

Original Research Article

Perception of male college students of Delhi University regarding the use of mobile health technology as a health promotion tool in India

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ABSTRACT

Background: Mobile health (mHealth) is a term used for the practice of medicine and public health supported by mobile devices. The mHealth field has emerged as a sub-segment of the eHealth which is the use of information and communication technology for health services. Majority of students own mobile phones and spend several hours per day on mobile phones plus there was an increasing consumer demand for mHealth in India. This ubiquitous presence of mobile phones makes it easier to use them as a health promotion tool.

Methods: A cross sectional study was conducted between November 2013 and August 2014 among 274 male college students of Delhi University who were the participants in a randomized intervention trial evaluating the use of mobile text messaging in reducing the lifestyle risk factors and asked about their opinion regarding the mobile health approach.

Results: Most of the respondents were aged 17 to 22 years (72%), pursuing science stream of education (68%), with fewer hostellers (36%) than day scholars (64%). Majority of the study participants (>90%) were satisfied with the mobile health messaging approach and most of the students (96%) felt mHealth technology could be a useful health promotion tool in India.

Conclusions: The current study shows that majority of the study participants were satisfied in receiving health promotional text messages as a part of mobile health approach and felt that this mHealth technology could be a useful health promotion tool in India. This study shows cost-effective, client-driven and universally available mobile technology can be used as a tool for health promotion.

Keywords: mHealth, Health promotion, Information and communication technology

INTRODUCTION

In 2019, the number of mobile phone users (including both smart and feature phones) is 5.2 billion, which makes 67% of people in the world a mobile phone owner¹ and India is in second position next to China in the number of mobile users.² The number of mobile users in India increased from 520 million in 2013 to 810 million in 2019 and expected to reach 1.1 billion in 2020 which is roughly around 80% of the Indian population.³ This

universal presence of mobile phones gives us an opportunity to use it for spread of any kind of information including health information particularly in remote areas and resource limited settings. Mobile health (mHealth) is a term used for the practice of medicine and public health supported by mobile devices.⁴ The mHealth field has emerged as a sub-segment of the eHealth which is the use of information and communication technology (ICT) for health services.⁵

In the current scenario, where the risk factors for non-communicable diseases (NCDs) and emergence of new communicable disease needs to be controlled effectively for the health and well-being of the community, the published literature is unusually silent about the role of using mHealth techniques in achieving the desired behaviour change. Majority of students own mobile phones and spend several hours per day on mobile phones in activities like browsing, playing games, entertainment as well as for accessing social media. Keeping in mind that the behaviour change achieved in students can be easily passed onto their peer group and families, exploring an innovative, non-preachy way of health education using the available technological advances which can easily grab the attention of youngsters to achieve the desired behaviour change is not a bad choice.

A systematic review done on the current mHealth knowledge, utility and its future shows that the poor quality of current evidence and the need for a high quality evidence on efficacy, user acceptability and cost-effectiveness of mHealth in health system strengthening.⁶ A definite knowledge gap exists in the consumer view and acceptance of technological advances in health care as most of the studies have explored the use of mobile applications for health related aspects and its convenience among participants and service providers, but only a little was known about the study participants perception about using mHealth technology for health related information.^{7,8} Based on the above facts plus the ubiquitous presence of mobile phones along with the increasing consumer demand for mHealth in India, this study aims to understand the user perspective and acceptability of mHealth services thereby provide us with insights into newer, more innovative approaches to use cost-effective, client-driven, universally available technology for health promotion.

METHODS

A cross sectional study was conducted between November 2013 and August 2014 among 274 male college students of Delhi University who were the participants in a randomized intervention trial evaluating the use of mobile text messaging in reducing the lifestyle risk factors and asked about their opinion regarding the mobile health messaging approach. The sample size of the main study was calculated assuming smoking prevalence of 28% among college students with 95% confidence interval, 80% power and expecting 50% reduction in prevalence among the exposed, the minimum required sample size was 260 (130 in each group).⁹ But we were able to collect the data from 272 students which is well above the minimum required sample size of 260. Multistage random sampling method was used to select the colleges and the study participants in each college selected under Delhi University. At the end of the main study all the study participants were asked to give their opinion and rate the mHealth approach by using a separate pre-tested questionnaire which contains

questions related to their satisfaction level about the mHealth approach, sharing of health promotional messages they received in their mobile during the study period and usefulness of mHealth according to them.

The collected data were entered in Microsoft Excel and after cleaning analysed with SPSS version 21.0. Results were tabulated and descriptive statistics was used for socio-demographic profile of the study participants and chi-square test was used to find out the association between the socio-demographic variables with the participants view about mHealth. A p value of less than 0.05 was considered to be significant.

RESULTS

Majority of the college students were in the age group of 17-22 years (72%) and 28% of the students who participated in the study were in the age group of 23 years and above. More than two-third of the study participants (68%) were pursuing science stream of education followed by arts (25%) and commerce (7%). Most of the students were day scholars (64%) only one-third of the students (36%) were hostellers (Table 1).

Table 1: Socio-demographic profile of the study participants (n=274).

Socio-demographic profile		N (%)
Age (in years)	17-22	198 (72)
	≥23	76 (28)
Course	Arts	70 (25)
	Science	185 (68)
	Commerce	19 (7)
Residence	Day scholar	176 (64)
	Hosteller	98 (36)

Table 2: Perception of study participants about use of mHealth technology (n=274).

Perception about mHealth		N (%)
Satisfied with mHealth	Yes	262 (96)
	No	12 (4)
Shared the messages received	Yes	218 (79.5)
	No	56 (20.5)
Usefulness of mHealth (rating)	Useful	263 (96)
	Not useful	8 (3)
	No review	3 (1)

More than 95% of the study participants were satisfied with the mHealth technology (i.e., receiving health promotional messages in their mobile as short message service (SMS)) and only a few participants (4%) were not happy in receiving these messages and reported as not satisfied with mHealth technology. Apart from their own satisfaction most of the study participants shared the health promotional messages which they received during the study period with their friends, family members as

well in social media (79.5%) and remaining although they are happy in receiving the messages didn't share it with others (20.5%). All the study participants were asked to rate the usefulness of this mHealth approach on a 5 point scale (1- not useful and 5- very useful) and almost all of those who are satisfied with this mHealth (96%) rated it as a useful health promotion tool. A few study participants rated mHealth approach as not useful tool for health promotion (3%) and 1% (3 students) of the study participants abstained themselves from giving any rating to this approach (Table 2).

Table 3: Association between socio-demographic factors with perception about mHealth.

Perception about mHealth	Socio-demographic factor	χ^2	P value
Satisfied with mHealth	Age	0.767	0.381
	Course	0.320	0.571
	Residence	0.190	0.662
Shared the messages received	Age	0.024	0.875
	Course	0.144	0.703
	Residence	0.896	0.343
Usefulness of mHealth (rating)	Age	0.001	0.971
	Course	0.078	0.779
	Residence	1.759	0.184

χ^2 -Chi-square value, $p < 0.05$ is considered as significant.

Association between socio-demographic variables (age, course and residence) with the study participants perception about mHealth as a health promotion tool (satisfaction, sharing of messages and usefulness rating) was found to be not significant ($p > 0.05$) (Table 3).

DISCUSSION

This study was conducted among students studying in non-professional courses in Delhi University and most of them were in the age group of less than 22 years which is comparable to the study on mHealth by Parthaje et al in South India among students studying in professional courses in which more than 60% of the students were in the age group of ≤ 20 years.¹⁰ Students staying off campus in the current study (64%) matches with a study by Peprah et al in Ghana among University students which shows almost 60% of the students were day scholars.¹¹

Majority of the study participants were satisfied with the mHealth approach which doesn't interfere in their routine activities and is in line with the findings by Loo about acceptance of healthcare services on mobile phones in which the consumers are interested in using mHealth services and satisfied with this approach as well to a another study conducted in South India where the participants have a positive perception towards mHealth.^{10,12} A study by Jain et al found that young individuals are more interested in using mobile apps for health related behaviour change which supports our study

finding of young college students satisfaction level in using mHealth for lifestyle and behaviour change.⁸

While trying to find out the association of the study participants socio-demographic characters (age, course and residence) with their view about the use of mHealth technology as a health promotion tool in India none of the variables were significantly associated with the satisfaction, sharing of messages and rating of mHealth as $p > 0.05$ in all the factors analyzed (Table 3). This shows that whatever their age (either below or above 22 years), whichever stream they pursue (arts, science or commerce) and wherever they live (hostel or home) majority of the study participants were satisfied with this mHealth technology and happy in receiving and forwarding the health promotional messages. Thus socio-demographic variables have no role in the participants view about using this mHealth technology as a health promotion tool and doesn't influence their opinion in any way. This may be because of the universal availability and accessibility to mobile phones irrespective of their age or residence as well as the SMS format of the health advice which is not preachy and easy for them in sharing in social media or with their friends and family.

CONCLUSION

Majority of the study participants were satisfied in receiving health promotional text messages as a part of mobile health approach, voluntarily shared the messages with their friends, family as well as in social media and felt that this mHealth technology could be a useful health promotion tool in India. This study shows cost-effective, client-driven and universally available mobile technology can be used as a tool for health promotion thereby improving the general well-being of the community.

Limitations

Being a cross-sectional study conducted only among male students due to the study framework the generalisability of the study findings needs to be further evaluated due to gender bias. This study analysed the passive reception of health promotional messages in mobile and not the active use of mobile health care delivery services by the study participants. So, the future studies may be conducted with both the active and passive usage of health care services using mHealth technology involving both the gender to get a comprehensive picture of the consumer point of view about the mHealth.

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