



CODEN [USA]: IAJPBB

ISSN : 2349-7750

## INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

<http://doi.org/10.5281/zenodo.4782479>
Online at: <http://www.iajps.com>

Research Article

### AN ANALYSIS OF CHALLENGES OF ADOPTION OF e-HEALTH IN DISTRICT RAHIM YAR KHAN

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Article Received: April 2021

Accepted: April 2021

Published: May 2021

**Abstract:**

*e-Health is skillful use of information and communication technologies across the whole range of functions that affect health. The beneficial impact of e-Health on improvement of health care in terms of operational efficiency and quality of patient care has previously been tested all over the world as well as in south east Asia. The literature defines Health care providers (e.g. medical doctors and professionals) as a key driving force in achieving e-Health initiatives. The attitude of this driving force in terms of acceptance, enhancing knowledge & skills and finally actual use would be pillars of e-Health building. To determine the impact of attitudinal factors on relationship between the level of Knowledge & skills and actual use of ICT's among doctors in public and private hospitals of District Rahim Yar Khan. Cross-sectional survey design was used. Fifty medical doctors from government hospital and private hospital in District Rahim Yar Khan participated in the study. A pretested self-administered questionnaire was used to collect the required data. Data was analyzed using SPSS software Version 16. No significant difference in ICT's use or in attributes of e-Health was seen in male and female doctors. However, it was deducted that doctors working in private setups are more likely to adopt e-Health in their routine practice. The main factor in this context is lack of knowledge & skills despite availability of ICT's in government hospitals. Complexity and limitation of time were other identified factors. There is need to shift from resource based to knowledge-based strategy to reap the real benefits of e-Health*

**Keywords** ICT's acceptance, e-Health, health care provider

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Please cite this article in press Irshad Ali Magsi et al., *An Analysis Of Challenges Of Adoption Of E-Health In District Rahim Yar Khan.*, *Indo Am. J. P. Sci*, 2021; 08(05).

**BACKGROUND OF THE STUDY:**

First appearance of word “computer” in Medline abstract was almost 50 years ago. e-Health is much broader than the computer and internet. e-Health has been defined as any electronic exchange of health-related data collected or analyzed through electronic connectivity to improve the efficiency and effectiveness of healthcare delivery<sup>1</sup>. It encompasses application of information and communication technologies across the whole range of functions that affect health. The aim is to improve the efficiency and effectiveness of healthcare management and delivery by using Information and Communication Technologies (ICTs)<sup>2</sup>.

e-Health is the single-most important revolution in healthcare since the advent of modern medicine and the concept of quality healthcare doesn't exist without the correct management of information. Consumers, professionals, and regional networks are the main three drivers of e-Health. Growing concern regarding medical errors, need for patient-centric healthcare systems, and rationalization of cost benefit ratios are the main factors that favor adoption of e-Health. Information communication technologies (ICTs), such as mobile phones and the internet are rapidly proliferating in the developing world<sup>3</sup> and people are increasingly seeing ICTs as powerful tools for improving efficiency in the health sector. Mobile phones have been used to improve adherence to treatment guidelines<sup>4</sup>. e-Health technologies are of great help in managing and transmitting healthcare data to all stakeholders. Effective use of this modality results in improved healthcare outcomes and this phenomenon has been successfully tested in developed countries. Decreased levels of morbidity and mortality are the important performance indicators in healthcare sector and successful implementation of e-Health positively affects these and hence business profitability<sup>5</sup>. Moreover, application of information and communication technologies (ICT) across health-related functions improves operational efficiency, quality of care, and results in positive return on investments<sup>6</sup>.

It is not possible to achieve the goal of worldwide healthcare management and delivery without e-Health initiative.<sup>7,8</sup> and is essentially required to optimize health interventions outcomes by increasing healthcare professionals' access to information<sup>9</sup>. However, the skills to use information and communication technology tools and positive attitudes of healthcare professionals towards e-health are the key factors for successful and effective utilization of e-Health tools. Although potential of e-Health to

improve the efficiency and effectiveness of healthcare management and delivery is enormous but acceptance of e-Health among healthcare professionals remains the single most important factor for all practical purposes.

The “**Diffusion of Innovation Theory**” proposes that social grouping positively influences diffusion, and individual's response to new ideas. A professor of communication studies, Everett Rogers, popularized the theory in his book *Diffusion of Innovations* which was first published in 1962<sup>10</sup>. He focused on the five steps for any new idea or innovation to be successful. According to this theory, any innovation is more likely to be adopted if has:

1. **Knowledge**; being aware of the innovation and being able to gain some abstract idea of how it functions.
2. **Persuasion**; forming favorable or unfavorable attitudes towards the innovation.
3. **Decision**; engaging in activities that lead to a choice to adopt or reject the innovation.
4. **Implementation**; deliberate action to put the innovation into use.
5. **Evaluation**; evaluating the results of the decision made toward the innovation.

For successful e-Health implementation, it is very important to understand the barriers in our own environment and promote acceptance by studying the relationships between various e-health attributes. The same model is applied in our study by incorporating e-Health attributes as articulated by Rogers<sup>11</sup>. Adoption of an innovation is a complex process<sup>12</sup> and needs to critically evaluate following five characteristics in e-Health perspective<sup>13</sup>

1. **Relative advantage**; Can e-health improve healthcare delivery?
2. **Compatibility**; Does e-health technology fits well with the needs and current practices of healthcare professionals?
3. **Complexity**; Is e-health technology easy to use and understand?
4. **Observability**; Can individual healthcare professionals see the benefits of using e-health technology in professional practice at the workplace?

**Objective of the Study**

To determine the impact of attitudinal factors on relationship between the level of Knowledge & skills and actual use of ICT's among doctors in public and private hospitals of District Rahim Yar Khan.

**METHODS AND PROCEDURES:**

It was a cross sectional survey study. Cross sectional survey type research is used to define features of a population or phenomenon being studied. This research is used to define and comprehend the current situation. This study explored the factors involved in adoption of e-health in hospitals in District Rahim Yar Khan. This cross-sectional study depends upon numerical data. The questionnaire was designed to acquire related data about the study. Questionnaire was used to get quantitative data about the research questions. Short open-ended interviews also planned. The sampling approach is a process of selecting a portion of the population to represent the entire population. Sample comprises of quite small number of subject/ individuals which obtained from population to exemplify it. Due to shortage of time and financial resources it was not feasible for researcher to gather data from all the doctors. So the researcher applied two sampling techniques to justify the sample of the study. Both simple random sampling and convenient sampling techniques were used to select the sample of this study. Research tools are used to collect the relevant data which help the researcher in the study. Validity and reliability of the research tool is of key importance and necessary for the accuracy of results and research study. The researcher used document analysis and questionnaire to collect the data. In the light of related literature review a Likert type questionnaire for doctors was developed by the researcher. Before field administration of the instruments, it was pilot tested and improved. Likert

type questionnaire administered among doctors of two Govt. hospitals & two private hospitals of district Rahim Yar Khan. Validity and reliability of research tool is essential to acquire effective, specific and precise results. Accuracy of results depends upon validity and reliability of research tool. Validity of research instrument was certified through specialist's opinion. Sample was prepared and shown to experts for validity. Reliability of research tool was checked and improved through pilot testing on ten respondents. Cronbach Alpha was applied to check the reliability of the items and scale. Results showed that the research tool have good reliability i.e., 0.887. Researchers collected most of the data personally with the help of team members from respective hospitals. It was found difficult to having an access to respondents for the collection of data. Respondents returned the filled questionnaire to researcher. Rate of return of questionnaire remained 100% from respondents. Collected data was kept confidential by the researcher. Data were analyzed by using descriptive statistics i.e percentages, mean and standard deviation. To compare the groups on the basis of organization and gender t-test was applied. Results were shown in the tables.

**RESULTS/FINDINGS:**

This part deals with the analysis of data and its interpretation. Part one is about the demographic data, part two is about the factors involved in adoption of e-health in Pakistan.

**Part I Demographic Data****Table 1****Organizational wise Categories of respondents**

Sr. #	Category	N	Percentage
1	Govt. Hospital	04	50
2	Private Hospitals	04	50

Table 1 shows that there were about 50% doctors from Govt. hospitals & 50% doctors from private hospitals who were directly related to the problem of this study. They participated in this study and gave their opinion about the problem of the research.

**Table 2****Gender wise Categories of respondents**

Sr. #	Category	N	Percentage
1	Male	37	74
2	Female	13	26

**Part- II****Analysis of Data About Factors Involved In Adoption Of E-Health In Pakistan:****Table 3****Level of ICT USE**

Sr No.	Category	N	Mean	SD	t-value	df	p-value
1	Govt. Hospital	4	2.28	1.054	5.347	6	.000
2	Private Hospital	4	3.72	1.235			
3	Male	37	2.73	1.023	.968	48	.405
4	Female	13	2.60	1.182			

Table 3 shows that doctors from Govt. hospitals disagreed with statement ( $M = 2.28$ ,  $SD = 1.054$ ). Doctors from private hospitals agreed ( $M = 3.72$ ,  $SD = 1.235$ ) with the statement. Analysis of significance of difference shows that there was significant difference between the mean score of doctors in Govt. hospitals and private hospitals  $t$ -value (48) = 5.437,  $p$  value = .000. It shows that there is significant difference because  $p$ -value is less than .05. Keeping in view the gender wise analysis it indicated that there is no significant difference because  $p$ -value (.405) is greater than .05.

**Table 4****Level of ICT SKILLS**

Sr No.	Category	N	Mean	SD	t-value	df	p-value
1	Govt. Hospital	4	2.87	1.150	4.987	6	.000
2	Private Hospital	4	3.88	1.111			
3	Male	37	2.65	1.014	.955	48	.366
4	Female	13	2.58	1.036			

Table 4 shows that doctors from Govt. hospitals disagreed with statement ( $M = 2.87$ ,  $SD = 1.150$ ). Doctors from private hospitals agreed ( $M = 3.88$ ,  $SD = 1.111$ ) with the statement. Analysis of significance of difference shows that there was significant difference between the mean score of doctors in Govt. hospitals and private hospitals  $t$ -value (48) = 4.987,  $p$  value = .000. It shows that there is significant difference because  $p$ -value is less than .05. Keeping in view the gender wise analysis is indicated that there is no significant difference because  $p$ -value (.366) is greater than .05.

**Table 5****Relative Advantage of ICT**

Sr No.	Category	N	Mean	SD	t-value	df	p-value
1	Govt. Hospital	4	3.20	1.154	3.257	6	.002
2	Private Hospital	4	4.12	1.222			
3	Male	37	2.87	1.001	.940	48	.445
4	Female	13	2.71	1.236			

Table 5 shows that doctors from Govt. hospitals disagreed with statement ( $M = 3.20$ ,  $SD = 1.154$ ). Doctors from private hospitals agreed ( $M = 4.12$ ,  $SD = 1.222$ ) with the statement. Analysis of significance of difference shows that there was significant difference between the mean score of doctors in Govt. hospitals and private hospitals  $t$ -value (48) = 3.257,  $p$  value = .002. It shows that there is significant difference because  $p$ -value is less than .05. Keeping in view the gender wise analysis is indicated that there is no significant difference because  $p$ -value (.445) is greater than .05.

**Table 6**  
**Compatibility**

Sr No.	Category	N	Mean	SD	t-value	df	p-value
1	Govt. Hospital	4	2.23	1.198	4.987	6	.000
2	Private Hospital	4	3.87	1.345			
3	Male	37	2.99	1.065	.9012	48	.358
4	Female	13	2.78	1.258			

Table 6 shows that doctors from Govt. hospitals disagreed with statement ( $M = 2.23$ ,  $SD = 1.198$ ). Doctors from private hospitals agreed ( $M = 3.87$ ,  $SD = 1.345$ ) with the statement. Analysis of significance of difference shows that there was significant difference between the mean score of doctors in Govt. hospitals and private hospitals  $t$ -value ( $48$ ) = 4.987,  $p$  value = .000. It shows that there is significant difference because  $p$ -value is less than .05. Keeping in view the gender wise analysis is indicated that there is no significant difference because  $p$ -value (.358) is greater than .05.

**Table 7**  
**Complexity**

Sr No.	Category	N	Mean	SD	t-value	df	p-value
1	Govt. Hospital	4	2.21	1.256	2.012	6	.000
2	Private Hospital	4	3.77	1.301			
3	Male	37	2.89	1.158	.850	48	.342
4	Female	13	2.65	1.174			

Table 7 shows that doctors from Govt. hospitals disagreed with statement ( $M = 2.21$ ,  $SD = 1.256$ ). Doctors from private hospitals agreed ( $M = 3.77$ ,  $SD = 1.301$ ) with the statement. Analysis of significance of difference shows that there was significant difference between the mean score of doctors in Govt. hospitals and private hospitals  $t$ -value ( $48$ ) = 2.012,  $p$  value = .000. It shows that there is significant difference because  $p$ -value is less than .05. Keeping in view the gender wise analysis is indicated that there is no significant difference because  $p$ -value (.342) is greater than .05.

**Table 8**  
**Observability**

Sr No.	Category	N	Mean	SD	t-value	df	p-value
1	Govt. Hospital	4	2.05	1.032	4.985	6	.000
2	Private Hospital	4	3.92	1.125			
3	Male	37	2.35	1.542	.955	48	.345
4	Female	13	2.25	1.236			

Table 8 shows that doctors from Govt. hospitals disagreed with statement ( $M = 2.05$ ,  $SD = 1.032$ ). Doctors from private hospitals agreed ( $M = 3.92$ ,  $SD = 1.125$ ) with the statement. Analysis of significance of difference shows that there was significant difference between the mean score of doctors in Govt. hospitals and private hospitals  $t$ -value ( $48$ ) = 4.985,  $p$  value = .000. It shows that there is significant difference because  $p$ -value is less than .05. Keeping in view the gender wise analysis is indicated that there is no significant difference because  $p$ -value (.345) is greater than .05.

**CONCLUSIONS:**

No significant difference in ICT's use or in attributes of e-Health was seen in male and female doctors.

However, it was deduced that doctors working in private setups are more likely to adopt e-Health in

the routine practice. The main factor in this context is lack of knowledge & skills despite availability of ICT's in government hospitals. Complexity and limitation of time were other identified factors.

#### REFERENCES:

1. (World Health Organization 2014)
2. Coleman A. Migration from Resource Based To Knowledge Based Strategy for e-Health Implementation in Developing Countries. 2014.
3. Lucas H. Information and communications technology for future health systems in developing countries. *SocSci Med.* 2008;66(10):2122–32.
4. Lee AC, Lawn JE, Cousens S, Kumar V, Osrin D, Bhutta ZA, et al. Linking families and facilities for care at birth: what works to avert intrapartum-related deaths? *Int Gynecol Obstet.* 2009;107:S65–88.
5. World Health Organization (2013-03-21). Global tuberculosis control: surveillance, planning, financing: WHO report 2008.
6. Grieger DL, Cohen SH, Krusch DA. A pilot study to document the return on investment for implementing an ambulatory electronic health record at an academic medical center. *J Am Coll Surg.* 2007 Jul;205(1):89–96. doi: 10.1016/j.jamcollsurg.2007.02.074.
7. Eley R, Fallon T, Soar J, Buikstra E, Hegney D. Barriers to use of information and computer technology by Australia's nurses: a national survey. *J ClinNurs.* 2009;18(8):1151
8. Ahmed T, Bloom G, Iqbal M, Lucas H, Rasheed S, Waldman L, et al. E-health and M-health in Bangladesh: Opportunities and Challenges 2014.
9. Kwankam SY. What e-Health can offer. *Bull World Health Organ.* 2004;82(10):800–2.
10. Everett M. Rogers, *Diffusion of Innovations*, Fifth Edition 2003, Free Press, New York, p221.
11. Saleem JJ, Patterson ES, Militello L, Render ML, Orshansky G, Asch SM. Exploring barriers and facilitators to the use of computerized clinical reminders. *J Am Med Inform Assoc.* 2005;12(4):438–47. doi: 10.1197/jamia.M1777.
12. Everett M. Rogers, *Diffusion of Innovations*, Fifth Edition 2003, Free Press, New York, p91.
13. Spil TAM, Schuring RW. *E-health systems diffusion and use: the innovation the user and the use IT model.* Hershey: Idea Group Publishing; 2006.