



Reaching Out to the Urban Underserved For Continuum of Health-care during COVID-19 Pandemic Using Available Technologies

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ABSTRACT

Background: India is one of the earliest countries to impose Nationwide Lockdown, restricting movement of people in order to reduce the spread of COVID-19. It has brought a sudden halt to non-COVID-19 health services in terms of consultation, follow-up and access to diagnostics.

Objectives: This study was aimed to maintain communication during the COVID-19 lockdown with an underserved community through available and accessible technology.

Methods: A total of 32 families residing in the 'containment zone' belonging to a minority community were contacted telephonically and enquired about illnesses during the lockdown, access to healthcare, COVID-19 related practices and concerns. They were sensitized about the soon-to-be launched multi-dimensional mobile based teleconsultation application by the Institute.

Results: Expressed health needs were doorstep collection of samples instead of having to venture out to health facilities, availability of emergency and routine health care services.

Conclusion: A unique model of teleconsultation benefitting the community is proposed.

Keywords: COVID-19, underserved, teleconsultation, telemedicine, mhealth.

INTRODUCTION

The unprecedented pandemic of coronavirus disease 2019 (COVID-19) caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has brought the whole world fighting against time, as it continues to strike health systems extensively. India was one of the earliest countries to impose a Nationwide Lockdown on 25 March 2020, by restricting movement of people and closing all establishments in order to contain the spread of COVID-19. Nevertheless, healthcare resources of the country and entire state machineries are being dedicated for COVID-19 containment. Most hospitals (public and private) are earmarked for COVID-19 management and many others are kept in standby. However, it is essential

to maintain the continuum of care for pre-existing morbidities which increase susceptibility to COVID-19 infection.

Also critical in this narrative are underserved minority communities who are faced with mounting inequities and lack of support mechanisms.¹ Medical colleges, particularly Departments of Community Medicine/Family Medicine/Public Health can play a crucial role by bridging gaps intensified by social (physical) distancing. Underserved communities can be connected to teleconsultation services through ubiquitous mobile telephony. It also inadvertently reinforces the Digital India campaign of the Government.²

This study was conducted to assess the healthcare related hardships faced by an underserved urban

minority community during the COVID-19 lockdown and to enable them to access a unique model of tele-healthcare services using available information technology.

METHODOLOGY

The study was conducted in one of the most underserved urban minority communities. This area is currently listed as ‘Red/Containment Zone’ by the local administration as a part of COVID-19 containment strategy due to clustering of positive cases in the area. The community is part of the population served by the Department of Community & Family Medicine of a tertiary care institute.

Head of the families were contacted from 20/04/2020 to 28/04/2020. After obtaining verbal consent, a pre-tested, semi-structured questionnaire was administered telephonically by doctors in the local language, *Telugu*. Residents were enquired about access to medical consultation or medication for acute illness episodes or pre-existing chronic illness(es), and unmet health needs if any. They were also asked about COVID-19 status in the family, constraints in physical distancing, frequent hand washing and purchasing essential supplies. Following this interaction, information on state government helpline and telemedicine facility of the institute was provided via text messages as some residents used feature phones only. Customized messages for families at high risk or

those with morbidities were sent through WhatsApp mobile application. Institutional Ethics clearance obtained.

Data was entered in Google form simultaneously by another researcher, to enable uninterrupted data collection. Data collected were entered, analysed and presented as frequencies and proportions using Statistical Package for the Social Sciences (SPSS Inc. Released 2007. SPSS for Windows, Version 16.0. Chicago, SPSS Inc.).

RESULTS

Thirty two families belonging to a minority community were contacted with the available technology i.e. voice call using mobile phone. Mean (\pm S.D) age of the head of the family and family size was 37.9 (\pm 11.0) years and 5.4 (\pm 3.0) members respectively. Fifteen (46.9%) families had atleast one family member with a chronic illness such as diabetes mellitus, hypertension, thyroid disorders and heart disease.

Table 1: Perception about Tele consultation among the participants (n=32)

Perception	Yes	No
Used tele consultation before	15.6%	84.4%
Aware about helplines	40.6%	59.4%
Willing to use tele consultation	65.6%	34.4%

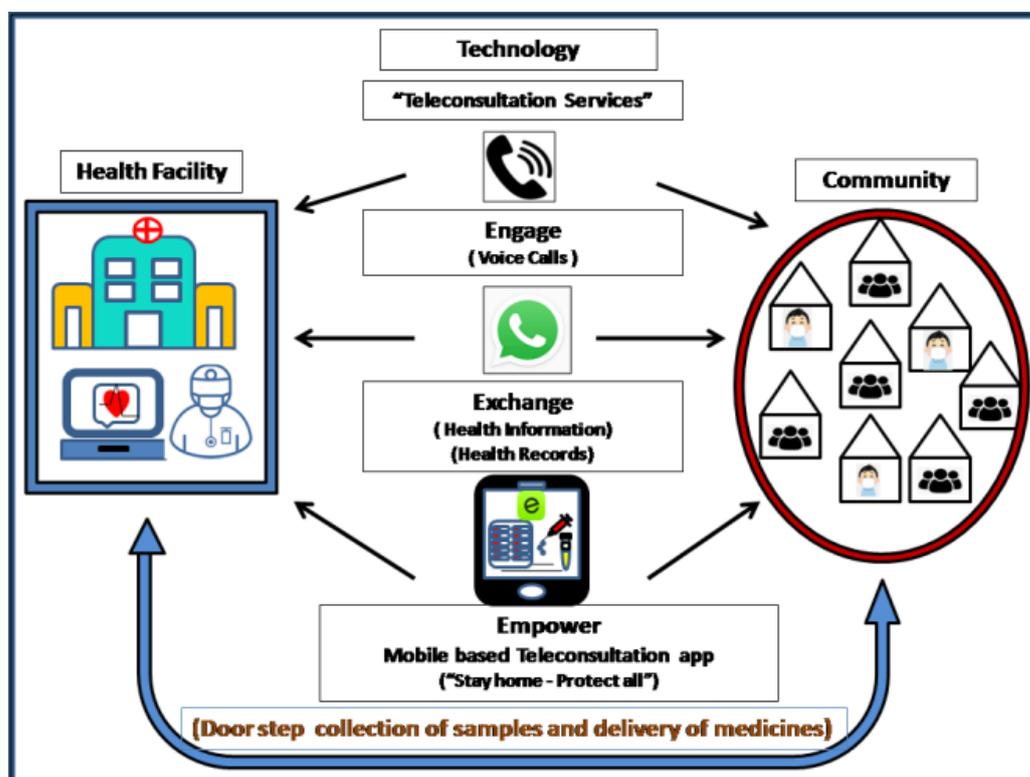


Figure 1: proposed model for technology enabled Engage, Exchange, Empower Model of care to the community during physical distancing

Of these, eight families (53.3%) reported inability to seek medical consultation and purchase medications when needed, in the previous two weeks. Out of 10 (31.3%) families that developed an acute illness, eight families were unable to obtain physician consultation and medication. Almost one-third (31.3%) of the families were unable to maintain physical distance at home due to lack of space but almost all (93.8%) were able to do so in the marketplace and were reportedly washing hands frequently. More than two-third (62.5%) of the families faced difficulty in procuring essential supplies. Television (46.8%) and mobile phone (31.3%) were the main sources of information on COVID-19.

Most [n=28(87.5%)] of the families were satisfied with the support from local health authorities and municipal administration. Services of Accredited Social Health Activists (ASHAs) who visited daily, offered valuable advice and care were appreciated. Expressed health needs were doorstep collection of samples instead of having to venture out to health facilities, availability of emergency and routine health care services. The perceptions and willingness to use teleconsultation for their health care needs were also assessed. (Table 1)

This model of community outreach using available technology during such breaks in physical provision of healthcare services is presented along with the recently launched multi-dimensional e-initiative of the institute- *Engage, Exchange, Empower Model*. (Figure 1)

DISCUSSION

The present study district had one of the highest number of COVID-19 cases in the State.³ This study was aimed at maintaining communication with a minority community in the containment zone through available technologies in order to minimize social seclusion and to foster inclusivity.

Using voice call through mobile telephony, 32 families were contacted during the nationwide lockdown period. The calls went through smoothly without network interruptions and bypassed bandwidth issues often associated with video calls.⁴ Among the study families, acute illness episodes were relatively less. However, the high prevalence of chronic morbidities indicates the increased vulnerability to COVID-19 and necessitates close monitoring.⁵ Additionally, lack of access to professional consultation and medicines highlight the plight of these communities during the lockdown.⁶ These challenges should be addressed in order to prevent COVID-19 casualties and mitigate the post-COVID era of chronic disease burden.

There is continuous flow of information on preventive measures such as frequent hand washing and maintaining physical distance.⁷ In the present study, constraints of physical distancing were lack of space at home and overcrowding in markets due to limited time slots. As emphasized earlier, there is need for context-based guidelines and practical solutions instead of top-down advisories.⁸

Although most of the study families were unaware about telemedicine, more than two-third were willing to start using the facility. Telemedicine has several advantages for the patient such as remote access, reduced time and travel costs; for the health system it enables judicious use of scant resources and most importantly, reduction in transmission of COVID-19. In the present study, WhatsApp mobile application was also used to disseminate health information. WhatsApp utility in medical care is increasing daily as doctors use virtual platforms to communicate with patients.¹⁰ It is also a simple and accessible means of communication for the patient. Moreover, India being one of the largest consumers of mobile phones and internet data, mobile health technologies can be rolled out extensively along government guidelines.²

The healthcare team was able to maintain communication with families using available technology, assess general well-being, health related needs and work towards facilitating them. Healthcare needs were emergency services, home collection of blood samples and delivery of medications. By enabling doorstep services, patients remain at home and disease exposure to healthcare personnel or lay public is prevented.⁹ In this direction, the institute recently launched a mobile application for teleconsultation in collaboration with Centre for Designing and Advanced Computing for its patients, with provision for doorstep sample collection (within a radius of 10 km). Plans are underway for home delivery of medications prescribed through the teleconsultation. The usefulness and effectiveness of the proposed application will be studied once the model is launched in full scale.

The proposed model of health care delivery using technology is replicable in local and national level settings as context and constraints are not very different. In addition, large-scale studies could assess technology enabled continuum of care during such crisis situations. Limitations of the study include the small sample size which was largely due to poor networks of some families during the lockdown and self-report of illness and COVID-19 related information.

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