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Mobile Phone SMS-Based Educational Intervention To Medical Undergraduates For Reduction of Stigma and Discrimination Against PLHIV In Healthcare Settings

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ORIGINAL RESEARCH

ABSTRACT

Aim

To provide mLearning intervention to experimental group of 30 medical students using mobile phone based SMS technology

Background

Medical students universally own mobile phones with a potential to meet their educational needs. mLearning is a type of mHealth for educating and increasing the capacity of health care providers.

Material Methods

A pre-test and post-test, cross-sectional study design was used to assess the levels of knowledge, attitudes of 30 clinical undergraduates regarding stigma and discrimination towards People Living with HIV (PLHIV) in healthcare settings during August to October 2013 in Tagore Medical College Hospital, Chennai. The intervention phase included the design and implementation of mLearning initiative through SMS technology.

Results

Fears of contagion (33%) and poor awareness (23%) among care providers were identified as reasons for stigma. Improved knowledge about definition of stigma 100%, 97% for Quality, Quantity of HIV virus and Route of transmission (QQR) determining the risk of HIV transmission, 97% for identifying scheduling consultancies towards the end and charging high for PLHIV surgeries as stigma, is seen in experimental group.

Conclusion

mLearning opportunities support stigma reduction in health care settings by improving knowledge and attitudes of care providers.

Key Words

HIV/AIDS, mHealth, mLearning, People Living With HIV, Stigma and Discrimination, Short Message system (SMS).

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INTRODUCTION

Globally, with 2.5 million new infections, approximately 34 million people were living with HIV at the end of 2011.¹ The Sixth Millennium Development Goals (MDG) set to Combat HIV/AIDS has the target to have halted and begun to reverse the spread of HIV/AIDS by 2015 and to achieve universal access to treatment for all those who need it by 2010.² India has an estimated 2.08 million people living with HIV/AIDS (PLHIV) in 2011 with steady decline of adult prevalence to 0.31 percent.³ The World AIDS Day 2012 theme reiterates the commitment to Zero discrimination towards PLHIV.⁴

Stigma towards PLHIV is defined by Joint United Nations Program on HIV/AIDS (UNAIDS) as a process of devaluation of people either with or associated with HIV and AIDS. Discrimination follows stigma and is the unfair and unjust treatment of an individual based on his or her real or perceived HIV status.⁵

In Indian hospitals, stigma and discrimination is manifested as health workers informing family members of a patient's HIV status without his or her consent, and doing the following activities only with HIV-positive patients: burning

their bedding upon discharge, charging them for the cost of infection control related consumables, and using gloves during all interactions, regardless of whether physical contact occurred.⁶ The stigma and discrimination experienced by PLHIV in the healthcare settings will discourage them to access HIV counselling and testing (HCT) services and disclosure of HIV test results to family, uptake of preventive and treatment services in hospitals.

World Health Organization (WHO) defined mHealth or mobile health as medical and public health practice supported by mobile devices.⁷ The positive features of mHealth initiatives form a subject of growing interest yielding time and cost savings.^{8,9,10,11,12,13,14} mLearning is a type of mHealth for educating and increasing the capacity of health care providers.¹⁵ Pilot studies reported mobile technologies as beginning to show impressive potential to train health workers using mobile phones especially Short Message System (SMS) but there is limited evidence as to its effectiveness in developing countries.¹⁵ A medical student universally owns mobile phone that acts not just as a communication device but a potential tool for young learners to help meet some of their educational needs.¹⁶ WAY2SMS launched in Dec 2006 with 80% of current market share has revolutionized private computer to mobile messaging across the world. As Cochrane review stated that mLearning is underway in tertiary academia and is revolutionizing the learning landscape.¹⁷ The current medical school curriculum's focus on acquiring clinical skills and knowledge to treat HIV infected cases provides limited scope for in-depth understanding of HIV-related stigma and discrimination experienced by PLHIV. To our knowledge there has been no mLearning initiative tested among medical undergraduates to address reduction of HIV-related stigma and discrimination in health care settings. The advantage of mobile phone SMS based initiatives is they offer a novel way of learning experience to the students. The messages can be customized and tailored to meet the objectives of the study, allows instant delivery and it is highly cost effective.

Aims and objectives

The aim of this study was to conduct a mLearning initiative among group of medical undergraduates on reduction of stigma and discrimination towards PLHIV.

The objectives of the study were to:

1. To understand the knowledge, attitude and perceived practices of medical undergraduates towards stigma and discrimination towards PLHIV by conducting a base line survey.
2. To provide mLearning intervention to experimental group of 30 participants through Short Messaging System (SMS) using mobile phones.
3. To assess the effect of the intervention in terms of improvement in their knowledge, attitudes and perceived practices toward reducing stigma and discrimination against PLHIV through an end line survey.

MATERIAL AND METHOD

A pre-tested structured questionnaire was used to assess the levels of knowledge, attitudes and perceived practices of medical undergraduates regarding stigma and discrimination towards PLHIV in healthcare settings. This was followed by the intervention phase, which included the design and implementation of mLearning initiative among the participants. This study design allows for assessment of changes in the experimental group after the intervention through an end line assessment.

Baseline Assessment: Thirty MBBS students who were willing to participate in mLearning intervention were enrolled in the study using purposive sampling methodology. After consent, a pre-tested structured questionnaire was self-administered to 30 MBBS undergraduates during their leisure hours in canteens and hostels. Questionnaires were filled on the spot and received.

mLearning Initiative: The mobile numbers of the students were collected ensuring the confidentiality. Thirty short messages up to 300 characters addressing different aspects of stigma and discrimination in PLHIV were developed based on UNAIDS factsheets. Using the free version of WAY2SMS software package one SMS per day was sent to each of the thirty participants everyday for thirty consecutive days. Researchers checked periodically on every alternate day about the receipt of SMS. If any participant reported non-receipt of the SMS, the SMS was sent again and confirmed by the participant.

Endline Assessment: After two weeks gap following the mHealth intervention, students were contacted again for the end line assessment. The participants were requested to fill the questionnaires on the spot and collected.

Feedback Assessment: At the end line, the participants were asked to fill the feedback questionnaire to elicit their feedback on the mLearning initiative. This solicited recommendations in future mLearning models for health providers to stimulate and engage learners in a productive way to bring about positive changes in knowledge and attitudes

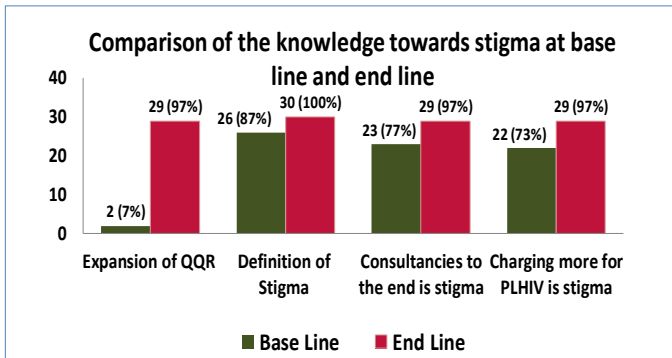
Data Analysis: Data from base line and end line assessments were entered in Microsoft Excel data sheet. All discrepancies in data entry were resolved by referring to the original questionnaire forms. This finalized database was securely locked and password protected. Statistical analysis was done using Microsoft Excel and SPSS statistical package student version. Descriptive statistics were computed; comparing changes in base line and end line measure for both groups and tested associations. P values less than 0.01 were considered statistically significant.

RESULT

Thirty students of 15 male and female each constituted the intervention group for mLearning initiative. The mean age was 19 years.

Graph 1

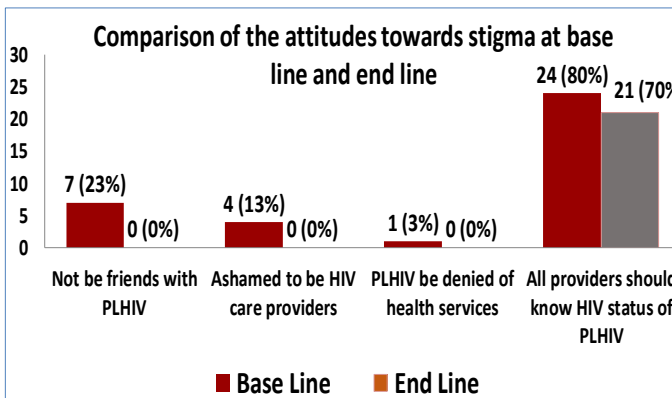
Comparison of the knowledge levels towards stigma and discrimination of PLHIV based on base line and end line surveys



Post-intervention knowledge improvements in mLearning group about the concept of Quality, Quantity of HIV virus and Route of transmission of HIV (QQR) is 97% (29) to determine the risk of transmission, definition of stigma is 100% (30), identifying the scheduling of consultancies to the end of the day as stigmatizing is 97% (29), and charging high amounts for PLHIV surgeries as stigma is 97% (29).

Graph 2

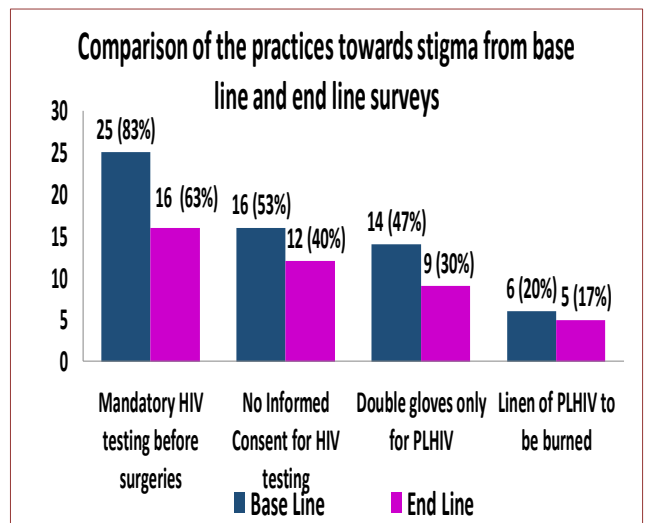
Comparison of the attitudes towards stigma and discrimination of PLHIV based on base line and end line surveys.



The attitudinal change in post-intervention assessment is seen as 100% participants mentioning that they would befriend PLHIVs and would not be ashamed being care providers for PLHIV, and also agreeing that PLHIV should not be denied of health services. Still a matter of concern is 70% of participants not realizing the importance of client-informed, voluntary testing for HIV.

Graph 3

Comparison of self-mentioned practices towards stigma and discrimination of PLHIV based on base line and end line surveys.



At end line assessment, 63% mentioned that HIV testing to be mandatory prior to all surgeries, 40% agreed that no informed consent is required for HIV testing in health settings, 30% stating that double gloves to be worn only for PLHIV patients and 17% adhering to the practices burning of linen used by PLHIV.

Table 1

Displays the reasons for stigma towards PLHIV, the impact of stigma on PLHIV and measures to reduce stigma as mentioned by study participants

Reasons for stigma	Impact of Stigma	Measures to reduce stigma
Fear of contagion [33%]	Discrimination	Training for healthcare providers
Judgmental behaviors	Depression	Awareness sessions for common public
No cure for HIV	Suicidal tendencies	Mass media adds against stigma & discrimination
Lack of awareness on modes of transmission [23%]	Hesitancy to seek care at hospitals	HIV results should be disclosed only with patient's consent
Myths & misconceptions	Denial of education and jobs	Change in attitude and others

Upon completion of mLearning intervention, 17 participants of whom 9 (53%) were females, shared their background profile and motivation for participating in the initiative as shown in Table 2.

Table 2 Profile and motivating factors of mLearning group to participate

Profile of participants	N=17	Motivation for Participation	N=17
	n (%)		n (%)
Never participated in a similar study	12 (70.5)	Topic is relevant to academics	17 (100)
Heard of mhealth studies	3 (17.6)	Teaches new knowledge for future career	16 (94.1)
Novel way of learning	10 (58.8)	Sanctioned by ICMR	10 (58.8)
Definitely will participate in studies like this in future	14 (82.3)	Taking the course is fun	11 (64.7)

Fifty-nine percentages identified it as a 'novel' learning tool and 82.5% stated they would 'definitely' participate in mLearning studies in future. Fifty eight percentage participants mentioned being an ICMR project, the academic importance of the topic-90%, and an enjoyable learning experience-64.7% motivated them to participate in the study. The recommendations by the mLearning group are inclusion of interactive group chats and videos as features of mLearning models along with SMS and dissemination session for the participants upon completion of project to summarize the essential learning's on the topic and to share findings of the project.

DISCUSSION

The results indicate that an improvement in knowledge towards stigma is pronounced but shifts in stigmatizing attitudes of participants towards PLHIV in health care settings were moderate still encouraging in mLearning group. The results though not statistically significant are comparable with other mHealth studies^{18,19,20} which also showed moderate improvements in knowledge, and behaviors of health care providers.

This provides preliminary evidence to the effectiveness of mLearning initiative using mobile phone based SMS's as effective in improving the knowledge levels but needs to be further expanded with interactive features when aiming a significant desired changes in attitudes. This could be explained by Shelton and Rogers' idea that emotions in the form of empathy can enhance attitudes change under certain conditions.²¹

The current medical curriculum allows acquiring knowledge and skills in providing preventive and treatment services to PLHIV but medical undergraduates have very minimal exposure to understand and empathize with the stigma

experienced by PLHIV. This could be the reason for very minimal shifts in attitudes towards upholding the human rights of PLHIV as majority of them still believe that all personnel in health care settings should be aware of HIV status of PLHIV irrespective of whether they are directly involved in provision of care to PLHIV, insisting on separate beds and wards for PLHIV, double gloves only in care of PLHIV and burning the linen of PLHIV.

The Heuristic-Systematic Model of Information Processing mentions systematic processing as significant factor in processing attitude change.²² This occurs when individuals are motivated and have high cognition to process the message with an ability to think deeply about a message.²² In our study, which used a personalized messaging system through SMS but devoid of human interface between researcher and participants did not necessitate them to think deeply and thus moderate attitudinal shifts are only seen among mLearning group.

Mark Knowledge identified relevancy, self-directed, and goal oriented principles as directives of adult learning.²³ He argues that people who take initiative in learning, learn more things and learn better. This is reflected in the study by self-selection of participants into intervention group and increase in the knowledge levels more pronounced among mLearning group.. The feedback from mLearning group is in alignment of Allen (2005) module which recommends integrating multiple mobile tools for enhancing learning of health professionals that can complement successful attitudinal changes. This could be piloted in future mLearning projects.²⁴

Very little is currently known of mLearning studies among medical undergraduates. Considering the moderate improvements in knowledge levels comparisons with available literature cannot be completely attempted. De Bruyn (1999) has identified people's fear of contracting the disease and religious and moral beliefs leading to judgmental behaviors as factors contributing to HIV/AIDS-related stigma.²⁵ This is evident from the findings as fear of contagion even among healthcare providers due to lack of awareness is dominating reason for stigma towards PLHIV in health care settings.

Stigmatization causes a kind of *social death* in which individuals no longer feel part of civil society, and are no longer able to access the services and support they need.²⁶ This is again found to be true in this study as participants identified the impact of stigma on PLHIV as loss of hope and confidentiality in seeking health care services. Though care providers are aware of devastating impact of stigma on PLHIV their actions reflect they are unable to overcome them with single attempts aimed towards change. We need to be more empathetic towards the cause of stigma before we can de-stigmatize our health care settings.

There were few limitations in this study. Firstly, using the free version of WAY2SMS, posed challenges with delivery of group SMSs and participants mentioned receiving SMSs at irregular times owing to irregularities in network, incomplete and broken SMSs on frequent occasions, and also non-receipt of SMSs on few instances. Secondly the small sample size of 30 does not make the results less valid but future research can explore the potential of mLearning approaches for educating medical undergraduates in long-term studies with larger sample size. Also the self-selecting and voluntary participation in intervention group might be another limiting factor though it is intended to promote self-learning behaviours.

CONCLUSION

The experimental research findings clearly indicated the potential of mLearning approach to reduce the knowledge gap and promote positive attitudinal shifts towards stigma and discrimination in health care settings. Although it proved to be moderately effective in attitudinal shifts, mLearning opportunities can be recommended for raising awareness on other areas of academic importance. Further studies incorporating recommendations from intervention group need to be conducted to establish its potential as an emerging educating tool for medical undergraduates.

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PEER REVIEW

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CONFLICTS OF INTEREST

Nil

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