

A Perception Study on e-Health and Its Application among Healthcare Professionals in a Tertiary care Hospital

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ABSTRACT

Background: E-Health promises to be a cost-effective and efficient way of providing healthcare at an affordable cost to patients who would otherwise be excluded or underserved. However, e-Health changes the nature of the healthcare professional-patient relationship, in informed consent requirements and in the apportionment of liability are implicated. Privacy concerns also arise and the position of health informatics professionals as well as of service providers is also affected. A further complicating factor is outsourcing.

Choice of solution: Developed a structural questionnaire that identify the utilization and usefulness status on electronic health (e-Health) for improving the healthcare delivery system.

Objectives:

1. To assess the utilization status of electronic health (e-health) in tertiary care hospital.
2. To measure the usefulness of e-health in delivering quality healthcare.
3. To find out the challenges cum barriers in implementing e-health services.

Implementation: Conducted a quality improvement survey at a tertiary care hospital by using questionnaire and studied the importance of e-Health among the healthcare professionals. The study included 100 healthcare professionals from tertiary care hospital.

Evaluation: Study revealed that 86% of the respondents are agreed to learn and to practice e-Health where as 14% of the respondents were not interested learn about e-Health system and found difficult to implement in the hospitals.

Keywords

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Introduction

The use of information and communication technologies in health and health care could improve healthcare quality in many ways. E-Health is the use of information and communication technology to reinforce health and health care. It refers to forms of prevention and education, diagnostics, therapy and care delivered through digital technology, independently of time and place. The nature and functions of e-Health services are expanding rapidly and have the potential of not only improving health, but also to reduce health care costs, enhance scientific understanding of health issues, increase equity of health care, and improve communication between health care providers and patients. In recent years, there has been considerable attention towards the development of information and communication technology (ICT) in health care delivery known as 'E-Health'. The term "E-Health" is almost a new concept and the e-Health projects mainly aim to improve service delivery to people, through different countries might have different approaches in using e-Health.

Eike-Henner W. Kluge says common perception and official pronouncements notwithstanding, what healthcare is delivered and how is not simply a function of health needs, financial resources and the number and training of available healthcare professionals. My study helps in finding the perception of e-Health knowledge and interest towards healthcare workers.

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Method

Research is the systematic process of collecting and analyzing information (data) in order to increase our understanding of the phenomenon about we are concerned or interested. Research can also be defined as scientific and systematic search for employees and organization on a specific topic. Research is an art of science investigation. In short, the search for knowledge through objective and systematic method of finding solution to a problem in research.

The research design of this project is Descriptive study, and analytical study with a quantitative and qualitative approach. Descriptive study is one which information is collected without changing the environment. It is used to obtain information concerning the current status of the 25 phenomena to describe what exists with respect to variables or conditions in a situation. It helps to seek management solutions to support technical and administrative process and to improve efficiency, productivity appropriateness and quality of performance. Analytic studies are then undertaken to test specific hypotheses. Samples of subjects are identified and information about exposure status and

outcome is collected. The essence of an analytical study is that groups of subjects are compared in order to estimate the magnitude of association between exposures and outcomes.

Data collection

Data was collected from 100 healthcare professionals from various department. Data collected from healthcare professionals were loaded in Microsoft excel and tools like percentage analysis, ANOVA, correlation, mean and standard deviation were used for further analysis. Ethical approval was obtained from the chairman IEC of Sri Ramachandra Institute of Higher Education Research (DU).

Measures

A study perception on e-Health was measured using questionnaire method. Questionnaire was prepared in English and Tamil. Pilot study was done to assess the quality of questionnaire. Questionnaire is used to evaluate the rate of interest towards the e-Health concept to the healthcare professionals and how much they are interested to upgrade themselves to the technology. The questionnaire focuses on the parameters like their knowledge and interest towards the e-Health.

The 19 questions are prepared in two formats i.e two point scale (1: Yes and 2: No) and four point scale (1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree and 5: Strongly agree). The overall score is usually calculated based on percentage of response. All responses were recorded and analyzed to find out the perception of the healthcare worker on e-Health, this helps the management to know their interest towards technology.

Results

Age of the respondents:

It was observed from the study that 48% of the respondents belong to the age group 22-30 years, 30% of the respondents belong to the age group of 31-40 years, 16% of the respondents belong to the age group of 41-50 years and 6% of the respondents belong to the age group of above 50 years.

Gender of the respondents:

It was understood from the study that 62% of the respondents are female and 38% of the respondents are male.

Work experience:

The study relived that 30% of the respondents had 2 to 4 years of work experience, 28% of the respondents had 6 years and above of work experience, 22% of the respondents had 4 to 6 years of work experience and 20% of the respondents had 0-2 years of work experience.

Positions of the respondents:

It was observed from the study that 36% of the respondents are staff nurse, 32% are technician and 22% are hospital administrators and 10% are doctors.

Experience had with e-Health systems:

About 48% of the respondents have rated regular, 32% have rated some and 20% have rated daily for experience had with e-Health systems.

Table 1 : Socio demographic characteristics of respondents (n= 100)

Variables	Frequency	Percentage %
Age		
20-30 yrs	26	48%
31-40 yrs	32	30%
41-50 yrs	29	16%
>50 yrs	13	6%
Gender		
Male	40	38%
Female	60	62%
Work Experience		
0-2 yrs	20	20%
2-4 yrs	29	30%
4-6 yrs	30	22%
>6 yrs	21	28%
Profession		
Staff nurse	30	36%
Technician	34	32%
Hospital administration	25	22%
Doctors	11	10%

E-Health is important for improving the quality and consistency of healthcare:

About 56% of the respondents have rated strongly agree, 36% have rated agree and 8% have rated neutral for e-Health is important for improving the quality and consistency of healthcare and It was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with the relation to eHealth is important to improve the quality and consistency in healthcare

E-Health is important for achieving efficiencies in healthcare:

About 52% of the respondents have rated strongly agree, 36% have rated agree and 12% have rated neutral for e-Health is important for achieving efficiencies in healthcare and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with the relation to eHealth is important for achieving efficiencies in healthcare

E-Health helps in creating new healthcare products and services:

About 56% of the respondents have rated strongly agree, 38% have rated agree and 6% have rated neutral for e-Health helps in creating new healthcare products and services and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to eHealth helps in creating new healthcare products and services

Measurable objectives of an e-Health system:

It was observed from the study that 34% of the respondents have rated easy to patient assess, 28% have rated cost saving, 20% have rated improvement of health outcome and 18% have rated quality control for measurable objectives of an e-Health system and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to measurable objectives of an e-Health system

E-Health strongly addressed within your organization:

About 42% of the respondents have rated strongly agree, 40% have rated agree, 14% have rated neutral and 4% have rated disagree for e-Health is strongly addressed within your organization and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to E-Health strongly addressed within your organization

Whether e-Health is used to conduct supervision in medical records department within the organization:

It is understood from the study that 44% of the respondents have rated strongly agree, 42% have rated agree, 12% have rated neutral and 2% have rated disagree. It was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether e-Health is used to conduct supervision in medical records department within the organization

Whether e-Health supervision follows healthcare standards and other guidelines framed by regulatory committee:

About 56% of the respondents have rated agree, 32% have rated strongly agree and 12% have rated neutral for e-Health supervision follows healthcare standards by regulatory committee and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether e-Health supervision follows healthcare standards and other guidelines framed by regulatory committee

Organization follows standards while implementing new medical systems:

About 40% of the respondents have rated strongly agree, 32% have rated agree and 28% have rated neutral for

organization follows standards while implementing new medical systems and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to organization follows standards while implementing new medical systems

Software is updated frequently as per the guidelines:

About 42% of the respondents have rated agree, 34% have rated strongly agree and 24% have rated neutral for software is updated frequently as per the guidelines. And It was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether software is updated frequently as per the guidelines

Qualified personnel with medical knowledge and experience is involved in supervising the e-Health system:

It is observed from the study that 68% of the respondents are rated YES and 32% of the respondents are rated NO for qualified personnel with medical knowledge and experience is involved in supervising the e-Health system and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to qualified personnel with medical knowledge and experience is involved in supervising the e-Health system

E-Health supervision is monitored regularly:

About 58% of the respondents are rated YES and 42% of the respondents are rated NO for e-Health supervision is monitored regularly and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether E health supervision is monitored regularly

E-Health system implementation is beneficial:

About 62% of the respondents are rated YES and 38% of the respondents are rated NO for e-Health system implementation is beneficial and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether E health system implementation is beneficial

E-Health system is up-to-date:

About 52% of the respondents are rated YES and 48% of the respondents are rated NO for e-Health system is up-to-date and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether E health system is up to date

Interested to learn more about e-Health:

About 82% of the respondents are rated YES and 18% of the respondents are rated NO for interested to learn more about e-Health and it was found that the response received from

healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to whether interested to learn more about e Health

Provide technology (e-Health) related training programs to the staff:

About 68% of the respondents are rated YES and 32% of the respondents are rated NO for provide technology (e-Health) related training programs to the staff and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to provide technology (e-Health) related training programs to the staff

Previous experience using e-Health system:

About 42% of the respondents are rated YES and 58% of the respondents are rated NO for previous experience using e-Health system and it was found that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to previous experience using eHealth system.

Learn about e-Health system in future:

It is observed from the study that 86% of the respondents are rated YES and 14% of the respondents are rated NO for learn about e-Health system in future and it was observed that the response received from healthcare professionals were found to be statistically significant ($p < 0.05$) with relation to learning about eHealth system in future.

Table 2 : Respondents perception of e-Health

Variables	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree	Chi-square	P-Value
	Response (n = 100)						
Improving the quality and consistency of healthcare	56%	36%	8%	-	-	15.67	0.45
Achieving efficiencies in healthcare	52%	36%	12%			50.48	.162
Creating new healthcare products and services	56%	38%	6%			60.54	.118
E-Health strongly addressed within your organization	42%	40%	14%	4%		58.21	.342
e-Health is used to conduct supervision in medical records department	44%	42%	12%	2%		2.03	.002
e-Health supervision follows healthcare standards and other guidelines framed by regulatory committee	56%	32%	12%			48.34	.416
Organization follows standards while implementing new medical systems	40%	32%	28%			60.42	.081
Software is updated frequently as per the guidelines	42%	34%	24%			53.64	.176

Table 3 : Respondents perception of e-Health

Variables	Yes	No	Chi-square	P-value
	Response (n = 100)			
Qualified personnel with medical knowledge and experience	68%	32%	16.84	.125
E-Health supervision is monitored regularly	58%	42%	35.42	.273
E-Health system implementation is beneficial	62%	38%	14.76	.382
E-Health system is up-to-date	52%	48%	60.23	.004
Interested to learn more about e-Health	82%	18%	71.29	.009
Technology (e-Health) related training programs to the staff	68%	32%	31.18	.008
Previous experience using e-Health system	42%	58%	80.16	.002
Learn about e-Health system in future	86%	14%	29.90	.029

Discussions:

As technology is growing day by day the application of information technology in healthcare system is widely implemented and the use of EHealth in healthcare is used continuously and perception of healthcare professionals on eHealth was assessed and various parameters are influenced by EHealth includes improving the quality and consistency of care, Achieving efficiencies in healthcare, Creating new healthcare products and services, Interested to learn more about e-Health, Technology (e-Health) related training programs to the staff, e-Health supervision follows healthcare standards and other guidelines framed by regulatory committee, Organization follows standards while implementing new medical systems and employees previous experience using e-Health system. Knowledge level of healthcare professionals on eHealth is assessed and adequate training will be provided to enhance the use of eHealth and quality of care.

It was interesting to find out that 56 % respondents were aware that E-Health is important for improving the quality and consistency of healthcare and it was observed that many healthcare professionals were not aware of the eHealth and training need to be provided for effective utilization of eHealth and 56% of healthcare professional agreed that they create new healthcare products and services, 82% of healthcare professional interested to learn more about e-Health, 86% of healthcare professional learn about e-Health system in future. 68% of healthcare professionals agreed that

they need technology (e-Health) related training programs to the staff etc.

Conclusion:

Application of eHealth plays a important role in providing information to the healthcare professional for providing a quality care to the patients. Health information is important for the healthcare professionals for providing the continuous healthcare services. And this study reveals that the perception level of healthcare professionals was more with respect to providing healthcare products and services, research and education, training related to eHealth. The outcomes of the study includes providing awareness and training sessions to improve the implementation of eHealth and this will improve the perception level of eHealth among healthcare professionals and increase the utilization of eHealth.

Ethical clearance:

Ethical approval

An approval was obtained from the chairman IEC of Sri Ramachandra Institute of Higher Education and Research (DU).

Source of funding: Self.

Conflict of interest: E-Health and its application in healthcare professionals.

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