

ehealth- Awareness and perspective of patients regarding ehealth applications

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Abstract

eHealth application is seen as a effective medium of reaching patients from all walks of life and treating them. However the adoption of ehealth in the daily lives of patients seems to be limited. This study tries to explore the awareness and perspective of patients regarding the various ehealth applications along with the barriers for its adoption. A total of 252 patients filled out their response. Lack of awareness about ehealth applications along with low technical adaptability, privacy and security reasons were cited for the low adoption of ehealth applications. Although the acceptance of ehealth was mainly for gaining health related information, positive response was noted in fitness, diet and wellness. The ehealth applications can be implemented with increasing the awareness, ensuring privacy, security and ease of usability can be ensured.

Keywords: eHealth, mhealth, eprescription, patient, health devices, health wearables, health applications, online consultation, website, apps

There was a time in India, when people used to live 100 years. Our ancient Indian system actually divided the human life cycle in four stages or 'ashramas'. The four ashramas were: Brahmacharya (student), Grihastha (householder), Vanaprastha (retired) and Sannyasa (renunciate). Each ashrama was approximately of 25 years and we used to sustain our health with our natural resources. And then came the modern times. Health became a commodity and that

too a very expensive commodity. The 200 years of slavery rendered India as a developing country and a poor country. In a poor country with poor population, health became a luxury and the health system in low- and middle-income countries became a challenge with regards to providing quality healthcare which is affordable and accessible. Modern times, apart from international status of poor, backward, developing country status, actually gave us the information boom. The benefits of information have been very beautifully explained in the hypothesis of perfect capital market, where one assumption is that availability of information at zero cost and time lag. This can actually give us a rational investor who is able to make rational decisions without any personal prejudice and the decisions would be logical as well. Same logic can be applied for all the other related or unrelated fields. Availability of information can overcome the multiple challenges and eliminate the geographical and financial barriers that has resulted in mounting interest in the potential of e-health and m-health solutions in low- and middle-income countries (Lewis, 2012). Technology is used extensively to provide and deliver services world-wide and the scenario is completely changed in sector like manufacturing, retail, hospitality, aviation etc. E-commerce changed the methodology of business transaction throughout the whole world, and India being a rapid adaptor of technology and with the growing use of internet, has taken to e-commerce (Panigrahi, 2016). Although there is widespread agreement about the importance and potential benefits of e-health, realization of these benefits has been slower than anticipated (Wacher, 2016). The health system in India is no different, with the second largest population in the world with two thirds living in rural areas. Non-existent three tier referral system, inaccessibility of secondary/tertiary government health service, necessitates an urgent need of enabling three tier referral systems with information communication technology applications (NUHM 2013; Car 2003).

e-Health (the application of information, computer or communication technology to some aspects of health or health care) is viewed as essential for solving problems facing healthcare systems of increasing demand, due to an ageing population and improved treatments, and limited resources (Ross, 2016). Some of the common application domains under e-health is tele-consultation, patient-provider communication, electronic health record, patient education, vital events tracking, medicine request etc. The rapid acceptance of mobile technology with falling market price of the product, increasing network coverage are positive drivers in enabling rising opportunity in terms of healthcare delivery (Piette, 2012).

The program Digital India which is a flagship program of the Government of India was launched on 2nd July, 2015 with the goal of transforming India into a digitally empowered society and knowledge economy (Midha, 2016). This program will aim to boost various sector like e-governance, justice, farmers, security, finance, education etc, and most importantly health. However, one of the major barriers in the Digital India is the inadequate knowledge of beneficiaries (Midha, 2016). Assam has been covered under NRHM and NHM, however, the quality of care and manpower availability of which still remains a cause of concern. This paper tries to explore the knowledge and usability of e-health application in Guwahati city of Assam.

Hannemann et al. (2017) in the study *Ready for ehealth? Health Professionals Acceptance and Adoption of ehealth interventions in Inpatient Routine Care*, examined acceptance of eHealth interventions and online aftercare in a multi professional sample of health professionals across facilities of inpatient rehabilitation. The study stated that the acceptance of ehealth intervention in clinical context is rather low in healthcare professionals. The study also indicated some of the predictor of ehealth intervention to be social norms, performance expectancy, expected attitude of colleagues and patients and lack of ehealth education of healthcare professionals.

Ross et al. (2016) in the article *Factors that influence the implementation of e-health: a systematic review of systematic reviews (an update)*, states the multi-level complexity of e-health implementation. Infrastructural support, inadequate knowledge regarding benefits, computer skills were listed as some of the barriers towards acceptance and implementation of ehealth in this review article.

Chauhan and Jaisawal (2017) in the research article *A meta-analysis of e-health applications acceptance: Moderating impact of user types and e-health application types* stated the increasing trend towards understanding e-health applications acceptance and demonstrated that the effect size of causal relationships between TAM constructs majorly depends on the user type, but not on e-health application type.

Lewis et al. (2012) in the study *E-health in low and middle-income countries: findings from the Centre for Health Market Innovations* stated the importance of various technological intervention in health sector. The integration of technology and health has positive outcome like improvement in the adherence to treatment, improvement in quality of care, improvement in efficiency in terms of time saved. The study acknowledges the importance of ehealth in bringing about positive result.

Ahamad et al. (2017) in the study *Scope of mobile health in Indian health care System—the way forward*, explores the scope of mhealth intervention in India and globally.

Labrique et al. (2013) in the research article Interventions such as tele-consultation, video consultation over 3G, appointment scheduling, triaging and SMS prescription services are among the widely prevalent spectra of healthcare service provision.

The objective for the study were: to assess the awareness and perspective regarding e health application of patients visiting private hospital, and to assess the barriers on the usage of e-health applications among the patients visiting private hospitals.

The study was conducted using structured questionnaire which included multiple choice questions, bifurcated questions and questions using likert scale on a five-point scale. The barriers were assessed using factor analysis and open ended questions. The questionnaires were pre tested in a pilot survey and the errors were found out and corrections were made. The final version of

the questionnaire considered details of different applications of e-health such as mhealth, telemedicine, electronic health records, health devices, telemedicine and e-pharmacy. The sample size was 252 which consist of patients visiting the Out-patient Department of a private hospital in Guwahati city for consultation. The patient footfall is approximately 70 patients per day in the OPD, the data was collected for 12 days and 30% of the total population was taken as the sample for the study which is 252 respondents. Only those patients were selected who owned a smart phone and willing to participate in the study. Convenient judgmental sampling was used for selecting the sample for data collection and it was done during the working hours of OPD.

The data collected suggest that 44.2% of the sample were aware about the term e health. The various ehealth applications and the % of patients who were aware about it is shown in Fig1. 76% percent of the samples were aware about government initiative in promoting ehealth. The percentage of sample using health care application in mobile phones was less (34%). The main purpose for which the patients used any type of ehealth application was majorly for accessing health related information (81.8%), scheduling appointment (13.6%) and online consultation (4.5%). Among the patients using mobile applications for health related matters, more than half of the patients used more than one application (55.4%), compared to patients using more than five applications (28.23%) and only one application (16.47%).

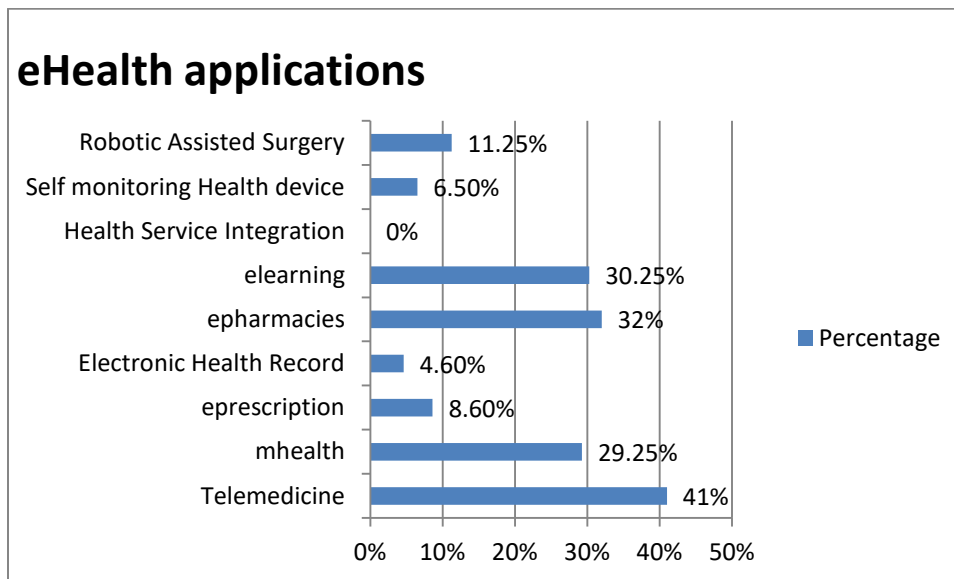


Fig1: The figure shows the % of sample who are aware about various ehealth application.

The study also suggested that majority of the respondents (68.08 %) preferred website and used it mainly for availing health related information (74.69%) rather than consultation or fixing appointment or any other. The health related information seeked by the patients through website and apps were mainly regarding about fitness, exercise and physical activity (67.2%), wellness (57.97%) and diet and nutrition (56.38%). The study also highlighted that respondents do not

prefer online consultation, however they felt sharing of reports with the doctor will be useful and if possible they would use such platform. The study findings also showed that national electronic health record system can be very useful but because of privacy and security reason they would prefer to share only partial health records. The respondents showed positive attitude towards health devices and wearables and the reasons for using it were majorly fitness and medicine reminder. The respondents showed negative attitude towards buying medicine through online medium and preferred conventional way of buying.

The study findings suggested that there is lack of awareness about ehealth among the respondents. The respondents are aware about government initiatives but majority of unaware about the private players in ehealth. It also revealed that most of the respondents are just visitors and not conscious decision makers in the application of ehealth. Majority of the respondents searched for fitness, wellness and diet, but not online consultation or fixing appointment. The study further shows the perspective of the respondents towards ehealth is positive only for health related information and negative towards sharing personal health records as privacy and security concern were high. The barriers shown in the study towards the usage of ehealth application were majorly lack of awareness, security and privacy, technical knowledge gap, and preference towards conventional way of availing treatment.

The study concludes that there is a greater need for awareness of e health applications. ehealth can be instrumental in improving the accessibility of healthcare intervention as well as putting the health of people in their own hands by self management. Education regarding overcoming the technical problem and a sense of trust and reliability for the ehealth applications can prove to be a major drive for improving the penetration of technology in healthcare delivery. The internet hospital concept in China is an innovative approach in providing accessible out-patient service via internet technology (Xie, et al., 2017), likewise ehealth applications can improve the penetration of health service making it accessible for population where distance is a critical factor.

Reference:

1. Currie, W.L., Seddon, J.J.M. (2014). A cross-national analysis of eHealth in the European Union: some policy and research directions. *Information & Management*, 51(6), 783-797. Doi: <https://doi.org/10.1016/j.im.2014.04.004>
2. Lewis, T., Synowiec, C., Lagomarsino, G., Schweitzer, J. (2012). E-health in low- and middle-income countries: findings from the Center for Health Market Innovations. *Bull World Health Organ*, 90(5), 332–340. Doi: :10.2471/BLT.11.099820
3. van Gemert-Pijnen, J., Wynchank, S., Covvey, H.D., Ossebaard, H.C. (2012). Improving the credibility of electronic health technologies. *Bull World Health Organ*. 90(5):323-323A. doi: 10.2471/BLT.11.09980

4. Ahamed, F., Palepu, S., Dubey, M., Nongkynrih, B. (2017). Scope of mobile health in Indian health care system-the way forward. *International Journal of Community Medicine and Public Health*, 4(4), 875-881. doi: <http://dx.doi.org/10.18203/2394-6040.ijcmph20171300>
5. Wachter, R.M., (2016). Making IT Work: Harnessing the power of health information technology to improve care in England. *Report of the National Advisory Group on Health Information Technology in England*. Website: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/550866/
6. National Urban Health Mission. Framework for Implementation. (2013). Ministry of Health and Family Welfare. Website: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=295&lid=158>
7. Car J, Sheikh A. (2003). Telephone consultations. *BMJ*. 326(7396), 966–969. Doi: 10.1136/bmj.326.7396.966
8. Piette J.D., Lun K.C., Moura, L.A., Fraser, H.S.F., Mechael, P.N., Powell, J., Khoja, S.R. (2012). Impacts of e-health on the outcomes of care in low- and middle-income countries: where do we go from here? *Bull World Health Organ*, 90, 365–372. Doi: 10.2471/BLT.11.099069
9. Midha, R. (2016). Digital India: Barriers & Remedies. *International Journal of Innovative Research and Engineering*, 2(8), 414-418.
10. Panigrahi, A., Upadhyaya, R., Raichurkar, P.P. (2016). E-commerce services in India: Prospects and Problems. *International Journal on Textile Engineering and Processes*, 2(1). ISSN: 2395-3578
11. Labrique AB, Vasudevan L, Kochi E, Fabricant R, Mehl G. mHealth innovations as health system strengthening tools: 12 common applications and a visual framework. *Glob Health Sci Pract*. 2013;1:160–71
12. Xie,X., et al. (2017). Internet Hospitals in China: Cross-Sectional Survey. *Journal Of Medical Internet Research*, 19 (7), e239. Doi: 10.2196/jmir.7854
13. Hannemann, S., Beutel, M.E., Zwerenz, R. (2014). Ready for eHealth? Health Professionals' Acceptance and Adoption of eHealth Interventions in Inpatient Routine Care. *Journal of Health Communication*, 22(3), 274-284. doi: 10.1080/10810730.2017.1284286
14. Ross, J., Stevenson, F., Lau, R., Murray, E. (2016). Factors that influence the implementation of e health: a systematic review of systematic reviews (an update). *Implementation Science*, 11(146). doi: 10.1186/s13012-016-0510-7
15. Chauhan, S., Jaiswal, M. (2017). A Meta-analysis of e-health applications acceptance: Moderating impact of user types and e-health application types. *Journal of Enterprise Information Management*, 30(2). doi: <http://dx.doi.org/10.1108/JEIM-08-2015-0078>