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**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.

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## MOBILE PHONE MESSAGING INTERVENTIONS MAY PROVIDE BENEFIT IN SUPPORTING THE SELF-MANAGEMENT OF LONG-TERM ILLNESSES: AN ANALYSIS

**SURENDRA NATH SHUKLA**  
**RESEARCH SCHOLAR**  
**SHARDA UNIVERSITY**  
**GREATER NOIDA**

**DR. J K SHARMA**  
**PROFESSOR & DIRECTOR**  
**AMITY SCHOOL OF BUSINESS STUDIES**  
**AMITY UNIVERSITY**  
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### ABSTRACT

*Over 70% of Indian population lives in villages and deprived of adequate healthcare facilities within their reach. Urban poor and rural population are equally suffering due to lack of skilled health workers, infrastructure and inability to pay for expensive and long term illness. 50% of deaths in India occur due to chronic diseases<sup>13</sup>. Mobile penetration has been on rise and over 70% of Indian population now have access to mobile phones. With limited spend by government on healthcare new avenues are being looked to support long term illness. The objective of this paper is to analyze the views of over 300 doctors and assess if mobile based messaging intervention may help the patients in self-management of long term illness? The survey results indicate that 67% doctors use SMS for day to day patient care and 88% doctors believe that mobile based text messaging interventions may help self-management of long term illness. Further 93% doctors believe that mHealth including mobile based text messaging can play a crucial role in chronic disease management.*

### KEYWORDS

mobile phone messaging, self-management, long-term illnesses.

### INTRODUCTION

Mobile text messages have become part of day to day life. Mobile based text messages called Short Messaging System (SMS) are being used in banking, promotion, sales, Railways, Airways etc. There is no industry vertical left where SMS are not being used. Even political parties use SMS for election campaign and government uses for dissemination of information. Healthcare is no different. Receiving SMS for appointments with doctors, Lab results or medication management is very common.

Citizen are well aware of the complexities in healthcare and very much concerned about the wellness. There has been a rise in expectation and citizen demand speedy, economical, effective and quality healthcare solutions available all the time. Approach to healthcare delivery has also changed in the last few years. Healthcare delivery organizations extensively use Information Technology and Mobile devices for patient care. With the availability of smart phones at low cost, the use of mobile phones for healthcare delivery has increased. There are direct communication channels between the doctor, patient and other hospital staff. It provides a great convenience to doctors and patient both. One such example is communication of abnormal lab results of a patient to doctor on the mobile through the use of an IT system is an everyday event and provides faster and accurate information about the patient condition to doctor. As mobiles have penetrated deeply in the day to day life of citizen, its use in healthcare has seen an increasing trend in last decade or so. The use of SMS by citizen, government, doctors and hospitals has seen a dramatic change and brought a positive result in the frequency and speed of communication among all stake holders in the healthcare delivery. Government use mobile text messaging for dissemination of information related to healthcare and wellbeing of the citizen. Healthcare delivery organizations, doctors and laboratories use SMS to remind or confirm patient appointment for the services or sending lab results. The use of wireless Telecommunication Network for flexible, efficient and effective healthcare delivery is called mobile health or commonly known as mHealth<sup>1</sup>. Patients with chronic ailments needs to be in touch with hospitals or doctor on a regular basis and for long time. Availability of healthcare for long term illness or chronic patients is the basic need irrespective of culture, geography and gender. India is struggling to provide basic needs due to lack of infrastructure and skilled resources for growing population. More than 70% of rural population is deprived of healthcare due to unavailability of infrastructure and skilled healthcare workers in the villages. Chronic patients living in rural areas do not get adequate attention and also have to travel long distances for accessing healthcare facilities. SMS is one communication channel that connects the remotely located patients with healthcare facilities and bridge the gap between rural and urban divide.

### LITERATURE REVIEW

There is a wide gap in terms of availability of healthcare to the urban and rural population. The Indian population estimated to be 1.32 billion as of 2016<sup>2</sup> and 68% of the population lives in rural areas and villages<sup>2</sup>. Rural India lacks healthcare infrastructure and population living in these areas are deprived of any healthcare facilities<sup>3</sup>. More than 17.84% of world's population lives in India<sup>2</sup>, but disease burden among the developing nations is much more in India than other developing nation. India carries a huge disease burden of 21% of world's population<sup>4</sup>. The spent on healthcare has reduced from 4.4% of GDP in 2010 to 1.2% in 2015<sup>5</sup>. With the shrinking budget and growing population healthcare is a major challenge for India. However, more than 70% of rural population have access to mobile phones and provide an opportunity to harness the power of mobile phones in addressing the healthcare issues.

mHealth offers an opportunity to address the long term illness. There are numerous studies suggesting SMS has been helpful in healthcare delivery to chronic patients in many ways. In a mHealth research done on 13 studies, it was found that 9 studies show improvement in adherence from 15.3 to 17.8% by use of SMS to promote medication adherence messages<sup>5</sup>. Standard messages were designed to reach to targeted patients. Unidirectional or bidirectional messages based on a schedule have produced remarkable results and improved medication adherence<sup>6</sup>. In another study impact of text messaging was reviewed. The study involved mental health situation and seen a positive trend since 2006 in text messaging<sup>7</sup>. Text Messages have been recommended as a tool in many mental illness conditions<sup>7</sup>. After a review of 36 studies it has been concluded in the research that text messages have a positive impact on healthcare delivery<sup>7</sup>.

Text messaging has given evidence of positive results for lifestyle management, preventive care and self-management of long term illness<sup>8</sup>. Further suggested that people meet their health advisors only a few times in a year but all of them have their mobile phones with them all the time. It would be best to send them reminders for behavioral prompts and other health advisory in a user friendly manner<sup>8</sup>. Apart from self-management of long term illness, there are many other areas where SMS based healthcare could be provided like support and touchpoints between appointments, population reach at low cost, acceptable mode of communication, overcoming stigma and isolation, disruptive, every day and in real time, overcoming disparities and personalized support etc. Among all these, disrupting people in their day to day life to change the habits from automatic habitual behavior to self-management and conscious action itself may bring significant change<sup>8</sup>. Long term illness like hypertension needs regular support to attend clinics and taking regularly and timely medication. Some trials of clinical interventions through SMS have given good results<sup>9</sup>. A SMS system integrated with clinical care to control hypertension in a low resource setting to test the efficacy of the SMS



based system to improve blood pressure of people suffering from hypertension has given good results<sup>9</sup>. Another study based in Bangladesh describes the study of SMS on diabetic patients on their knowledge and medication adherence, glycemic control and clinic attendance for patients with type 2 diabetes<sup>10</sup>. The study suggests that large number of patients have been benefited by the SMS based health promotion and SMS may be an effective tool for medication reminders, clinic and appointment reminders, diabetes health education and awareness about disease<sup>10</sup>.

SMS based mHealth intervention showed significant improvement in medication management, diet and physical activity advice. Regular communication through SMS to monitor and control clinical parameters like HbA1c, blood cholesterol, blood glucose and control of asthma and blood pressure shown significant improvement<sup>11</sup>. A study conducted by ITS-CDSR through the department of public health and dentistry in India suggests SMS based communication influences the patients in achieving desired behavior change and improves the care delivery<sup>12</sup>.

Study suggests that SMS technology is more cost effective and helpful in improving the patient attendance<sup>12</sup>. An attendance of 79.2% was observed among the patients who were sent SMS reminders as compared to 35.5% attendance by those who were not sent any SMS reminders, suggests SMS based communication has improved the attendance more than twice<sup>12</sup>.

**OBJECTIVES**

1. To assess if doctors use SMS interventions in day to day life for patient care?
2. Mobile phone messaging interventions may provide benefit in supporting the self-management of long-term illnesses?
3. To find out if mobile health can play a crucial role in chronic disease management and monitoring?
4. What are the factors that in clinician’s view are negative about mHealth?

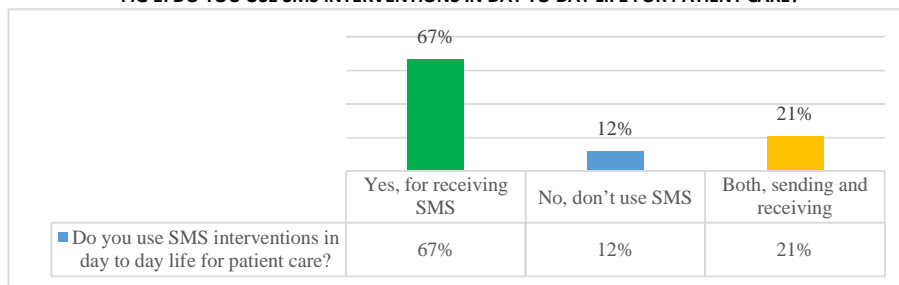
**RESEARCH DESIGN**

The research is based on a questionnaire based survey conducted between 7<sup>th</sup> July 2014 and 30<sup>th</sup> September 2014. The questionnaire was carefully designed keeping the factors that influence the delivery of healthcare through mobiles. The main factors considered were Urban-Rural divide of the population, lack of healthcare infrastructure, growing population of India and outburst of chronic disease in last couple of decades. Over 5000 doctors were approached through mailers. Only about 300 doctors responded to the questionnaire with their views and suggestions. The questionnaire included 24 questions of which only 4 questions relevant to this paper are considered in this research. The research is based on primary data on the views of doctors on mHealth in India.

**DATA ANALYSIS/RESULT**

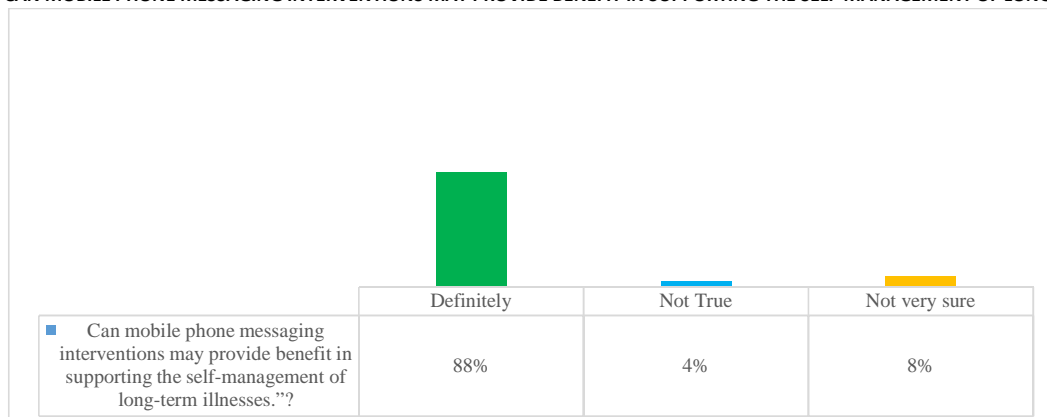
**Research Question 1:** Do you use SMS interventions in day to day life for patient care? In response to the question, 67% participating doctors (Fig 1) responded that they use SMS service for receiving patient’s healthcare related messages. These messages are generally for receiving confirmation of appointment, rescheduling the appointment or receiving clinical information like abnormal lab results. 21% participants use SMS for both receiving and sending messages. The two way communication between doctors and patients is about advice or instructions based on the message received, interpretation of lab results or suggestions, admissions etc. Receiving message in this case also is for confirmation of appointment, information about abnormal lab results or any other condition needs doctors intervention. 12% participants responded against the use of SMS for any communication with patient and suggested that they do not use SMS for any communication with the patients.

**FIG 1: DO YOU USE SMS INTERVENTIONS IN DAY TO DAY LIFE FOR PATIENT CARE?**



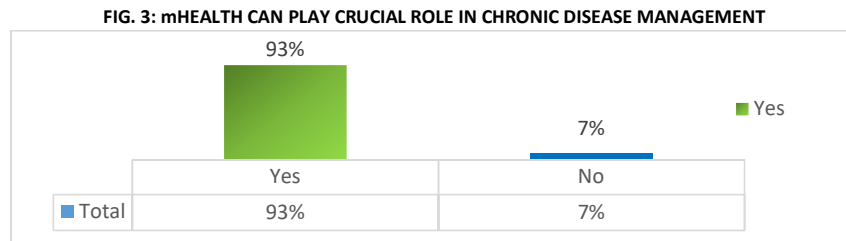
**Research Question 2:** Mobile phone messaging interventions may provide benefit in supporting the self-management of long-term illnesses? 88% doctors (Fig 2) believe that SMS interventions will definitely benefit the self-management of long term illness. Chronic conditions like cardiovascular disease and diabetes require regular monitoring and care. Most patients especially those who are living in rural areas may not have access to healthcare facility in the vicinity hence, may avoid going to a doctor on need basis. In such situations SMS intervention for education, medication adherence, awareness and lifestyle management may prove to be very useful and patients can do self-management of these chronic conditions. The survey result suggest only 8% doctors are not sure of the benefit while only 4% strongly believe that SMS intervention will not benefit the patients.

**FIG. 2: CAN MOBILE PHONE MESSAGING INTERVENTIONS MAY PROVIDE BENEFIT IN SUPPORTING THE SELF-MANAGEMENT OF LONG-TERM ILLNESSES?**



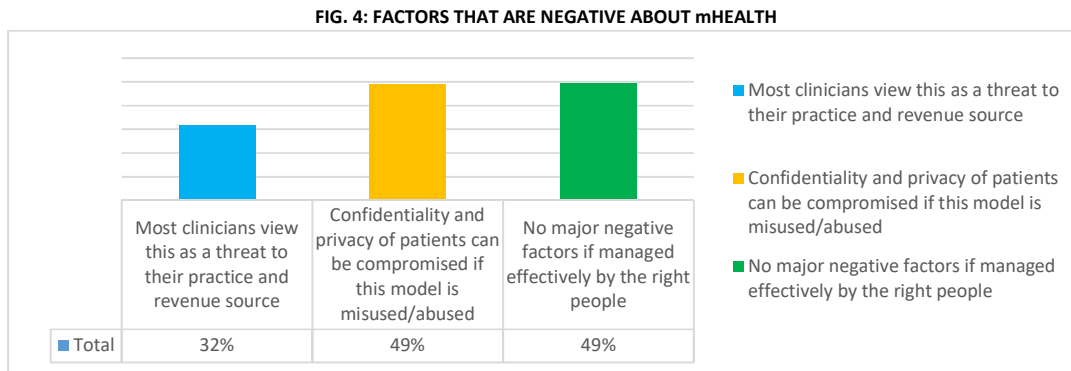
**Research Question 3:** To find out if mobile health can play a crucial role in chronic disease management and monitoring? A WHO study suggests that of all the deaths occurred in 2004, 11% were due to injuries and 50% deaths were due to chronic diseases<sup>13</sup>. Chronic diseases such as cardiovascular diseases, diabetes, cancer and mental health etc. are the main cause of deaths and disability in India<sup>13</sup>, and this is going to increase in next 25 years<sup>13</sup>. These diseases are equally

prevalent among urban poor and rural population<sup>13</sup>. In chronic conditions patients require regular care and monitoring. Lack of infrastructure and lack of skilled health workers in rural India is a constraint for economical and effective chronic care. mHealth is a cost effective and efficient in reaching out to remote areas and may provide economical and effective interventions for managing chronic disease<sup>14</sup>.



93% respondents (Fig 3) in the survey believe that mHealth may play a crucial role in managing chronic conditions. Most chronic patients require continuous counselling, awareness and education about the lifestyle and behavioral habits. Over 70% of Indian population use mobile phones for day to day communication which may also be used for chronic condition management. Mobile phone text messaging intervention may be used as a tool to bring change in the lifestyle of the patients<sup>15</sup>. mHealth could be more useful for rural population which has no healthcare facilities to manage the chronic illness and have to travel long distance to reach out to healthcare facilities, which is expensive and difficult for rural population. Only 7% (Fig 3) respondents believe that mHealth may not play any crucial role in chronic disease management.

**Research Question 4:** What are the factors that in clinicians view are negative about mHealth? 49% clinicians (Fig 4) do not see any major negative factors in the use of mHealth for clinical interventions. However, 32% clinicians think that mHealth may be a threat to their practice and revenue source. Another major recommendation by clinicians (49%, Fig 4) suggest that confidentiality and privacy may be compromised if mHealth is misused or abused. More importantly 49% do not see any major negative factor suggest that mHealth as a model will be successful and SMS intervention as part of mobile service may help patient in self-management of long term illness.



**CONCLUSION**

Poor healthcare infrastructure, lack of awareness and lifestyle is causing outburst of chronic diseases in India. Mental health, cardiovascular diseases, cancer and diabetes are the 50% reason for death in India. Urban poor and rural population is most deprived of healthcare facilities. While people may not have access to healthcare facilities, but more than 70% Indian population has access to mobile phones. The opinion of 300 doctors who responded in the survey suggest that Mobile phone messaging interventions may provide benefit in supporting the self-management of long-term illnesses. Further 93% doctors believe that mHealth may play a crucial role in chronic disease management.

**REFERENCES**

- Robert Istepanian, Swamy Laxminarayan, Constantinos S Pattichis; M-health; [http://scholar.google.co.in/citations?view\\_op=view\\_citation&hl=en&user=XPzbZUAAAAJ&citation\\_for\\_view=XPzbZUAAAAJ:d1gkVwhDpl0C](http://scholar.google.co.in/citations?view_op=view_citation&hl=en&user=XPzbZUAAAAJ&citation_for_view=XPzbZUAAAAJ:d1gkVwhDpl0C)
- <http://www.worldometers.info/world-population/india-population/>
- Healthcare in India - Columbia University <assets.ce.columbia.edu/pdf/actu/actu-india.pdf>
- Country Cooperation Strategy at a glance; WHO/CCO/13.01/India; <http://www.who.int/countryfocus> Updated May 2013
- Insuring affordable healthcare; Web. 30 Apr. 2012; <http://www.arogyarakshayojana.org/>
- DeKoekkoek et al (October 2015); mHealth SMS text messaging interventions and to promote medication adherence: an integrative review; Journal of Clinical Nursing; Volume 24, Issue 19-20, pages 2722–2735; <http://www.ncbi.nlm.nih.gov/pubmed/26216256>
- Sofian Berrouiguet et al (2016); Fundamentals for Future Mobile-Health (mHealth): A Systematic Review of Mobile Phone and Web-Based Text Messaging in Mental Health; <http://www.jmir.org/2016/6/e135/>
- Karen Pine (2014); Mhealth – the golden rules for SMS texts in Public Health; <http://dsd.me/2015/07/17/mhealth-role-sms-texts-public-health/>
- Kirsty Bobrow et al; Efficacy of a text messaging (SMS) based intervention for adults with hypertension: protocol for the StAR (SMS Text-message Adherence support trial) randomised controlled trial; <http://bmcpubhealth.biomedcentral.com/articles/10.1186/1471-2458-14-28>
- Sheikh Mohammed Shariful Islam et al; Mobile phone intervention for increasing adherence to treatment for type 2 diabetes in an urban area of Bangladesh: protocol for a randomized controlled trial; <http://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-014-0586-1>
- F. Yasmin et al; Positive influence of short message service and voice call interventions on adherence and health outcomes in case of chronic disease care: a systematic review; <http://bmcmmedinformdecismak.biomedcentral.com/articles/10.1186/s12911-016-0286-3>
- Why we bet on mobile technology.; <http://caremessage.org/mobile/>
- Vikram Patel et al; India: Towards Universal Health Coverage 3 Chronic diseases and injuries in India; [http://www.who.int/choice/publications/Chronic\\_diseaseIndia.pdf](http://www.who.int/choice/publications/Chronic_diseaseIndia.pdf)
- Mark W. Friedberg; Peter S. Hussey and Eric C. Schneider; Primary Care: A Critical Review Of The Evidence On Quality And Costs Of Health Care; <http://content.healthaffairs.org/content/29/5/766.abstract>
- Heather Cole-Lewis and Trace Kershaw; Text Messaging as a Tool for Behavior Change in Disease Prevention and Management; <https://epirev.oxfordjournals.org/content/early/2010/03/30/epirev.mxq004.full>

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