usefulness (PU)).

Researchers J. M. Peeters, J. W. Krijgsman, A. E. Brabers et al., (2016) identifies numerous medical hospitals are transforming from written documents to "Electronic Medical Records" (EMR) systems (User Acceptance (ATT and BI)). The influence of information and communication technology systems on doctor work practices has drawn attention from both the medical informatics and the human–computer interaction (HCI) communities (UA). Jaebeom Lee, Mi Jung Rho, (2013) explains the electronic health record (EHR) is generated by one or more encounters in any care delivery setting. This includes detailed information about the patient including the medical history this helps in restructure the doctors work structure (PU). It has the ability to generate a complete record of a patient and helps in evidence-based decision support. According to CPSO (2012) report it is a living document that tells the story of the patient and facilitates each encounter they have with health professionals involved in their care.

Orlova A, Salyards K (2016) an EMR can provide the electronic infrastructure for many types of clinical and administrative activities normally conducted in physician practices (User Acceptance (ATT and BI)). Commercial EMR systems vary in their capabilities for each type of activity, while practices and physicians vary greatly in how extensively they use available EMR capabilities (User Acceptance (ATT and BI)). Leitman *(*2001) advocates medical errors could be reduced by the use of decision support tools that would check for drug interactions as well as dosage levels and allergies (PU). EMR could receive alert reminders for preventative care treatments, testing, and alert about various treatment procedures, guidelines associated with the diagnosis (PU).

Mc Donald (1997) denotes the EMR can help public health officials easily detect an outbreak of illness and determine what measures are needed to protect the community. (User Acceptance (ATT and BI))Another advantage of using EMR is the patient privacy and security. Electronic files play a significant role in maintaining patient information and confidentiality, as unauthorized access can reveal history of drug abuse, venereal disease, or life-threatening illness, psychiatric notes reveal inner fantasies, sexual activities, crimes, or the crimes and abuses of family members (UA).

Wager, K. A., Lee, F. W., Glaser, J. P., (2017) explores medical software tools are yet another new technology competing for the attention of physicians. Medical software is evolving rapidly from a record-keeping tool to a communications system to a source of decision support and plays the role of a medical device or clinical service. Kobayashi, S. (2012), Kalorama. (2009) explores that many hospitals have adopted information systems to manage clinical practice (Using and Accepting (ATT and BI)). Commonly, a hospital needs integrated HER software to administer clinical information from subsystems for departments, such as laboratory data, pharmacy, radiology section etc.

Open EMR software is one of the most popular OSS in medical domain. It supports medical practice management, electronic medical records, prescription writing and medical billing. It supports multiple languages, and is used in the United States, Puerto Rico, Australia, Sweden, Holland, Israel, India, Malaysia, Nepal, and Kenya.

Aggarwal and Gupta et al., (2004) explains, the software that is used in the field of medicine specifically designed to meet the requirements of the hospital with a high volume of procedures. Only little software tailored to suit requirements of medical doctors that have been described in the past. One of these was developed using dBASE language and provided reporting and auditing facilities.

Jayaseelan and Pichandy (2020) argue clinical decision support (CDS) software, a form of HIT, provides information or knowledge-based systems, which guide medical decision-making. This might include dosing calculators; management algorithms, computerized order sets, and other tools that help the clinician care for patients in real-time (Perceived Usefulness and Ease of Use).

Kim and Lehmann (2008), Lyman, Cohn, Bloomrosen, et al., (2010) commonly known CDS software is Up-to-date. CDS systems have several unique characteristics that distinguish this type of knowledge system from traditional, hard-copy medical references: immediacy of access to various digital platforms; portability to the point-of-care of the patient; availability of a constantly updated knowledge database; an interactive user interface; and a search engine for rapid navigation to desired information (EU).

Kobayashi (2012) indicates, in many hospitals they have adopted information systems software to manage clinical practice (Using and Accepting (ATT and BI)). Commonly, a hospital needs integrated EHR to administer clinical information from subsystems for departments, such as laboratory data, pharmacy, radiology section etc.

Aggarwal, Gupta, Sood, Behera and Jindal (2004) elaborate the structured input and free-text inputs are the two fundament software for data entry. Initial reports of endoscopic databases relied heavily on text based tools. Such input facilitates personalized style and flexibility in description of abnormalities, and generates a well readable report. A major feature of the software is the powerful database component and user-friendly (Ease of Use (EU)) in completeness of data entry and this is the success to acceptance of such software.

Rashmi Mabiyan (2020) according to Dr. M. W. Ghori, Executive Director at Medical and Health Information Management Association, a block-chain technology-driven EHR has the potential to transform Indian healthcare, placing the patient at the centre of the healthcare ecosystem and increasing the security, privacy, and interoperability of health data.

The adoption of Information and Communication Technology by medical doctors in their profession has been extensively explored as a research problem in the past. This will enable the researcher to understand not only the problem under investigation, but also certain theoretical formulations needed for the study. Research in new media technologies in the field of medicine is so dynamic and demands a meaningful review of the research in

the past, the present and with all the related reviews the researchers framed the research questions for the study.

RESEARCH QUESTIONS

R.Q.1 Is there any difference between medical doctors in adoption of Electronic Health Record systems in terms of the gender in the field of medicine based on TAM model?

R.Q.2 Is there any difference between medical doctors in adoption of Electronic Health Record systems in terms of work sector in the field of medicine based on TAM model?

R.Q.3 Is there any relationship between adoption and acceptance of electronic health records system in the field of medicine based on TAM model?

THEORETICAL FRAMEWORK

Numerous studies have used theoretical constructs from the technology acceptance model (TAM). Technology Acceptance Model (TAM) has been used by the researchers for this study, as it is one of the most widely researched theoretical models used to explain adoption of new systems and other information technologies. TAM, based on the theory of Reasoned Action (Fishbein and Ajzen, 1980), is a simple model of IT adoption that claims that the overall IT acceptance or utilization is based on users' beliefs like (a) system's perceived usefulness (PU) and (b) system's perceived ease-of-use (PEOU), which are the major impact factors of their (c) attitude towards use (ATT) and also (d) behavioural intentions to use (BI).

The investigators attempted to use the most widely applied theoretical model in the Information Systems field with Technology Acceptance Model (TAM). The study aims at evaluating the attitude of medical doctors towards the use of electronic health record system in healthcare to enhance their knowledge and to create an easy work culture.

METHODOLOGY

The present investigation attempts to unearth the adoption and acceptance of electronic health management system among medical doctors in the field of medicine to enhance their profession in Tamil Nadu, India. The study is restricted only with the doctors who are working in the three major districts of Tamil Nadu. A multistage stratified random sampling method was adopted by the researchers to identify the eligible respondents, who are included as the sample for the present investigation. At this stage, the questionnaire was distributed in all the chosen districts, having around 590 sample

respondents from the chosen sectors in which 427 samples, which were complete in all respects, alone were included for the study.

The distribution of the samples selected for the study in terms of age and gender of the Respondents are given below.

Sample Characteristics: (T-1): Table Showing Age and Gender of the Respondents

Gender	25-35	36-45	46 and Above	Total
Male	95	103	26	224
Female	101	67	35	203
Total	196	170	61	427

The table (T-1) explains that there are 224 male out of 427 samples selected for the study in which 95 respondents belong to the age group of 25 to 35 years, 103 male samples belong to the age group of 36 to 45 years. 26 male respondents belong to the age group of 46 and above. 196 female respondents were in the age group of 25 to 35 years and 103 female samples belong to 36 years to 45 years. 26 respondents belong to the age group of 46 and above.

RESULTS OF ANOVA AND 'T' TEST

Gender and adoption of Electronic Health Records system: (T-2A) Table showing results of t-test of gender of the respondents on adoption (Perceived Usefulness and Ease of Use) of Electronic Health Records system in the field of medicine

Table (T-2A) Table of 'T' test

Levene's Test for Equality of Variances				t-test for Equality of Means		
Equal variances		Sig.		df	Sig. (2-tailed)	Mean Difference
Assumed	1.402	.000	.962	425	.050	.17005
Not assumed			.943	392.374	.053	.17005

Table (T-2B) Table of means – EHR Adoption (PE and EU)

Gender	N	Mean	Std. Deviation
Male	224	3.4911	.80817
Female	203	3.3210	.98125

It is found from the table (T2-A and B) that there is significance at 5% level in the usage of electronic health records system. The t-test result (with equal variances not assumed) in the table, t (427) =1.943, p>.05 shows t statistic of 1.943 with 392 degrees of freedom. The corresponding two tailed p-value is .053, which is greater than 0.05 which provided evidence that the adoption of electronic health records system in the field of medicine did not significantly differ among gender at 5 % significance level. However, the table of illustrates that male (M-3.49) respondents adopt electronic health records system when compared to female (M-3.32) respondents.

(T-3A)Table of 'T' test

Levene's Test for Equality of Variances				t-test for Equality of Means	
Equal variances		Sig.	T	df	Sig. (2-tailed)	Mean Difference
Assumed	.886	.090	.537	425	.592	.03236
Not assumed			.533	401.917	.594	.03236

(T-3B)Table of means - EHR Acceptance (ATT and BI)

Gender	N	Mean	Std. Deviation
Male	224	3.8491	.57846
Female	203	3.8167	.66743

It is found from the t-test result (with equal variances assumed) in the table (T3-A and B), t (427) =.537, p>.05 shows t statistic of .537 with 425 degrees of freedom. The corresponding two tailed p-value is .592, which is greater than 0.05 which provided evidence that the acceptance of electronic health records system in the field of medicine did not significantly differ among gender at 5 % significance level. However, the table of illustrates that male (M-3.84) respondents accept electronic health records system when compared to female (M-3.81) respondents.

(T-4A)Test of Homogeneity of Variances – EHR Total

Levene Statistic	df1	df2	Sig.
1.373	2	424	.254

According to levene statistic the homogeneity of variances table (T-4A) is verified and the above table shows that the population variances for each group are equal for electronic health records system usage. For this variable ANOVA test was performed.

(T-4B) ANOVA - EHR Total

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	28.867	2	14.434	19.468	0000
Within Groups	314.358	424	.741		
Total	343.225	426			

The results of one way analysis of variance (ANOVA) presented in the table (T-4B) reveals that there is a significant difference of the work sector of the respondents at 5 % significance level on electronic health records system adoption (F (2,424)=19.46, p<.05) in their field of medicine.

(T-4C) EHR Adoption Total (PU and EU)			
Work sector	N	Mean	Std. Deviation
Government	166	3.2942	.81833
Private	175	3.7019	.88383
Own Clinic	86	3.0407	.89404
Total	427	3.4102	.89760

The table (T-4C) of Means shows that work sector category of private (M-3.70) is having more electronic health records adoption followed by government (M-3.29) and own clinic (M-3.04) respectively. Hence, it can be inferred that among the respondents of various work sectors there is a significant difference on the on the adoption of electronic health records system in the field of medicine.

Work sector and Acceptance (Using and Accepting) of Electronic Health Records system: (T5): Results of One-way Analysis of Variance (ANOVA) showing the work sector of the respondents on the acceptance (Using and Accepting) of Electronic Health Records system in the field of medicine

(T-5A) Test of Homogeneity of Variances - EHR Total			
Levene Statistic	df1	df2	Sig.
2.232	2	424	.109

According to Levene's statistic the homogeneity of variances is verified and the above table (T-5A) shows that the population variances for each group are equal for electronic health records system acceptances. For this variable ANOVA test was performed.

(T-5B) ANOVA - EHR Total					
Group	Sum of Squares	df	Mean Square	F	Sig.
Between- Group	3.826	2	1.913	5.042	007
Within- Group	160.888	424	.379		
Total	164.714	426			

The results of one way analysis of variance (ANOVA) presented in the table (T-5B) reveals that there is a significant difference of the work sector of the respondents at 5 % significance level on electronic health records system acceptance (F (2,424)=5.042, p<.05) in their field of medicine.

(T-5C) EHR Acceptance Total (ATT and BI)			
Work sector	N	Mean	Std. Deviation
Government	166	3.7675	.57051
Private	175	3.9463	.70635
Own Clinic	86	3.7326	.48952
Total	427	3.8337	.62181

The Table (T-5C) of Means shows that work sector category of private (M-3.95) is having more electronic health records system acceptance followed by government (M-3.77) and own clinic (M-3.73) respectively. Hence, it can be inferred that among the respondents of various work sectors there is a significant difference on the on the acceptance of electronic health records system in the field of medicine.

Results of Correlation: (T6): Results of Correlation showing the adoption (Perceived Usefulness and Ease of Use) and acceptances (Using and Accepting) of Electronic Health Records system in the field of medicine by medical doctors to enhance their profession

Correlation for Electronic Health Records system		Adoption Total (Perceived Usefulness and Ease of Use) (PU and EU)	Acceptance Total (Using and Accepting EHR) (ATT and BI)
EHR Adoption Total (Perceived Usefulness and Ease of Use) (PU and EU)	Pearson Correlation	1	.647[**]
	Sig. (2-tailed)		.000
	N	427	427
EHR Acceptance Total (Using and Accepting of EHR) (ATT and BI)	Pearson Correlation	.647[**]	1
	Sig. (2-tailed)	.000	
	N	427	427

**. Correlation is significant at the 0.01 level (2-tailed).

The results of correlation presented in the Table (T-6) show that there is a significant relationship among the respondents on the adoption (PE of Usefulness and Ease of Use) and acceptance (Using and Accepting) (ATT and BI) of electronic health records system, such as electronic health records system adoption (r=.647) and the acceptance= (.647).

DISCUSSION

Expeditious progress of information and communication technologies (ICTs) in healthcare management systems over the last several years opened the door of solutions to issues faced therein. Orlova A and Salyards K (2016) state that computer database managements are used by medical professionals to manage patients' information as well as maintain their health and treatment records, so as to retrieve relevant information when needed and also for updates (PEU- Perceived Usefulness). Generally, medical practice has tremendously upgraded with the technological interventions, with specific regard to the emergence of new and rapidly growing field of applications called the health (or medical) informatics. The results of the study also offer a positive prediction on the adoption and acceptance of electronic health records system with regard to gender and work sector of the respondents (PEU- Perceived Usefulness). Though there is significant difference in the

adoption and acceptance of ICT, a higher predisposition towards the acceptance of electronic health records system among the medical doctors could be noted.

For instance, respondents in the 25-35 age group commonly use electronic health records system and the acceptance level of the electronic health records system is higher among these respondents and this manifests that the usage of ICT in the medical field to be in a developing stage in India.

According to Sun Young Parka, S. Y. (2011) majority of the doctors use their desktop or laptops commonly to access the electronic health records system. It was found that, 87% of the younger doctors mostly use computers because of it is easy to adopt (EU-EU- Ease of Use). In yet another health management report (2004), it is indicated that the new trainee physicians are most comfortable in handling computer technology and electronic health records system, and they find it more user-friendly (EU- Ease of Use). They were seen to understand and adapt technology easier than their seniors.

In spite of such variations, with regard to difference in age, gender and work sectoral status, there seems to be acceptance amongst all the groups to the usage of electronic health records system. When it comes to gender, male respondents are dominant and accept electronic health records system more easily (EU- Ease of Use). This spotlights that women doctors should be encouraged to use the electronic health records system, in the future course.

Jaebeom Lee, Mi Jung Rho, (2013) in their study conclude that although male and female medical doctors can use electronic health records system, there is a gender difference in the number of hours they spend on electronic gadgets, applications and kinds of problems they face (EU- Ease of Use).

With respect to work sectoral status, the level of acceptance is higher among doctors working in private hospitals in using the electronic health records system effectively compared to those working in government hospitals and this has been attributed to the ICT infrastructure provided by the government (PEU- Perceived Usefulness). Researchers, Paul MM, Greene CM, Newton-Dame R, Thorpe (2015) opined that government health organisations require well-designed electronic health records systems for optimal use of the mounting supply of health-related data (PEU- Perceived Usefulness). Organizations depend on these systems to pervade managerial decision-making and improve functioning in areas like patient care, epidemiologic surveillance records, assessment of health outcomes, program and clinical administration, program

appraisal and performance measurement, public health planning, policy making and analysis (PEU- Perceived Usefulness).

Johanna Viitanena, Hannele Hypponenb et al., (2010) admit that today, more number of information and communication technology (ICT) systems are used by healthcare organisations to aid physicians and other healthcare professionals in their daily workspace involving patients. This enfolds a wide range of applications, including the extensively used electronic health records (EHR) and the computerized physician order entry (CPOE) systems (PEU- Perceived Usefulness). Also in this study, the results signify that there are positive effects on the adoption of electronic health records system (PEU- Perceived Usefulness).

The pragmatic evidences are adeptly backed by theoretical conceptions such as the Technological Acceptance Model on the adoption and acceptance of electronic health records system by medical doctors in the field of medicine (Using and Accepting of HER (ATT- BI)). The results of the study project a positive acceptance and adoption towards using electronic health records system by medical doctors in the field of medicine, and speculate a need for further growth and improvement with regard to adoption levels, especially in the government sector (Using and Accepting of HER (ATT-BI)). Also, further growth of adoption necessitates further implementation of government health policies.

CONCLUSION

India as a major IT (Information and Technology) hub, receives outsourced IT projects from all over the world. IT and its adoption has become the norm in the Indian banking and finance sectors. IT infrastructure services are utilised for smart telephony, text services, transportation by way of coordinating trains and aviation timetables, and signals based on GPRS location. Despite various levels of progress in many other areas, the usage in healthcare services, both in the outpatient and inpatient hospital settings is significantly limited as far as India is concerned. Comparatively the private sector has affordability, availability and accessibility to electronic medical records to a certain extent, but limited when compared to the bigger corporate hospital groups which have implemented mandatory EMR or EHR systems. Basic lack of infrastructure, such as, intranets, computers, laptops and internet connectivity contribute as common reasons for the set back. Rashmi Mabiyan (2020) reviews the latest report prepared by the Ministry of Electronics and Information Technology (MEITY) titled, 'Adoption of Electronic Health

Records: A Roadmap for India' highlighted that the government hospitals and dispensaries have very little ICT infrastructure with only some major public hospitals, such as the All India Institute of Medical Sciences (AIIMS) and the Postgraduate Institute of Medical Education and Research (PGIMER), have access to computers and the Internet connectivity. The results of the study offer a positive prediction on the adoption and acceptance of electronic health records system with regard to gender and work sector of the respondents.

Based on the TAM framework, with regard to gender, male respondents have been found to easily adopt technology, even though female respondents are willing to do so. Basic level training in the usage of gadgets and EHR software could improve the ease of usage and eradicate this difference. While, all respondents likely intend to adopt and use technology in their workplace to easily access medical records anytime and anywhere, the work sectoral status of doctors working in private hospitals enables higher level of acceptance in using electronic health records system effectively when compared to doctors in government hospitals with attribution to availability of ICT infrastructure in their workplace. The intention and attitude to use with significant relationship between adoption and acceptance of technology, positively influence the attitude to use and behavioural intention to use provided the needed infrastructure and training are made available.

Thereby, the results project a positive adoption of electronic health records system by medical doctors in the field of medicine. India has a mixed system of healthcare consisting of a large number of hospitals run by private sectors besides the Central and State Governments. In general, the level of ICT usage in the healthcare sector in the country has been lower in comparison to other countries. Any other discrepancies with relation to age, gender and work sector could be eradicated by the hospital managements, provided they have access and necessary training besides user-friendly applications or software, At the same time, both the Central and State Governments are working on several fronts to utilise the opportunities offered by ICT effectively, especially in the government hospitals, which when implemented successfully could prove beneficial in all fronts regardless of gender, age and work sector of the medical doctors.

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