INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT

IJRCM

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RESEARCH METHODOLOGY

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FINDINGS

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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: THE CLINICIANS PERSPECTIVE IN INDIA

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ABSTRACT

Mobile Health generally called mHealth, is a culmination of technology, communication, ease of use and need that is bringing behavioral change in healthcare delivery using mobile phones. There is a paradigm shift in healthcare delivery and new avenues for supporting patients are researched. In this research paper, the aim is to understand the behavioral change that mHeatlh brought among the clinicians in India and does it help them in accurate and faster patient care? Another aspect of research is to understand the awareness of mHealth among the clinicians in India and do they understand the power of mHealth in healthcare delivery? The research is based on an online and face to face interview of more than 300 clinicians who answered questions pertaining to their view on mHealth. The research indicates that most clinicians believe mHealth is likely to play a crucial role in healthcare delivery but will be most effective in chronic care. Clinicians also believe that awareness and availability of information is a big problem for rural India. Most clinicians believe mHealth will significantly contribute in bridging the gap between urban and rural divide and improve primary and preventive healthcare which will eventually reduce the healthcare expenditure burden. The results sug- gests that clinicians believe mHelath may contribute significantly in healthcare delivery specially for rural population and believe mHealth has a great potential for a country like India and government should take serious steps in propagating the awareness among the population.

KEYWORDS
mHealth, healthcare.

INTRODUCTION

With mobile phones network reaching to more than 90% of the population in the world[1], healthcare is reaching to more people and reaching faster. Within the hospital setup mobile phones have brought revolution and easy information available to decision makers for an accurate and faster action on the patient. Simplest among the mHelath uses within the healthcare ecosystem is the Short Messing System (SMS), that connects patients with the hospital for appointment confirmations, reminders and follow-up. But, communication of abnormal lab results or condition through SMS to attending clinician or even to the patients living at remote locations, is a tremendous use of mHelath in faster, accurate and anytime anywhere decision making or action. Another revolution in healthcare delivery is that mHealth empowers patients for self-care which is a paradigm shift in the way healthcare has been practiced.

mHealth has been defined as the use of mobile devices in the healthcare delivery. There are numerous definitions used by authors since 2003 as per their conven- ience but the Global Observatory for eHealth (GOe) defined mHealth or mobile health as "medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices"[2].

As per "The Indian Telecom Services Performance Indicators Report" of TRAI released on 12th August 2015[3], as on March 31st 2015, there are 996.49 million telephone subscribers in India, of which 969.89 million are wireless subscribers. Interestingly, 555.71 million are urban subscribers and 414.18 million are rural. The urban teledensity of wireless subscribers is 143.08 while rural teledensity of wireless subscribers is 47.78. The wire-line urban and rural teledensity is 5.53 and 0.59 respectively[3]. The wireless subscription has grown very fast in last decade. In 2004, the mobile and land line subscribers were 33.69 million and 42.84 million respectively[4]. The mobile phones have grown more than 26 times in last one decade and landline subscription has reduced 0.66 times. The tremendous growth in mobile phone subscription in India bridges the gap between urban and rural divide.

India is the second most populous country in the world after China. As per 2011 census report, 1.21 billion people live in India. Almost 17% of world's population live in India, of which 833 million live in rural India and urban population is 377 million[5]. Almost 70% population that lives in rural India may not have access to healthcare, road and rail transport, drinking water and money to meet their needs but they have access to mobile phone of their own or in the family and friends. 414.18 million rural subscribers of mobile phones[3] on a population of 833 million rural population and growing fast, provides an opportunity to exploit power of mHealth.

Mobile phones are not only an equipment for wireless communication but effectively used for entertainment, banking, information and many other day to day living needs. In many countries mobile phone penetration is more than 100% making it a commodity not a luxury anymore. The power of mobile phones may be exploited for saving the already crumbling healthcare in India both in urban and rural setup.

One of the biggest challenge in healthcare delivery has been maintaining patients' electronic medical records. mHealth may remove the barrier of digital entry/ capture of data, and may bring behavioral change in clinicians to use ICT (HIS) supported mobile systems for clinical transactions. This will tremendously help in maintaining patient's record.

The mHealth may revolutionize the care delivery in the health ecosystems, and the psychological barrier of not capturing most patient data or instructing a third person (nurse) to record and execute may change. With the growing awareness more and more clinicians will find mobile devices as a convenient tool for bedside transactions. With technological development, mobiles have capability of all that what a personal computer or laptop may have for user like web access, text, email, multimedia, voice and video calls etc. Mobile is now part of the everyday life and day to day fabric. Any automation for the operational excellence or efficiency ought to involve mobile phones. "So if you're not looking at mobile solutions, then you're not really looking at all solutions".[1]

The healthcare delivery cost is escalating every day. Transformation factors that will influence the cost reduction are required. There may be many factors but mobile health is one that will work faster and cheaper and influence the cost reduction. Thousands of mobile Apps influencing our day to day life are being launched every year. Smart mobile Apps have transformed the lives of people in many industry and changes are visible the way people think, work and play. Mobile Health will influence the depth, breadth and speed of healthcare delivery. [1]

Ministry of health and family planning, government of India is putting efforts in bringing standards in ICT in the healthcare where mobile phones will be a great help.[6]

1. Online information on health is most trust worthy and eliminates a clinician and many hesitating situations and questions. Patients/ consumers if aware are more comfortable with online information. With smartphones growing at a very significant speed, and also increasing its penetration in the rural India, and also available in multiple languages, mobile phones are the most convenient and cheapest way to reliable and faster access to health information. This information will not only help the people all across India from being misguided by fake and untrained clinicians but also help patients gather and prepare for

a timely and proper treatment. 70% of population in the country do not have access to appropriate healthcare are also uneducated to take benefit of the healthcare information using the phones, may consult using online consultation services.

2. mHealth serves dual purpose with a different objective to Indian population. On one hand mHealth provides access of a trained clinician to 70% of population living in villages and especially those living in the remotest corner of the country, other hand it provides access to 30% population on information related to need to visit a hospital, treatment plans, different facilities, expertise and plans etc.

3. mHealth provides a better platform for countries deprived of healthcare infrastructure as this provides a ready infrastructure and population such as 70% deprived population in India are familiar with the technology.

LITERATURE REVIEW

Public health has been an area of great concern all over the world but more in the developing countries where public health services are not adequate. The 1978 declaration by WHO introduced the concept of Primary Healthcare. WHO developed the Millennium Development Goals (MDG) (what is Alma Ata in 1978) for macro level targets for broader public health interventions.[2]. WHO defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease in infirmity"[2]. And all the MDG across the globe have association with health[2]. United Nations Millennium Declaration in 2000[2] include following health issues on priority:

- Reducing Child Mortality[2]
- Improving maternal health[2]
- Combating HIV and AIDS, malaria and other diseases[2]
- Increasing access to safe drinking water[2]

Mobile phones have been in use since early 30's but got popularity in 90's but still most people in the world were not able to afford. With the technological development in mobile phones, and communication infrastructure, the phones have become smaller, more user friendly and affordable. A common man across the globe especially in the developing nations could not afford a mobile phone till 90's.

Maddalena et al[7] There is a huge upsurge in the mHealth since the smart phones were introduced about 5 years ago. There has been immense research on mHealth but focus has been on Chronic Conditions[7]. Maddalena et al[7] reviewed about 177 articles published between 2002 and 2012 and concluded that there is a continuous evolution in Mobile Technologies that offering new opportunities but most of it has not been explored[7]. Evolution of mHealth field needs to be evaluated to understand strength and weakness. Maddalena et al[7] in their research found that there is an upward trend in the mHealth research and interest is growing. With a continuous development in the mobile technologies, aims and objectives with complexity is continuously changing. The Mobile Technology may address the needs of doctors, nurses, patients or even healthy people, hence mHealth applications can target heterogeneous audience[7]. mHealth may serve wide variety of needs both for patients and healthy people such as quit smoking program to weight loss, treatment adherence and disease management etc.[7]

mHealth could provide a platform to both doctor and patient to interact closely before, during and after the treatment.[7] There are evidence suggesting that mobile technology help improving diagnosis and also helps patients with ready information and guidelines on treatment and compliance.

Recently launched iPhone 6 has some basic interfacing capability to monitor vitals on the move. Most Mobile apps development and mobile manufacturing companies are now giving enough attention to provide health assistance features on mobile phones. Mobile phones in health are revolutionary and the most beneficial aspect is that mobiles phones are personal, (except in some rural areas where one mobile device may be shared among the entire family), intelligent, anytime and anywhere and always connected with connectivity reaching to remotest corner, mobiles have become an always connected device.[7]

Recent boom in smart phones further strengthens the use of mHealth in healthcare. Smart phones are mobile phones with very strong features of a personal computers, making both patient, doctors and also healthcare staff, remain connected through emails, browsing web, and also talk. Further video calls and recording capability makes mobiles more powerful in healthcare[7]. Mobile phones due to their wireless communication capability and ability to provide voice, data and video all in one equipment at anytime and anywhere makes them an ideal tool for healthcare delivery[7].

Warren A Kaplan[8] evaluated the ubiquitous power of mobile phones that can be used to improve health outcomes in developing countries. Most researchers agree that harnessing communication technology will benefit the population across the globe, and help in dissemination of the information related to health and wide open opportunities for women[8]. In year 2002, mobile phone subscription across the globe increased to such an extent that it over took the fixed line subscription across region, gender, income and age etc.[9]. In most of African countries mobile phones have over taken the fixed line phones[10]. Fixed line subscription has reduced in India substantially and there are more mobile phones in India than fixed lines[4]. Information on Mobile Health interventions and clinicians perspective to mHealth lacks for developing countries. Most studies are conducted in wealthy nations comprising members of the Organization for Economic Cooperation and Development (OECD)[8]. Warren[8] found that most 88% of mobile phone intervention studies conducted were from Europe, Korea and Japan[8]. India being a developing nation and more than 70% of the population living in villages, mobile phones provide an opportunity to the government to rollout progams of mass benefits at less time and cost. Living in resource constrained environment is not an obstacle anymore for the use of mobile phones for cultural and economic reasons[8]. There are evidential studies available depicting less pronounced "digital divide" in mobile phones than other communication technologies such as fixed line, internet etc[11]. Mobile phones are personal and social value of mobile phones are highly valued even for economically poor and under developed areas. Mobile phones are personal and easier to use even by uneducated and lower level of skills compare to using computers[8]. Mobiles also provides a facility of prepaid services where subscribers may buy the calling time from the service provider and use as per the affordability. The good part is that even if the prepaid money is exhausted subscriber continues using the calls and SMS till the validity. The service provides continuity to the subscribers and opportunity for healthcare information of mass interest and care. In 1998 40 million people used prepaid mobile service which was 13% of the worlds mobile users[8]. Half of the mobile phone users in South Africa use prepaid service. In Zambia at present 100% subscribers use prepaid service[8]. Chronic care affects large population across the globe. Mobile phone's messaging applications like SMS and Whatsapp, Multimedia Message service may prove to be very efficient and economical solution of communication with the chronic patients both in Urban and Rural regions[12]. De Jongh et. el[12]. Conducted randomized controlled trials over 182 patients and found that is some cases mobile phone messaging interventions helped the patient in self-management of chronic conditions[12]. Mobiles have their role to play beyond health. Disaster management and public safety is a huge problem in all the regions but Africa and Asia are worst affected. Mobile phones Short Messaging Service play a very crucial role in disaster relief and public safety leading to saving of lives and illness[13]. GSMA done extensive research in South Africa focused on the "Needs and Wants" of pregnant women and mothers of infants below 2 years of age. The study included exploration of possibility how the mobile services could strengthen the primary and basic healthcare delivery[14]. The study revealed that only 40% of the target audience are aware of the mobile healthcare service of which 50% do not use the service. Moreover, no target consumer is willing to pay for the service[14]. Study revealed that there is a strong interest in using the mHealth services for healthcare purpose but more than 50% respondents are not willing to pay for the service in South Africa[14]. More important point is instead of patient reaching out to the clinicians for any kind of care, mobiles provide an excellent opportunity to government to reach out to every citizens across the country. In Indian context, considering the shared phone access, almost all the people in the country have access to mobile phones hence government reaching out to citizens for the healthcare and well being is instant, and effective. This way government may save huge investment on healthcare and information dissemination for preventive healthcare[14].
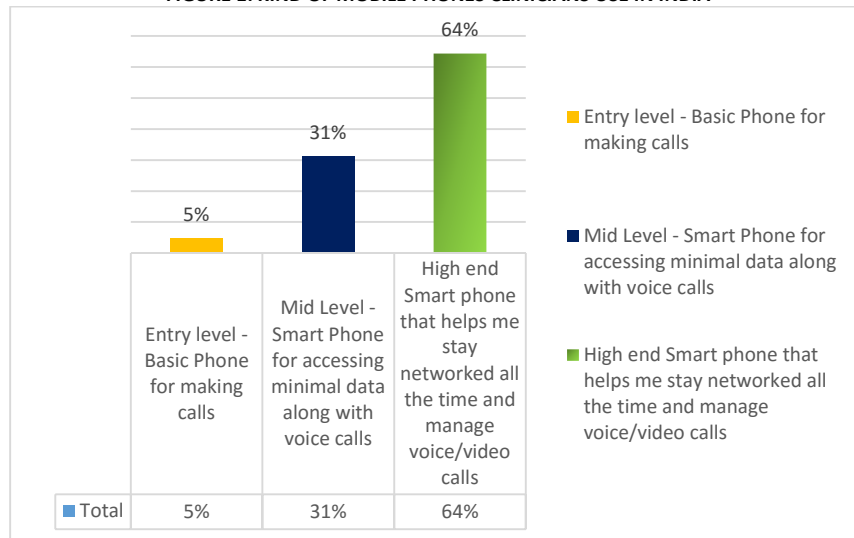
METHODOLOGY

This study is based on the data collected through a targeted online survey of doctors across India. Specific efforts were made to reach out to doctors in every state of the country. About 5000 doctors were contacted through mails. A questionnaire consisting of 23 questions, carefully designed to ask specific questions related to their perspective and opinion on healthcare through mobiles. Only 15 questions relevant to the clinicians perspective are being considered in this paper. Out of 5000 mailers sent to targeted doctors across the country about 250 plus responded. Another 50 doctors were approached for a face to face interview and filling the questionnaire. The face to face interview of doctors was based on the same questionnaire. However, some additional information and views were collected in the face to face interview. The doctors approached were private practitioners, large corporate hospitals, nursing homes and government hospitals across the

country. This paper is based on the views of 300 plus doctors across the country. Data was compiled to arrive at the conclusion on the clinicians perspective on mHealth.

DATA ANALYSIS AND RESULTS

This study indicates that all the doctors who participated in the survey use mobile phones for day to day communications. However, only 64 % doctors use high-end smart phones. Fig 1 below depicts that only 5% doctors still use entry level basic phone while 95% doctors use mid-level to high end smart phones for communication.

FIGURE 1: KIND OF MOBILE PHONES CLINICIANS USE IN INDIA

	Entry level - Basic Phone for making calls	Mid Level - Smart Phone for accessing minimal data along with voice calls	High end Smart phone that helps me stay networked all the time and manage voice/video calls
Total	5%	31%	64%

Among all the respondents, good 89% doctors believe that preventive healthcare can be provided remotely. Fig. 2.

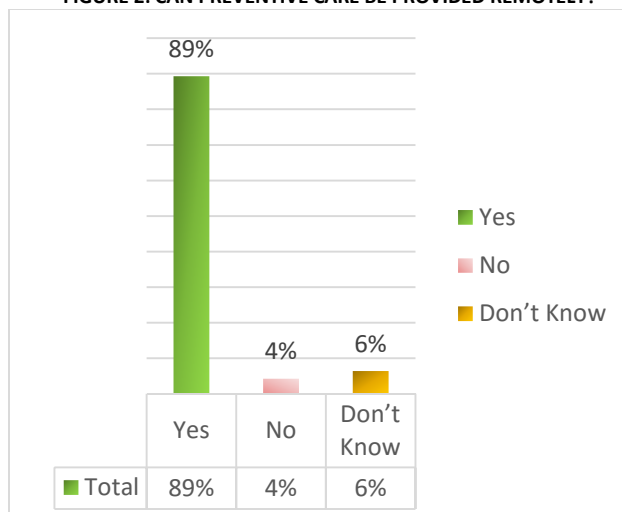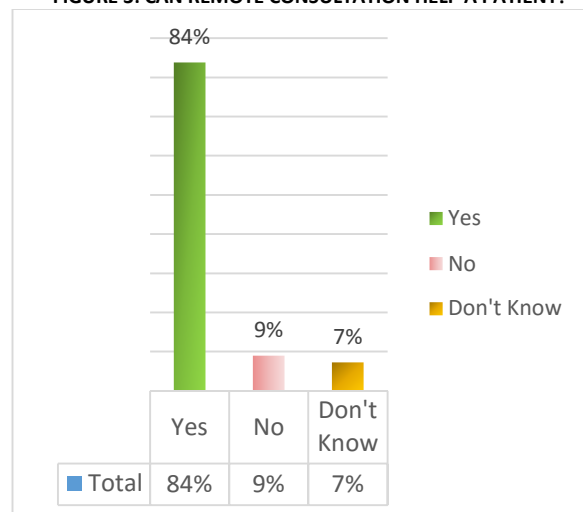**FIGURE 2: CAN PREVENTIVE CARE BE PROVIDED REMOTELY?**

	Yes	No	Don't Know
Total	89%	4%	6%

FIGURE 3: CAN REMOTE CONSULTATION HELP A PATIENT?

	Yes	No	Don't Know
Total	84%	9%	7%

Further 84% believe that remote consultation may help a patient in emergency Fig 3. Over 70% of India's population lives in villages and deprived of healthcare facilities. Remote consultation is a need of the nation today and mHealth approach may be very effective in Rural India.

Primary healthcare is a challenge in the country. More than 70% population is deprived of the primary healthcare due to infrastructure or resource issues. Most doctors are aware and recognize this fact. In response to the same question 96% doctors believe that primary care is a huge challenge in India. Fig. 4

FIGURE 4: PRIMARY CARE IS A HUGE CHALLENGE IN INDIA

	Yes still a huge challenge to be overcome	No long relevant in current context of India as an emerging nation
Total	96%	4%
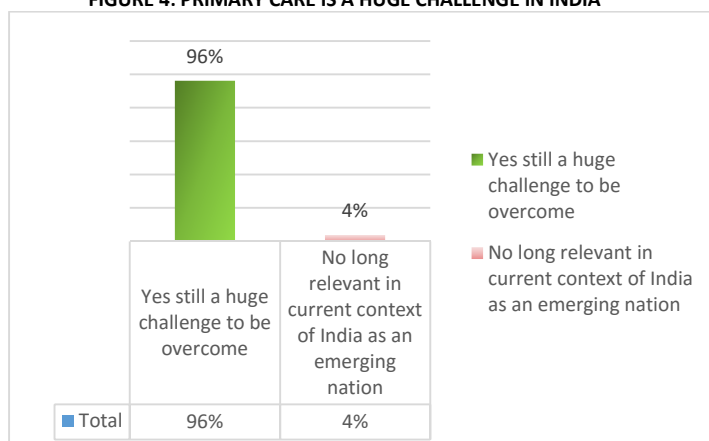
FIGURE 5: mHealth MAY REDUCE HEALTH EXPENDITURE

	Definitely	Not True	Not very sure
Total	89%	2%	9%
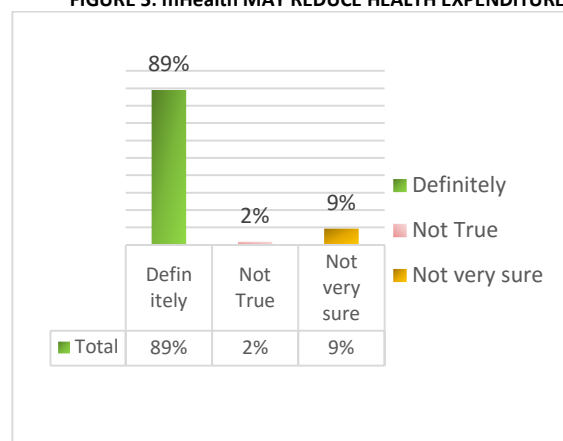
India has limited budget allocated to healthcare and burden of chronic disease management can be reduced if quality of primary care is improved. 89% doctors in this survey believe that "if efficient and effective primary care is available to the people, it may result in a reduction in the chronic disease and in turn result in reduced expenditure on healthcare both by citizen and government" Fig 5 above.

Another interesting fact emerged about the awareness about mHealth among the doctors. mHealth is being discussed openly on global forums but only 57% doctors in India are aware of mHealth. 43% doctors who participated in the survey have no idea about mHealth Fig 6 below. Answer to another question if they are aware of any mHealth service available in India? 89% respondents were not aware of any mHealth service in India while 11% have heard or aware of mHealth services in India (Fig 7). A surprising reality is that a few mobile services are available in India but doctors are not aware of any service.
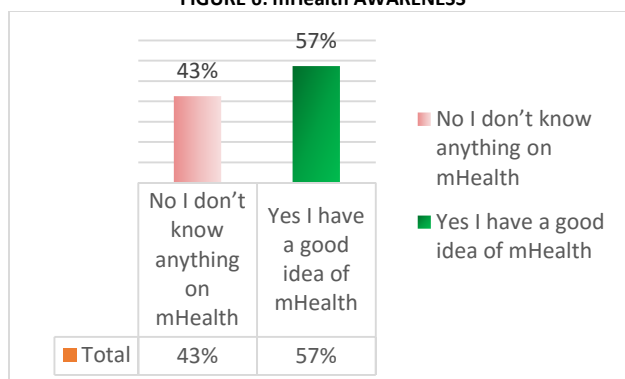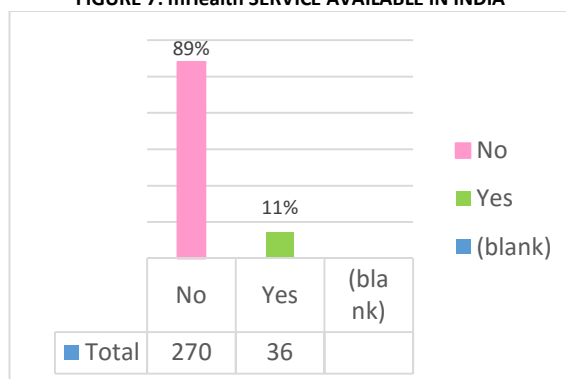
FIGURE 6: mHealth AWARENESS

FIGURE 7: mHealth SERVICE AVAILABLE IN INDIA

Most doctors believe that mobile phones have reached to remotest corner of the country. TRAI (ref) report also suggest the same. 37% doctors in this survey believe that healthcare can be provided at anytime and anywhere and 48% of all think it's possible to provide healthcare through mobile phones at anywhere and anytime but not sure how. This analysis also supports the belief of doctors that remote consultation can be provided Fig 8.

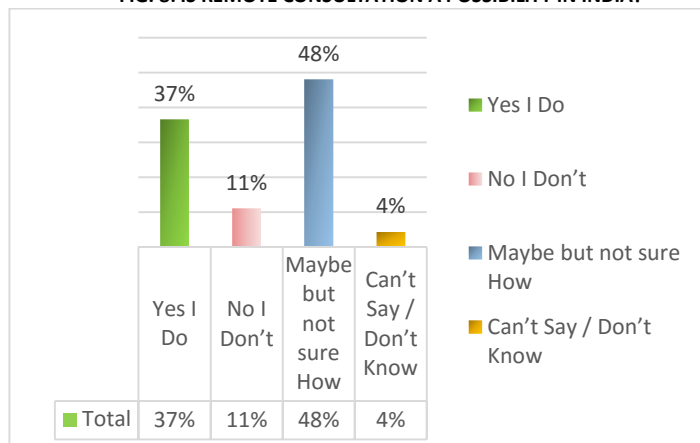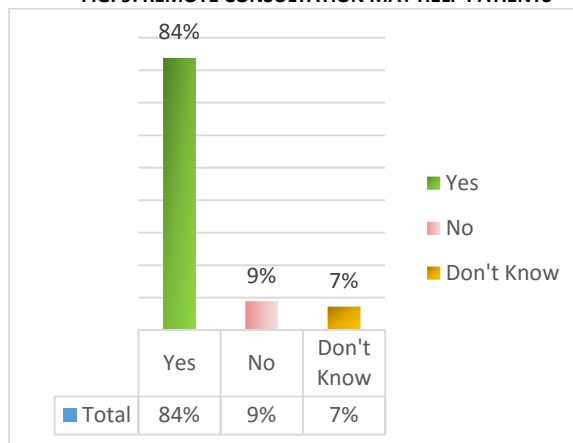FIG. 8: IS REMOTE CONSULTATION A POSSIBILITY IN INDIA?

FIG. 9: REMOTE CONSULTATION MAY HELP PATIENTS

In Indian perspective, where 70% population do not have easy access to HealthCare, remote patient care can be an efficient and economical means to provide healthcare. In support of above argument, good 84% doctors among all respondents believe remote consultation may help a patient in any situation and can be a first level of engagement with a health worker or doctor before patient visits a medical Centre Fig 9.

Though most doctors responded in favor of remote consultation, only 42% believe meeting patient face to face is not necessary and care may be provided remotely Fig 10. Among all respondents, 58% believe that without seeing a patient face to face proper care cannot be provided and may result in wrong diagnosis, wrong advice and may result in a medico-legal issue. However, good 89% believe that remote consultation is possible and preventive care can be provided remotely Fig 11.

FIGURE 10: IS IT NECESSARY TO MEET PATIENT FACE TO FACE
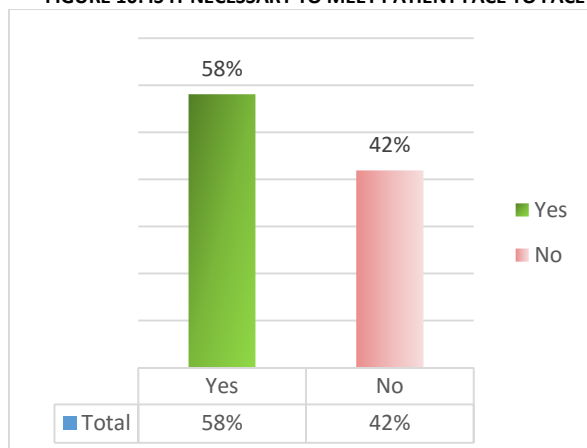
FIGURE 11: CLINICIANS VIEW ON REMOTE PREVENTIVE CARE
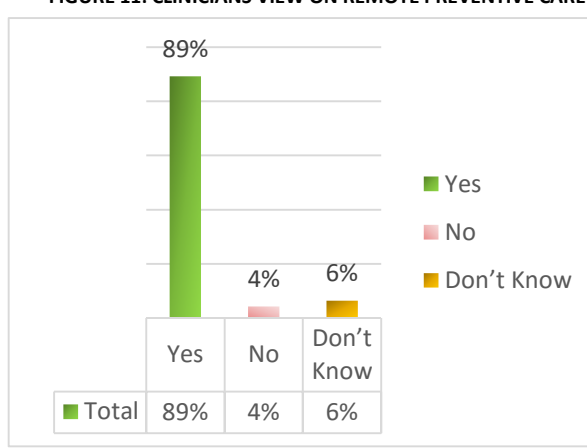
Most doctors are not aware of mHeatlh services Fig 7. Among all respondents 78% doctors believe that there is a risk in remote consultation. Only 22% doctors do not see any kind of risk in remote consultation. These 78% doctors who believe remote care is a risk believe that they may face a medico legal case due to wrong diagnosis because of wrong information provided by patient over phone Fig 12.
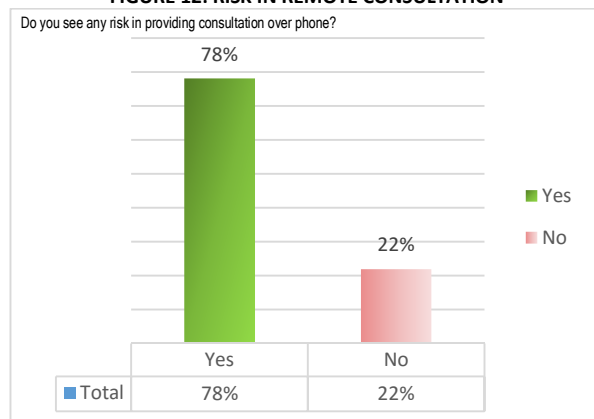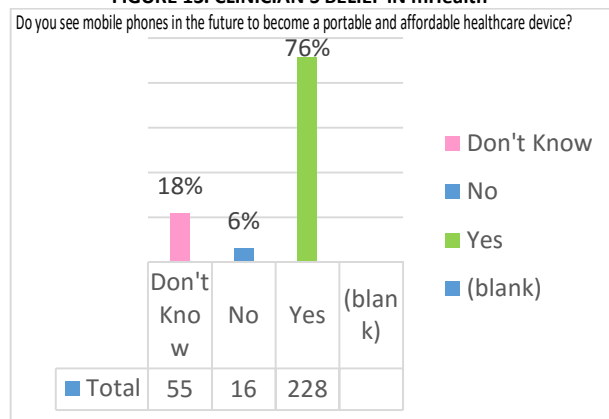
FIGURE 12: RISK IN REMOTE CONSULTATION

Do you see any risk in providing consultation over phone?

	Yes	No
Total	78%	22%

FIGURE 13. CLINICIAN'S BELIEF IN mHealth

Do you see mobile phones in the future to become a portable and affordable healthcare device?

- Don't Know
- No
- Yes
- (blank)

	Don't Know	No	Yes	(blank)
Total	55	16	228	

95% doctors among all the respondents have mid-level to high-end smart phones that they use for communication Fig 1 but 76% respondents believe that mobile phones will become a portable and affordable healthcare device in the future. Fig 13 represents the responses and indicates only 6% among all respondents suggest that mobiles will not become any meaningful portable device in future.

45% doctors believe that they can provide remote consultation only through video calls. However, 43% believe that they can work with both voice and video calls for remote patient care depending on the need for obtaining healthcare service. 11% doctors believe that they cannot deliver proper care on either mode. 20% doctors did not respond to this question.

Rural India suffers more with communicable disease but non communicable disease percentage is increasing day by day. Chronic disease management is a challenge both in urban and rural areas. Urban population have access to care for chronic disease management but rural India is deprived of healthcare facility for non-communicable and communicable disease both. This survey suggests that 93% doctors believe that mHealth can be of great help in chronic disease management irrespective of urban and rural population Fig 14.

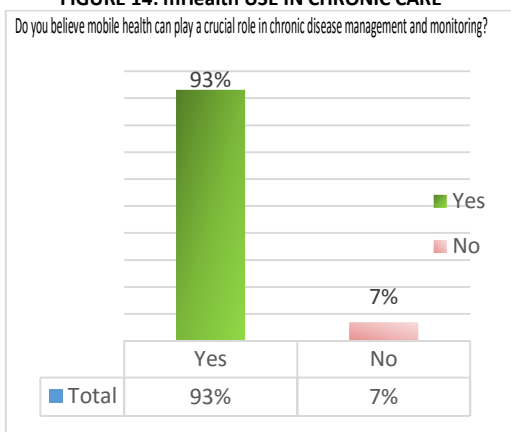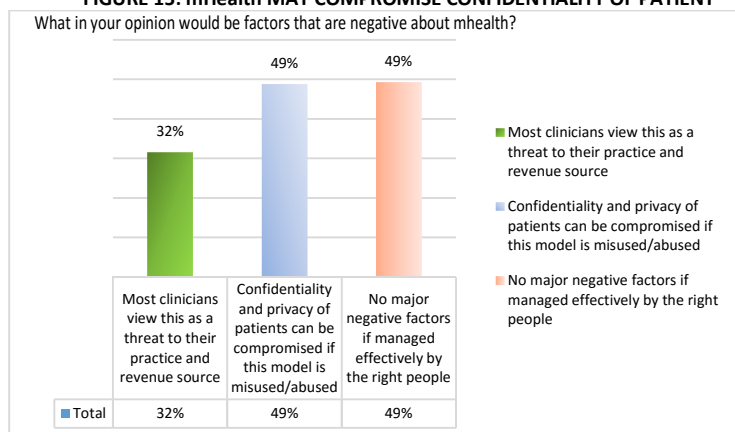**FIGURE 14: mHealth USE IN CHRONIC CARE**

Do you believe mobile health can play a crucial role in chronic disease management and monitoring?

	Yes	No
Total	93%	7%

FIGURE 15: mHealth MAY COMPROMISE CONFIDENTIALITY OF PATIENT

What in your opinion would be factors that are negative about mhealth?

- Most clinicians view this as a threat to their practice and revenue source
- Confidentiality and privacy of patients can be compromised if this model is misused/abused
- No major negative factors if managed effectively by the right people

	Most clinicians view this as a threat to their practice and revenue source	Confidentiality and privacy of patients can be compromised if this model is misused/abused	No major negative factors if managed effectively by the right people
Total	32%	49%	49%

Doctors suggests that mobile apps for capturing patient vitals/ observations when not in Hospital can help both patient and doctors. For a doctor patients' data will be useful for accurate and efficient care. However, for a patient its cost and convenience both. Regularity of treatment and medication and follow-ups is extremely important for chronic disease and "mHealth may be used for reminders, for regularity and treatment and medication. mHealth can also be used for monitoring the patient conditions such as hyper tension and diabetes etc. Only 7% doctors do not believe that chronic disease management and monitoring is possible but 93% believe mobile health will be helpful in chronic disease management. A very crucial question about the negative factors influencing the mHealth, good 49% do not see any negative factors in the mHealth practice if the service is managed by right people. However, 32% see mHealth as a threat to their practice and revenue sources. Another 49% believe that mHealth is possible but may compromise the confidentiality and privacy of patients if mHealth model is misused or abused. Figure 15 above.

76% doctors believe that mobile phones will become a portable and affordable healthcare tool in the future. This might bring revolution both in developed and developing nation. For developed nation, these mobile devices may become luxury but for developing nation such as India, affordable mobile phones embedded with healthcare devices may be a need to serve patient across the country but more for rural population. 71% doctors believe a 50 – 50 chance of mHealth growing and succeeding to enable care delivery but 23% believe mHealth has the potential to disrupt the current care delivery system. However, 6% do not believe mHealth will grow.

CONCLUSION

A country with over a billion people needs large healthcare infrastructure. Preventive healthcare as well as chronic care management is a huge challenge for the country. Public nor private have resources to create huge infrastructure for rural population of India. There is an acute shortage of doctors in the rural India and most of the rural population do not have access to even quality primary healthcare. Online survey and face to face interviews of doctors across the country suggest that doctors believe preventive healthcare could be a reality using mobile phones and mHealth can be used as a means to provide preventive care. Though large number of doctors believe preventive healthcare through mHealth is a great opportunity but also believe quality and speed of care can be significantly improved using mHealth. Smartphone uses is growing every day. About 95% doctors already using smart phones and more than 32% of the urban population are using smart phones for day to day needs. mHealth can be a great support in reducing the cost of treatment for the patients of chronic care both for the urban and rural population but more for rural population living in remote areas which comprises 70% of the population. mHealth may provide access to patients in the remotest corner of the country to reach out to specialist doctors sitting 1000s of miles away. It may help reduce the cost and infrastructure burden as well but most important is that clinicians in India are opening up and positive about the mHealth.

REFERENCES
1. Mobile technology poised to enable a new era in health care. http://www.ey.com/Publication/vwLUAssets/mHealth/$FILE/mHealth%20Report_Final_19% 20Nov%2012.pdf

2. World Health Organisation "mHealth – New horizons for health through mobile technologies, Global Observatory for eHealth series, Vol. 3, page 6. http://www.who.int/goe/publications/goe_mhealth_web.pdf

3. Telcome Regulatory Authority of India(TRAI). http://trai.gov.in/Content/PerformanceIndicatorsReports/1_1_PerformanceIndicatorsReports.aspx

4. Telcome Regulatory Authority of India(TRAI): The Indian Telecom Services Performance Indicators for FY 2003-04. http://www.trai.gov.in/WriteRead-Data/PIRReport/Documents/Report%20QE%20Mar%2000-04.pdf

5. Censusinfo India 2011: http://www.dataforall.org/dashboard/censusinfoindia_pca/

6. Recommendations on Electronic Medical Records Standards in India to the Ministry of Health and Family Welfare, Government of India http://clinicalestablishments.nic.in/WriteReadData/107.pdf

7. Maddalena Fiordelli, Nicola Diviani, Peter J Schulz et.al. Mapping mHealth Research: A Decade of Evolution. JMIR Publications, Vol 15, No 5 (2013): May. http://www.jmir.org/2013/5/e95/

8. Warren A Kaplan. Can the ubiquitous power of mobile phones be used to improve health outcomes in developing countries? Globalization and Health, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1524730/

9. Feldmann V. Mobile overtakes fixed: Implication for policy and regulations, International Telecommunications Union 2003:I-39 https://www.itu.int/osg/spu/ni/mobileovertakes/Resources/Mobileovertakes_Paper.pdf

10. The Impact of Mobile Phones, Vodafone Policy Paper: Africa: http://info.worldbank.org/etools/docs/library/152872/Vodafone%20Survey.pdf

11. Emmanuel Forestiera Jeremy Graceb; Charles Kennya. Can information and communication technologies be pro-poor? The World Bank, 1818 H. Street NW, Washington, DC, 20433, USA bState University of New York, Geneseo, NY, USA http://www.alle.de/transfer/downloads/MD468.pdf

12. de Jongh T, Gurol-Urganci I, Vodopivec-Jamsek V, Car J, Atun R. Mobile phone messaging for facilitating self-management of long-term illnesses. http://www.ncbi.nlm.nih.gov/pubmed/23235644

13. How Mobile Devices are Transforming Disaster Relief and Public Safety; http://www.issuelab.org/resource/how_mobile_devices_are_transforming_disaster_relief_and_public_safety

14. Understanding the needs and wants of pregnant women and mothers http://www.gsma.com/connectedwomen/wp-content/uploads/2014/07/Consumer-Research-Report.pdf

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