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RESULTS & DISCUSSION

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RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

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mHEALTH POTENTIAL IN CHRONIC DISEASE MANAGEMENT WITH SPECIAL EMPHASIS ON DIABETES CARE

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ABSTRACT

Chronic diseases are a challenge across the globe. Ageing population with chronic disease pose a bigger challenge. Among the chronic diseases, Diabetes is the biggest challenge for Indian population. More than 70% of Indian population live in rural areas without adequate healthcare facilities[1]. Health management of ageing population suffering from chronic disease like diabetes is difficult and expensive. However, the mobiles phones have reached to the remotest part of the county offering mHealth potential to rural population and urban poor in health management and personalised care of chronic disease. The paper presents the views of 147 providers (doctors) on mHealth as an alternate in absence of healthcare access to rural and urban poor. The questionnaire based survey reveals that Diabetes is the biggest challenge among the chronic diseases and most providers (doctors) believe that mHealth offers a great potential in managing chronic diseases and mHealth may significantly help in personalised care delivery. The study also reveals that mHealth is being taken very lightly and there is a need to include mHealth in the strategy for healthcare delivery.

KEYWORDS

mHealth potential in chronic disease management, diabetes care.

INTRODUCTION

More than 70% of Indian population live in rural areas without adequate healthcare facilities[1]. This population is facing healthcare delivery challenges due to non existence of trained health workers and poor infrastructure. Citizen in urban as well as rural areas are becoming more and more aware of health issues and demand for healthcare access is increasing every day. Managing health of ageing population and patients with chronic diseases is difficult and expensive. The increasing wireless subscriber density and availability of efficient mobile based health apps may bridge the gap and provide convenience to patients and doctors both.

The mHealth is generally regarded as an area within e-health. mHealth delivers healthcare using ICT and hand held devices like mobile phones, tablets and other mobile devices[2]. Thus mobile phones are used for helping patients, providers and health workers in capturing, viewing, monitoring and anlaysing clinical conditions of the patients through mobile devices.

Mobile applications provide convenience of accessing patient information at anytime and anywhere, improve quality of healthcare, lower the cost of care and enhances health outcomes in long term. There has been tremendous technological development in mobile technology across the world and mobiles have reached to the remotest part of the world. India has progressed well in the field and mobiles and recently crossed 1 billion subscriber mark making mobile phones in the reach of over 70% of the population[3]. The latest Indian Telecom Service Performance Indicator Report suggests the number of wireless subscribers penetration increased many fold in last one decade and reached to 1049.74 million by September 2016[3]. This figure was 996.66 million in September of 2015[4]. The urban subscribers have grown from 577.82 million in September 2015[4] to 603.80 million in September 2016[3] and rural subscribers have increased from 418.84 in September 2015 [4] to 445.94 million by September 2016[3]. The growth indicates significant increase in mobile phone subscribers in urban and rural population both. The significant growth of wireless telephone density in rural as well as urban India provides an opportunity for citizens to connect with healthcare providers through mobile based apps for chronic disease management.

LITERATURE REVIEW

Non-communicable diseases pose huge challenge to developing countries, just as they do in developed countries. The incidence of diabetes is rising steadily in the developing world, and cancer and cardiovascular disease continue to be major killers. Respiratory diseases are especially prevalent in developing countries, partly because dirty fuels are used for household cooking and heating. Cardiovascular disease, diabetes, cancer, and chronic respiratory diseases account for 35 million deaths a year worldwide—80 percent of them in developing countries. Again, m-health applications can extend the reach of the health system and help patients being treated for these diseases. Because these chronic diseases often require lifelong support and management, they are well-suited for remote support using m-health applications.

Communicable diseases are not the only problem for India. Currently India is facing dual burden of both chronic non-communicable diseases like diabetes, cardiovascular disease, cancer and chronic obstructive pulmonary disease[5]. Increased longevity of average life of people and life style changes due to economic progress are contributing increase in non communicable disease[5]. Brazil is also facing similar problem and non communicable disease are the biggest cause of morbidity and mortality burden[6]. There is a significant similarities between India, China and Brazil. As an emerging economy in Brazil also chronic diseases account for 37% of deaths and include diabetes and cardiovascular diseases as the main cause of mortality[7]. Modern life style and changes in dietary choices have fueled China with increase in Chronic diseases with diabetes and cardiovascular diseases emerging as a critical public health issuer[8]. Over 330 million people in China are estimated to be suffering from hypertension and more than 100 million people are affected by Type 2 diabetes[8].

Ashok Kumar[9] in a study suggested Chronic diseases are main reasons for deaths and account for 60% of mortality in India and as per a study of Chronic diseases in India, various ailments such as diabetes, strokes and hypertension cost between 4% to 10% country's GDP reported by Delhi based Public Health Foundation of India (PHFI). Delhi has maximum diabetes patients in country, says ASSOCHAM study - August 2 2016. Assocham[10] in a study on the topic "Diabetic on the rise in India" suggests that due to lifestyle, junk food and erratic eating habits are the main reasons for increase in diabetese patients in India. The study suggests 42.5% residents of Delhi suffer from Diabetese and among them women are more prone to diabetes. Delhi is followed by Mumbai, Ahmadabad, Bengaluru and Chennai. In another report by Times of India[11], diabetes is one of the most talked about diseases and India is the diabetes capital of the world with as many as 50 million people suffering from type 2 diabetes.

Self-management is essential for the care of Chronic disease for the population. With the advent of smart phones and advances in mobile phones and availability of mobile apps focused on healthcare, Hamine et al[12] in a study on Impact of mHealth Chronic Disease Management on Treatment Adherence and patient outcomes studied 107 articles and concluded short message service (SMS) was the most effective and commonly used mAdherence tool in 40.2% of studies. The study concluded there is a potential in improving adherence to chronic disease management through the use of mHealth tools[12]. Shukla & Sharma[13] in a study done in India indicated mobile phone messaging interventions may help the patient of long term illness. The study was based on the views of over 240 clinicians who suggest chronic disease management is a big challenge in India and mobile phone messaging will help patients in self management of long term illness[13].

PwC in their article indicated that the number one cause of death and disability across the globe are chronic disease. In a study on 163 diabetes patients reported 1.9% reduction in average glycated haemoglobin through mHealth tools[14]. Another study based on experience in mHealth for the management of chronic disease in 4 countries by Piette et al (2011)[15] suggest that mHealth solutions are possible and effective in a variety of mHealth apps and with patients that vary in socioeconomic level, literacy, culture and capacity for chronic disease management[15]. Cost is a big factor in attending the chronic patients which can be mitigated to a large extent by the use of mHealth applications for self management. SMS based messaging service by WelTel to monitor certain diseases in Kenya has been a

great success. WelTel's SMS communications are estimated to have raised ARV patients' adherence to their treatment regimens by a quarter[16]. This increased adherence and associated viral load suppression lowered health system costs by 1-7 percent[16].

RESEARCH PROBLEM

Chronic disease is the cause of 60% deaths in India. Many of these deaths are due to lack of awareness and poor infrastructure. A large number of people lose their lives because of unavailability of healthcare when its needed. Over 70% of population[1] in India lives in villages and deprived of any kind of access to quality healthcare. In absence of healthcare facility in the villages mobile phones may play a crucial role in dissemination of health related information to large population both in rural and urban India. As per TRAI over 70% of population subscribes to wireless phones[3]. Currently Indian government is promoting the concept of Digital India[17] under the "Digital India-Power to Empower program", and an environment of cashless economy which will also provide a boost to mobile phone penetration resulting in enhanced use of mobile phones for health. Healthcare delivery organisations use mobile phones for internal and external communications for various healthcare needs including patient appointment and scheduling, accessing EMR of patient and remote discussions for health conditions at a significantly lower cost. Though there has been significant study done on the use of mHealth and eHealth for the healthcare delivery, this study is focused on to the use of mHealth for chronic and life style disease management.

RESEARCH OBJECTIVES

The literature review on mHealth identifies a gap in the research on the use of mHealth for chronic disease management. The penetration of mobile phones in India and government's commitment to create a digital India offers opportunity to analyse the effectiveness of mHealth in chronic disease management. This study is aimed to analyse the potential of mHealth in chronic disease management. For achieving the aim following research questions are created

Research Question 1: Can mHealth help in chronic disease management?
Research Question 2: Is mHealth taken very lightly in India?
Research Question 3: Can mHealth help in personalised care delivery?

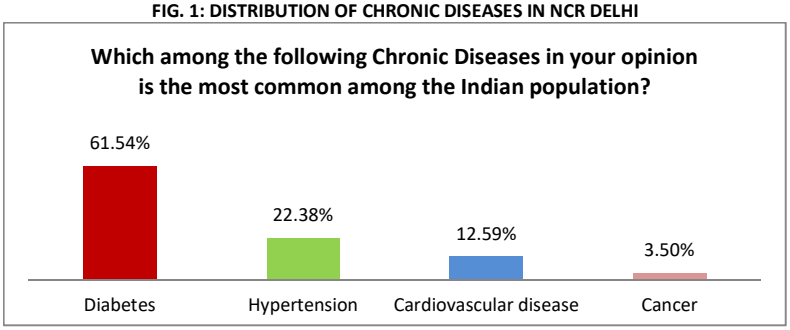
RESEARCH DESIGN

This paper is based on exploratory research with positivism philosophy. The exploratory research has been adopted to analyse and describe the phenomena that may be expected in future occurrences and research design is adopted to re-establish the already known actualities. The size of study is a crucial parameter in any research and should neither be too small nor too big. For this study, an ideal sample to represent whole population has been considered. A sample of 141 providers (doctors) from National Capital Region (NCR), India were studied to understand the concept and perception towards mHealth. The study was based on a questionnaire survey conducted between August to November 2016. Individual providers (Doctors) were contacted with set of 13 carefully designed questions with a purpose of knowing their views on Chronic Disease situation and role of mHealth in addressing the issues. Before conducting the survey of providers (doctors) readability and reliability tests were also done. The questionnaire was created based on the factors such as issues of infrastructure, population growth and increase in patients of chronic disease in last one decade. The providers contacted were general physicians, specialist in the diabetes, cardiovascular and oncology.

DATA ANALYSIS & INTERPRETATION

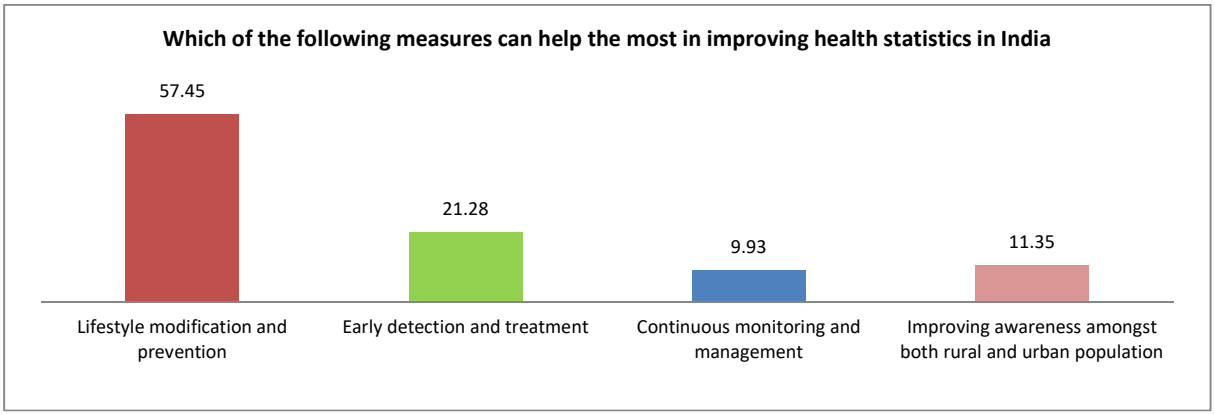
A descriptive analysis was done based on the response to questions from the providers. Although the survey was based on 13 questions, only 10 questions relevant to this paper have been considered. Answer to question "Which among Diabetes, Hypertension, Cardiovascular and Cancer Chronic Diseases in your opinion is the most common among the Indian population?", 61% doctors in National Capital Region (NCR) Delhi in India suggested diabetes is the most common chronic disease and reason of concern for India. The response is in sync with the report of Diabetes Foundation of India stating that India is the diabetes capital of the world[18]. Globally 300 million people are estimated to be affected with diabetes by 2025[18]. India alone has 50.9 million people suffering from diabetes and this figure is likely to touch 80 million by 2025[18]. National Capital Region of Delhi, India itself has about 3 million diabetes patients[18]. As per the responses from providers, the second most common chronic disease in the region is hypertension with 22% responses Fig 1 below.

FIG. 1: DISTRIBUTION OF CHRONIC DISEASES IN NCR DELHI



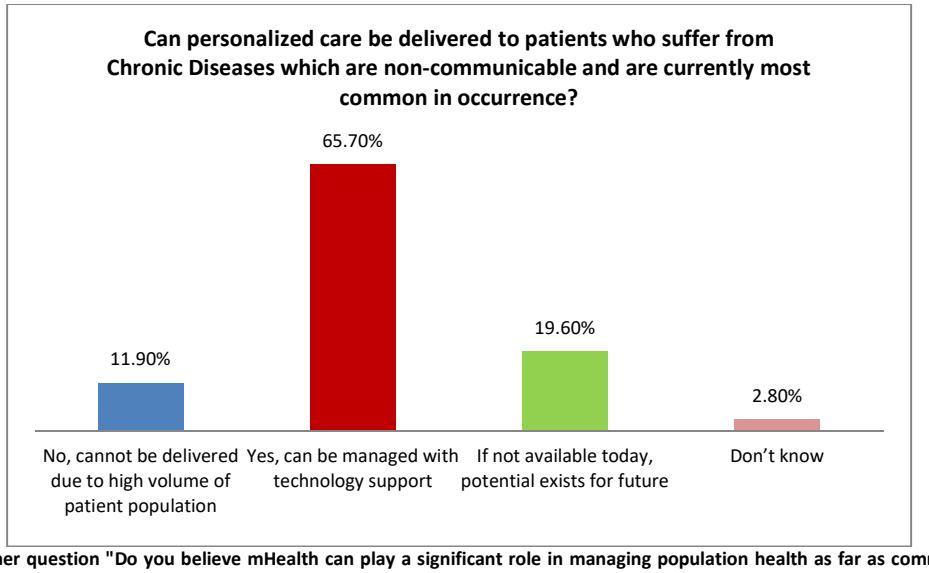
Answering another question on measures to improve health statistics in India, 57% respondents (providers) given the first choice as Lifestyle Modification and Prevention is the most important measure to be considered. India is the largest global consumer of tobacco and main preventable cause of chronic diseases and deaths in India[19]. Apart from tobacco, other lifestyle issues are unhealthy food habits and lack of exercise. 11% responses were in favour of improving awareness among the rural and urban population. Lack of awareness is one of the most important cause of unhealthy diet, smoking and other life style issues (Fig 2).

FIG. 2: MEASURES TO IMPROVE HEALTH STATISTICS IN INDIA



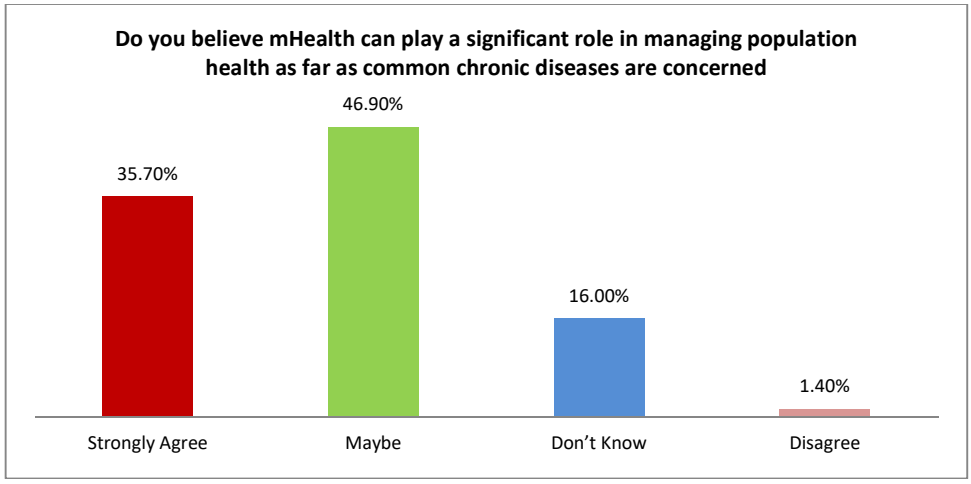
Chronic disease being highest cause of death and more than 80 million people likely to be affected in India by 2025[18], serious measures are required to tackle the challenges. In response to the question "**Can personalized care be delivered to patients who suffer from Chronic Diseases which are non-communicable and are currently most common in occurrence?", about** 65% respondents believe that personalized care can be provided to chronic patients with the use of technology. Only about 12% do not believe the personalized care for chronic patients. Further, 19% see that potential for personalized care exists. Over 70% population in India have mobile phones[3] and possess a great tool for personalized care (Fig 3).

FIG. 3: OPINION ON PERSONALIZED CARE



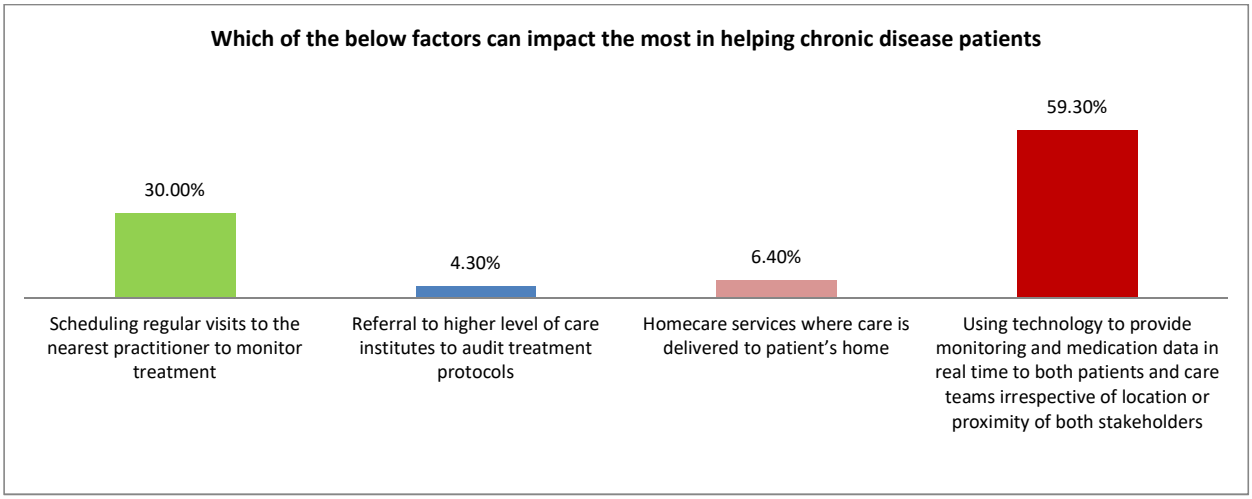
In response to another question "Do you believe mHealth can play a significant role in managing population health as far as common chronic diseases are concerned?", more than 82% respondents among the sample size of 147 providers believe mHealth may play a significant role in managing population health. While 35% strongly agree, 46% believe mHealth may play a significant role but not sure. Indian government is also incorporating mHealth as part of IT strategy. mHealth may provide access to healthcare anytime and anywhere[20], suggesting mHealth could help in managing chronic disease in the remotest part of the country, where over 70% population does not have access to healthcare facility in the vicinity but do have access to mobile phones (Fig 4).

FIG. 4: mHEALTH CAN PLAY SIGNIFICANT ROLE IN MANAGING POPULATION HEALTH



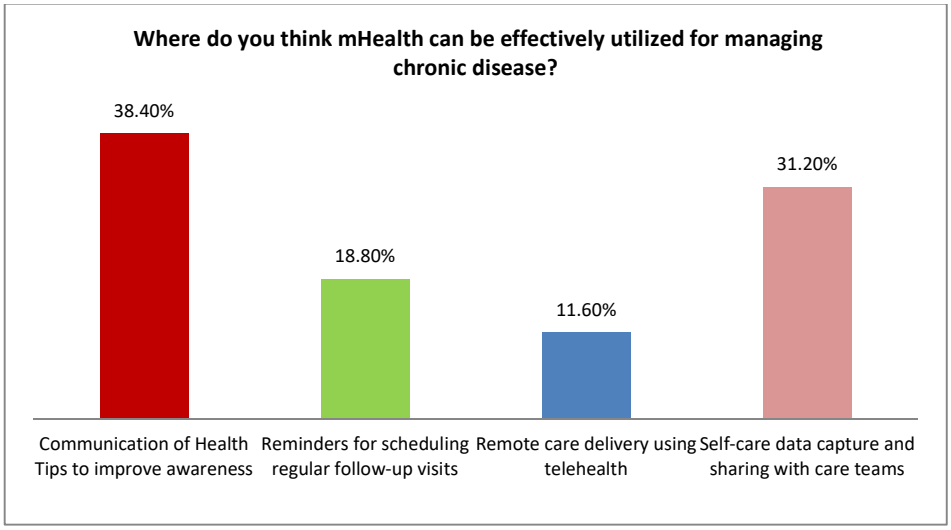
Which of the below factors can impact the most in helping chronic disease patients? Fig. 5 below indicates the responses to above question by the providers suggesting use of technology like mobile apps may help chronic disease patients. 59% respondents suggest use of technology to provide monitoring and medication data in real time to both patients and care team irrespective of location or proximity of providers or patients can impact the most in helping chronic disease patients. 30% respondents believe scheduling regular visits to the nearest practitioner to monitor treatment may help most (Fig 5).

FIG. 5: FACTORS MAY HELP CHRONIC DISEASE PATIENTS



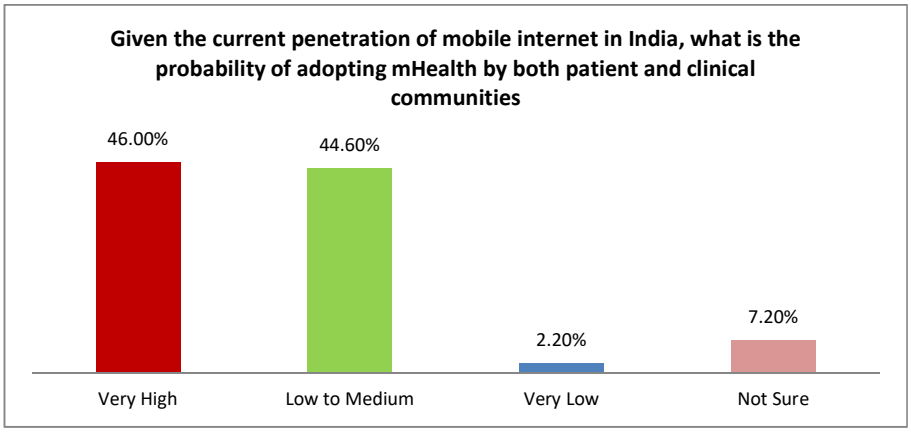
Where do you think mHealth can be effectively utilized for managing chronic disease? Awareness is a big challenge for over a billion people. Over 70% of population lives in rural areas without any healthcare and counseling facilities. Another challenge to the large number of people is to reach out to healthcare facilities for chronic disease care and management as visiting care facilities on regular basis for checkups and care progress is expensive and unviable. However, mobiles phones are in reach of most people and a great communication tool for communication and keeping in touch with care provider. Out of 147 respondents in the survey, 38% suggest that mHealth could be used for communication of health tips and improve awareness. 31% believe that mHealth could help a patient in self care data capture and sharing of the data with care teams (Fig 6).

FIG. 6: mHEALTH IN CHRONIC DISEASE MANAGEMENT



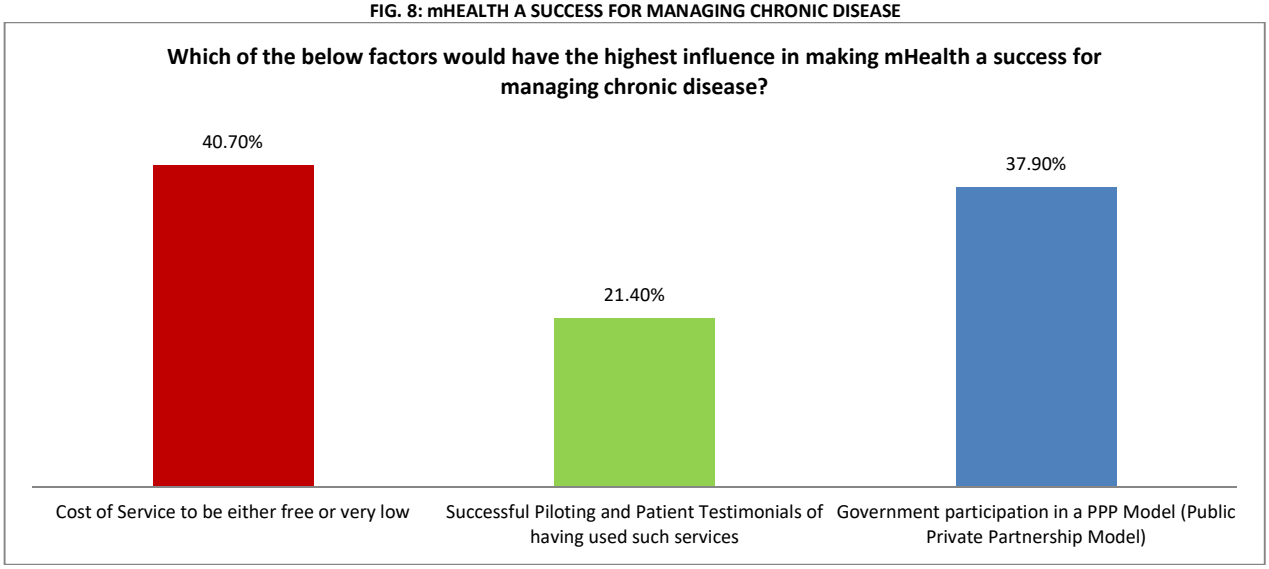
Given the current penetration of mobile internet in India, what is the probability of adopting mHealth by both patient and clinical communities? Current government is committed to promote digital concept in India and promoting use of mobiles for day to day transactions. Healthcare is not far from the use of mobiles for care delivery. In healthcare settings mobile devices are frequently used for patient care for capturing clinical data at point of care, viewing lab results or patient history etc. Mobile phones and Internet reaching to most people in the country and provides an opportunity for mHealth adoption in the country. Over 90% provider respondents support the concept and believe mHealth has great potential and could be adopted by both care providers and patients (Fig 7).

FIG. 7: mHEALTH ADOPTION BY PATIENT & CLINICIANS



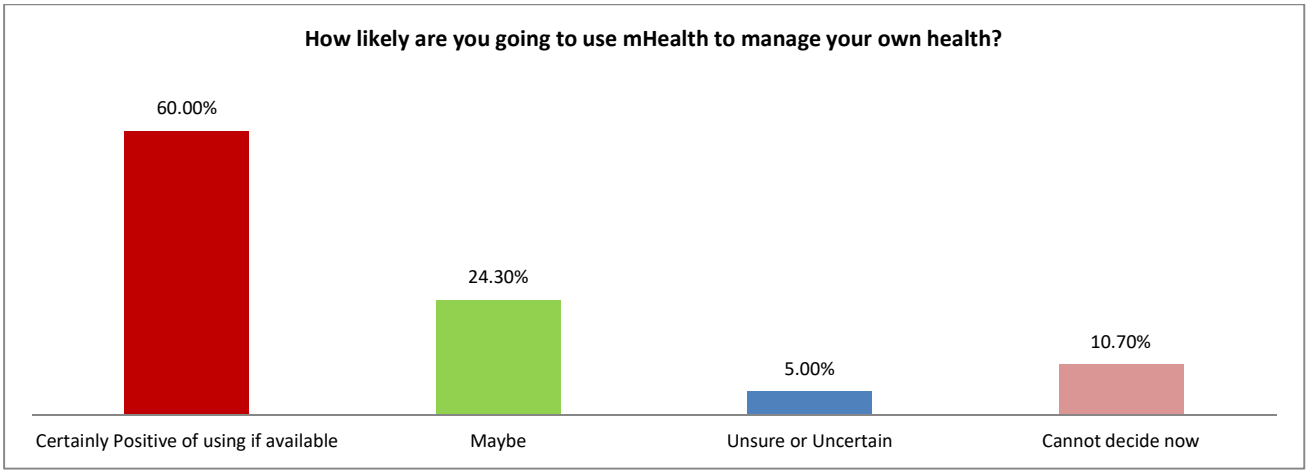
In response to the question "Which of the below factors would have the highest influence in making mHealth a success for managing chronic disease?", over 90% believe in the adoption of mHealth, but believe cost of service and government participation is necessary for the success. 40% providers suggest that for mHealth to be successful the service should be either free or available to citizens at a very low cost. Almost 40% believe government participation in PPP model is necessary for the success of mHealth. A significant number of 21% suggest successful piloting and patient testimonials of having used mHealth successfully (Fig 8).

FIG. 8: mHEALTH A SUCCESS FOR MANAGING CHRONIC DISEASE



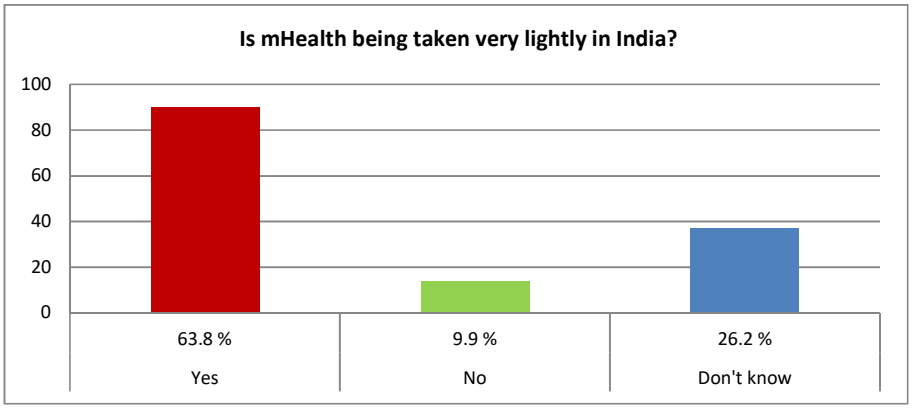
How likely are you going to use mHealth to manage your own health? Belief of clinicians is necessary for the success of mHealth. In response to this question, 60% providers confirmed its success and positively willing to use for their health if mHealth facility is available in India. Another 24% respondents may also use mHealth if facility is available but only 15% are not sure. This is a very good sign for the success of mHealth (Fig 9).

FIG. 9: mHEALTH TO MANAGE OWN HEALTH



Another crucial question asked was "Is mHealth being taken very lightly in India?" A country with over 1.25 billion population of which 70% live in rural areas without access to healthcare facilities and 60% population suffering from chronic disease in India, response to this question was an eye opener. 60% respondents believe mHealth offers a great potential to mitigate the huge challenge of providing healthcare to large population and believe mHealth is being taken very lightly in India. (Fig 10). Over 70% population have mobile phones while 70% of rural population is deprived of healthcare access, mHealth offers a great potential.

FIG. 10: OPINION ON MHEALTH BEING TAKEN LIGHTLY IN INDIA



CONCLUSION

The research questions to address the objectives of research are well answered in the analysis of the results of the survey. It is evident from the survey that diabetes is the most common chronic disease among Indians. Most doctors believe the reason for diabetes is life style and living conditions and suggest definite improvement with a better lifestyle. India has about 61% diabetes patients and number is likely to reach to 80 million patients by 2025, a big reason of concern. Hypertension is the second most common chronic disease among Indian. The survey suggests that personalised care and self management of chronic disease like diabetes and hypertension is possible and mHealth could be helpful in personalised care. In absence of adequate healthcare infrastructure for rural population and urban poor, mHealth could play a crucial role in managing chronic diseases. Almost 60% doctors believe that use of technology to provide monitoring and medication data in real time to both patients and care teams irrespective of location or proximity of both patients and providers will be of great help. Chronic disease are more due to lifestyle, living and food habits and self-management or personalised care is crucial, communication of health tips to improve awareness will be of significance. Most doctors believe mHealth has great potential specially in managing chronic disease, but recommend the service to be offered at a very low cost and government should promote the concept in India through own funding or PPP model. Most doctors are willing to use mHealth for self and believe mHealth is taken very lightly in India and its potential is not exploited.

mHealth is a new concept in India, several issues have shown their importance. As doctors, governments and their partners begin to give importance to mHealth the mode of healthcare delivery has the greatest possible impact on health outcomes—including by building their capacity to incorporate mHealth services into their operations and awareness.

REFERENCES

1. 70% of Indian live in rural areas (2011): Census, PTI; http://www.business-standard.com/article/economy-policy/70-indians-live-in-rural-areas-census-111071500171_1.html
2. Vital Wave Consulting. 2009. "mHealth for Development: The Opportunity of Mobile Technology for Healthcare in the Developing World". United Nations Foundation, Washington DC
3. The Indian Telecom Services Performance Indicator Report July - September 2016;TRAI (2016); http://www.trai.gov.in/release-publication/reports/performance-indicators-reports
4. The Indian Telecom Services Performance Indicators July - September, 2015; TRAI (2016); http://www.trai.gov.in/release-publication/reports/performance-indicators-reports
5. Sailesh Mohan, Srinath Reddy (2014), Chronic diseases in India: Burden and Implications; http://cgd.swissre.com/risk_dialogue_magazine/Cardiovascular_risks_in_HGM/Chronic_Diseases_in_India_Burden_and_Implications.html
6. Marica C. Castro (2014); Overview of Health Risk Factors in Brazil;
7. Marica C de Oliveira Otto (2014); Risk Factors For Cardiovascular Disease In Brazil: Time Trends And Current Status
8. Yangpin Li, Frank Hu (2014); Time Trends Of Cardiovascular Disease Risk Factors In China
9. Ashok Kumar (2015); Chronic diseases account for 60% of deaths in India: study; One World South Asia
10. 42.5% Delhiites suffer from Diabetic; Women are more prone to diabetes (2014) ASSOCHAM
11. Times of India India is the diabetes capital of world (2016); Published on 19.12.16 in Vol 4, No 4 (2016): Oct-Dec; The Times of India.
12. Saee Hamine, Emily Gerth-Guyette, Dunia Faulx, Beverly B Green and Amy Sarah Ginsburg; Journal of Medical Internet Research; Vol 17, N02 (2015), https://www.jmir.org/2015/2/e52/
13. Surendra Nath Shukla & J K Sharma (2016); Mobile Phone Messaging Interventions May Provide Benefit In Supporting The Self-Management Of Long-Term Illnesses- An analysis; International Journal of Research in Commerce, IT and Management; Volume No. 6 (2016), Issue No. 09
14. Fighting chronic disease; http://www.pwc.com/gx/en/industries/healthcare/mhealth/mobile-healthcare-chronic-disease.html
15. John D. Piette, Joaquin A. Blaya, Ilta Lange and Juan B. Bru Sanchis (2011) Experiences in mHealth for Chronic Disease Management in 4 Countries; https://www.ghdonline.org/uploads/Piette2011-ExperienceMHealth4Countries.pdf
16. Eff ects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya1): a randomised trial; Richard T Lester, Paul Ritvo, Edward J Mills, Antony Kariri, Sarah Karanja, Michael H Chung, William Jack, James Habyarimana, Mohsen Sadatsafavi, Mehdi Najafzadeh, Carlo A Marra, Benson Estambale, Elizabeth Ngugi, T Blake Ball, Lehana Thabane, Lawrence J Gelmon, Joshua Kimani, Marta Ackers, Francis A Plummer (2010), https://www.pepfar.gov/documents/organization/161268.pdf
17. Ministry of Electronics & Information Technology, Government of India; http://digitalindia.gov.in/
18. Diabetes Foundation (India), http://www.diabetesfoundationindia.org/about.htm.
19. Mohan Sailesh, Reddy Srinath (2014), Chronic Diseases in India: Burden and Implications; http://cgd.swissre.com/risk_dialogue_magazine/Cardiovascular_risks_in_HGM/Chronic_Diseases_in_India_Burden_and_Implications.html
20. Shukla Surendra Nath & Sharma J K (2016); mHealth Effectiveness and Potential in India; International Journal of Research in Commerce, IT and Management; Volume No. 6 (2016), Issue No. 05

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