



The role of M-Health in promoting health awareness

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Abstract

The current use and development of Mobile Health (m-Health) applications is on the rise in the developing world. m-Health applications are being used in the developing world to improve health education and awareness. This paper provides an overview that how the m-health applications have been developed, which tends to magnifies that how the use of m-health is promoting the health awareness in common people lives and in addition with that how the medical facilities are enriching in the developing countries like India. With the same it also focuses the awareness among the people for their health. To conduct the study the descriptive research design is used while purposive sampling technique is used to collect the data from the respondents of the sample area of Vijay Nagar and sector 62 Noida for the role of mobile health in promoting health awareness.

Keywords- M-health (mobile health), e-health, health awareness, ICT, promotion of m- health.

Introduction

India is the second largest populated country in the world with two thirds living in rural areas. Demographic and environmental transition in the country is augmenting the already existing high burden of communicable, non communicable and emerging infectious diseases.¹ through years; India has made a large stride in improving overall health scenario. Impediments as large geographical size, high population density, lack of good quality transport facilities, inadequate nutrition, illiteracy and poverty have hindered in achieving good quality health care. Statistics suggest differences in urban-rural health condition in terms of infant mortality rate and crude death rate, a harsh reality even today.² Significant disease burden, limited human resources, high absenteeism of health care providers at government facilities, inaccessibility to quality health care by rural dwellers augments the existing hardships in health care delivery in the country. From 2010 to 2016 the global telemedicine market is expected to grow up to nearly 27.3 billion dollars. A key factor that contributes to this market investment is the increased remote monitoring of patients.³

What is M-Health?

m-Health includes the use of telecommunication and multimedia technologies integrated with mobile and wireless healthcare delivery system. The WHO's Global Observatory for e-Health defined m-Health as "medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants, and other wireless devices".⁴ m-Health is in its early stages of development. However, it has already started to transform healthcare delivery due to success of m-Health applications and programs that have been implemented in the developing world. Mobile devices which can be used in m-Health

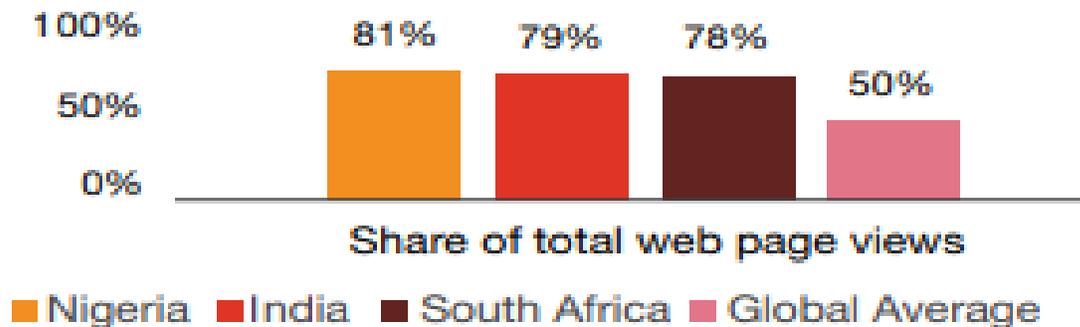


include laptops, tablets, mobile phones, smart phones, palmtops, notebook and net book. Mobile health (m-Health) is an essential element of electronic health (e-Health). M-Health is important because it makes healthcare practices accessible to the public through mobile communication technologies in a variety of ways (e.g., providing healthcare information, collecting health data, observing patients, etc.)⁵.

m-Health apps also cover communication between users and healthcare systems (with call centers, and appointment and exact treatment reminders), monitoring and surveillance (with patient monitoring applications and surveys), and information access (with health records and medical diagnoses). In addition, m-Health aims to improve care by making health information easily accessible for patients with chronic diseases. The focus on m-Health is rapidly growing, due to the rise in production of Smartphone and tablets that enable easier access to the Internet⁶, making them an integral part of the healthcare landscape.

The scope for leveraging m-Health as an alternate delivery channel in India is substantial. As of January 2017, the global average for mobile Internet traffic as a percentage of the total web traffic is 50%. India ranks second on this parameter at 78%. Clearly, more and more Indians are accessing the Internet on their mobile phones. This significant behavioral change is an important factor for m-Health adoption.

Mobile Internet traffic as a percentage of total web traffic (January 2017)



Source: Statista

Health Awareness

While the worldwide smart phone market is expected to decline again in 2019, IDC believes the market will experience low single-digit growth from 2020 through the end of its forecast in 2023. The International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker forecasts worldwide smart phone shipments to decline 2.2% in 2019 to 1.371 billion units, down from 1.402 billion in 2018. IDC believes the market will return to growth in the second half of 2020 with volumes up 3.2% mostly driven by the expected launch of several 5G devices. In the long-term forecast, IDC expects the overall smart phone market to reach 1.484 billion units shipped in 2023.⁷



The number of m-Health apps available in the market has increased substantially. There are now over 318,000 health apps available on the top app stores worldwide, nearly double the number of apps available in 2015 – with more than 200 apps being added each day (IQVIA).

The global m-Health app market is projected to be valued at US\$28.320 billion in 2018 and is expected to reach up to US\$102.35 billion by 2023. The major driving factors fuelling growth of the m-Health market is the increased adoption of Smartphone, as well as the continued heavy investment into the digital health market.⁸

Literature Review

Review of literature relevant to the study revealed that m-Health is one of the practices that promote health thought changing the platform of implementing it. There are a number of theories and models that underpin the practice of health promotion but the health belief model would provide a better understanding on why some people choose to use m-Health than others even within the same environmental setting. This theory was developed in the 1950s by a group of U.S. Public Health Service social psychologists with a view to explain why so few people were participating in programs to prevent and detect disease.

Role of m-Health in rural health in India and opportunities for collaboration, by Atanu Garai

Rapid adoption of mobile telephony in rural India and absence of other information and communication technology media have prompted the social sector to exploit mobile communication as a dependable and effective ICT media. Intervention studies and projects in low resource settings of developing countries have underlined multiple roles and effectiveness of mobile communications in the health sector. In particular, the delivery function of public health programs can be improved by using prompts and reminders through SMS and voice calls for the health workers. In the state of Orissa in India, for example, mobile videos were instrumental in improving the quality of counseling among the community health workers. These messages have been successfully utilized in assisting the beneficiaries achieve their health behavior goals. Improvement in quality and timeliness of data can help the health system dynamically manage the delivery and promotion functions. Despite these promises, certain technological and programmatic challenges impede the adoption of m-Health in a large scale across the health system. There are many areas of research and development opportunities for organizations to collaborate.

Mobile-health: A review of current state in 2015, by Bruno M.C. Silva, Joel J.P.C. Rodrigues, Isabel de la Torre Díez, Miguel López-Coronado, Kashif Saleem.

Health telemetric is a growing up issue that is becoming a major improvement on patient lives, especially in elderly, disabled, and chronically ill. In recent years, information and communication technologies improve, along with mobile Internet, offering anywhere and anytime connectivity, play a key role on modern healthcare solutions. In this context, mobile health (m-Health) delivers healthcare services, overcoming geographical, temporal, and even organizational barriers. M-Health solutions address emerging problems on health services, including, the increasing number of chronic diseases related to lifestyle, high costs of existing



national health services, the need to empower patients and families to self-care and handle their own healthcare, and the need to provide direct access to health services, regardless of time and place. Then, this paper presents a comprehensive review of the state of the art on m-Health services and applications. It surveys the most significant research work and presents a deep analysis of the top and novel m-Health services and applications proposed by industry. A discussion considering the European Union and United States approaches addressing the m-Health paradigm and directives already published is also considered. Open and challenging issues on emerging m-Health solutions are proposed for further works.

Objectives

1. To study the age group pattern of respondents engaged in using m-health.
2. To study the proportionality of m-health usage on the basis of gender?
3. To study that how m-Health is promoting the health awareness.

Research Methodology

Research Design

The study used a descriptive survey design. According to Graveter & Forzano, descriptive survey design involves the gathering of information from a large population, summarize, present and interpret data for the purpose of clarification. It also allows for generalization of results to a larger population after studying a smaller representative sample. Descriptive research determines and reports things the way they are and is intended to produce basic statistical information about aspects of interest.

Population of the Study

Target population is a set of people or objects the researcher wants to generalize the results of the research. The targeted population is taken from the Vijay Nagar area of Ghaziabad and sector 62 Noida. While mainly the m-health user have been taken into count as a part of convenient sampling in addition with snowball sampling technique.

Sample and Sampling Technique

Lavrakas describes a sample in a survey research context as a subset of elements drawn from a larger population. Kothari describe a sample as a collection of units chosen from the universe to represent it. Gerstman stated that a sample is needed because a study that is insufficiently precise or lacks the power to answer research questions is a waste of time and money.

The sampling technique used in the study is Purposive sampling (to get the responses from the users of mobile health portals and applications) with the use of snowball sampling to collect the data by sending the questionnaire from one respondent to respondents. The sample size consist of 40 respondents from the sample area of Vijay Nagar at Ghaziabad and sector 62 Noida.

Data collection procedure

The study used self-administered **questionnaire** to collect data from the respondents using the Google forms and the link was transferred and send to all the respondents.

Data Analysis and Interpretation

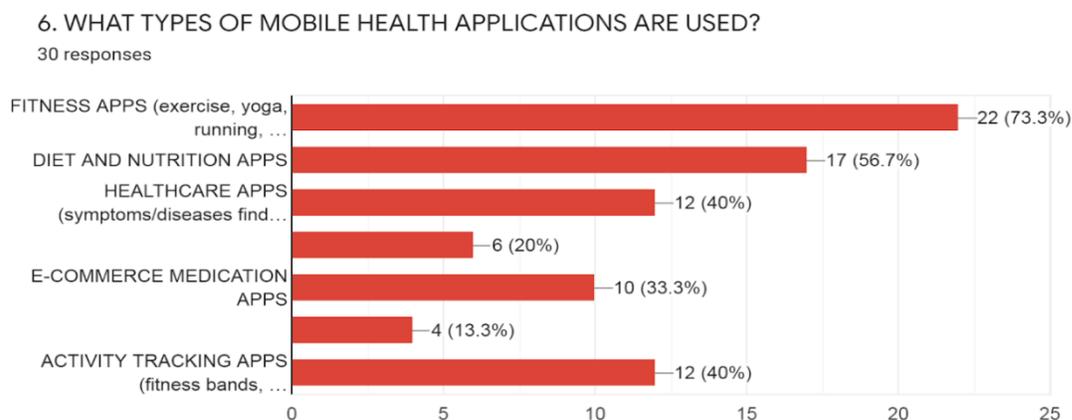
Data Analysis is a process of collecting, transforming, cleaning, and modeling data with the goal of discovering the required information. The results so obtained are communicated, suggesting conclusions, and supporting decision-making. Data visualization is at times used to portray the data for the ease of discovering the useful patterns in the data.

Interpretation is the act of explaining, reframing, or otherwise showing your own understanding of something. A person who translates one language into another is called an interpreter because they are explaining what a person is saying to someone who doesn't understand. Interpretation requires you to first understand the piece of music, text, language, or idea, and then give your explanation of it. A computer may produce masses of data, but it will require your interpretation of the data for people to understand it.

Findings

- **Mobile health in promoting the health awareness.**

Types of mobile health applications are used:



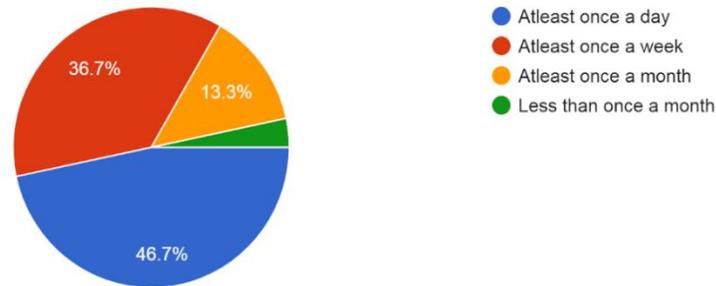
In the given chart it has been analyzed that the highest 73.3% of respondents use fitness apps, 56.7% of respondents use diet and nutrition apps, 40% of respondents use healthcare apps and activity tracking apps, 33.3% of respondents use e-commerce medication apps, 20% of respondents use reminder apps and 13.3% of respondents use healthcare facilities finder apps (symptoms, diseases finder). It shows that the respondents taken under the study are aware of mobile health applications and many of them use the fitness apps while other uses diet and nutrition apps.

To identify the time spend by the respondents in using the m-health for their health and benefits.

In this the variable “frequency in respect to time” justifies the routine and time spends on the m-health apps by the respondents.

7. FREQUENCY OF USE OF MOBILE HEALTH APPLICATIONS.

30 responses

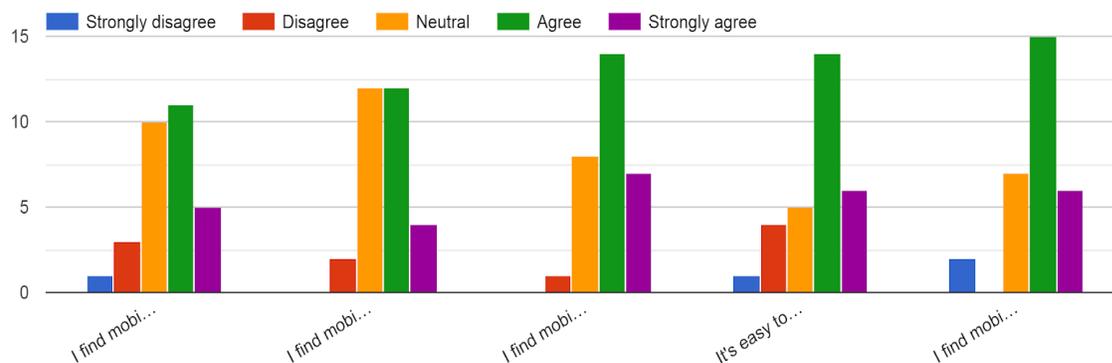


By the above table it is explained that 46.7% of the respondents uses the mobile health at least once a day that explains the greater number of responses uses the m-Health daily for their health and are well aware of their health and issues, while 36.7% uses it at least once a week and 13.3% of respondents use it at least once a month and the least responses that is 3.3% uses it less than once a month.

The above analysis explains that the data collected by the respondent shows that maximum number of respondents uses the mobile health platforms on the daily basis which is meant that they are aware of their health and uses them for their fitness.

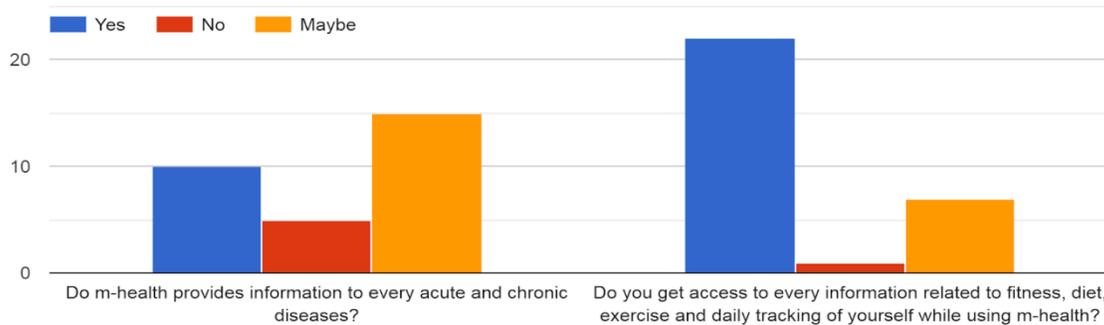
Identify the role m-Health in promoting health awareness by certain statements.

8. THINKING ABOUT THE MOBILE HEALTH , PLEASE RATE THE FOLLOWING STATEMENTS



Identifying the nature of respondents in relation to the m-Health.

10. THINKING ABOUT THE MOBILE HEALTH , PLEASE TICK THE FOLLOWING STATEMENTS



The statements are:

1. Does m-Health provides information to every acute and chronic disease?
2. Do you get access to every informations related to fitness, diet, exercise and daily tracking of yourself while using m-health?

The above chart is analyzed using the dichotomous variables in which all the above statements are rated. And the interpretations are as follows:

- m-Health provides information to every acute and chronic disease

By the above chart it has been analyzed for the following statement that the highest of 15 respondents selected the option Maybe that interpret that the respondents can be or cannot be getting information to every acute and chronic disease, while 10 respondents selected yes as their responses and only 5 respondents selected no as their responses. This analysis shows that most of the respondents are neutral about the information related to the acute and chronic disease.

- Access to every information related to fitness, diet, exercise and daily tracking of respondents while using m-health?

By the above statement it has been analyzed that 22 respondents selected the yes option and 7 respondents selected the maybe option while 1 respondent selected no option for the statement which signifies that over 60% of respondents agree that they are provided the information related to fitness, diet, exercise and daily tracking of respondents while using m-Health.

- Do you recommend others to use mobile health applications and platforms and why?

The above open ended question analyzed and interpreted that most of the respondents that is around 98% of them said yes they recommend the use of mobile health platforms with the facts that it saves time and used as a reminder for the health and fitness, it saves money and provides a lot of information regarding the fitness tracking and the information gathered by



the various platforms asked by the respondents through the m-Health platforms and only **2% of respondents said no**, they does not gives information related to the mobile health.

- **There are some barriers of using mobile health platforms.**

By the above variable it has been analyzed that **yes there are some the barriers** and it is related to the m-health platforms which explains as in the barriers are considered mostly of **technical problems** while **wrong information, update problems** and **the origin of the platforms** means the developer belongs to which country that can affect the information and behaves to be as a barrier in m-health.

Conclusion

In the given study **descriptive research design** is used for the research topic “**role of m-Health in promoting health awareness**” the data has been collected from the sample area of **Vijay Nagar (Ghaziabad) and sector 62 Noida**, it has been concluded that m- Health is a essential point for the promotion of health awareness which is analyzed and interpreted.

In this the researcher have collected the data using a questionnaire which represents the variables supporting the health awareness using the m-health platforms in which it have been analyzed that around 86.7% respondents from the age group of 21 to 39 years which shows that the new age group are aware and devoted towards the m-Health platforms. While respondents were asked that which type of m-Health application have been used by them in which the calculated frequency for the fitness and nutrition and diet plan apps have the highest ratings while fitness tracking apps for the information calculated the third highest after those which shows that respondents are well equipped and uses the m-Health platform for their health. A variable collecting the data for the slot of time period spend buy the users was also observed which shows the evaluation that most of the respondents use the m-health apps for at least once a day and some of them observed to be using it at least once a week this calculated data interpreted that respondents use m-Health platforms frequently on the daily basis and are aware of their health issues.

There were some of the statements rating the nature and behavior of the respondents with the help of 5 Point rating Likert scale that shows the results towards the rise in health awareness using the m-Health platforms, in short statement it has be analyzed that respondents finds m - Health platforms are convenient, easy to understand, easy to use, user friendly, can collect informations and even have a better reach and easy to communicate.

While other statements were there to evaluate that, to what extent does the m-Health is used in promoting health awareness in which more than 78% of respondents responds that they are aware of the acute and chronic diseases and what preventive measures should be taken to avoid them. And approximately 86% of respondents responds that they get informations related to fitness, diet, nutritions and even the daily fitness using the m-Health platforms which helps them to be aware of their health and issues.

On the other hand there were two questions that were open ended and tends to be descriptive in nature which explains that around 98% of the respondents gave their approval that they inform and suggests other to use the m-Health platforms for the betterment of their health



and to ask the drawback a question was frame as if respondents finds any barriers in using the m-health in which mainly 90% of respondents responds that there are barriers related to technical issues, application update and the developers origin problem which reminds that the users are very specified about the m-Health platforms. So by the above study the researcher finds that the m-Health not only aware the people but it also helps them to provide information related to their health issues.

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