Digital Platforms for Mental Health-care Delivery

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ABSTRACT

Mental, neurological, and substance abuse disorders cause huge burden. The available resources to tackle the huge burden are insufficient, inequitably distributed, and inefficiently used, which results in a large majority of people with these disorders receiving no care at all. Advances in technology can be used to address the concerns. At present, technology is utilized in online psychological interventions and mobile apps in the United States of America and United Kingdom. In India, technological advances are utilized in telemental health, mobile apps, software aiding psychological assessment and retraining, training for mental health professionals, and information delivery to general public. Although this would be cost effective, digital divide, ethical and legal issues have to be addressed for better penetration of the health technologies to the persons in need.

Key words: Digital mental health, E mental health, service delivery

INTRODUCTION

Mental health is an integral component of health. Mental, neurological, and substance abuse disorders account to about 1/3rd of years lost due to disability in adults. Ten of them (major depressive disorder, anxiety disorders, migraine, drug use disorders, alcohol use disorders, schizophrenia, bipolar disorder, dysthymia, epilepsy, and Alzheimer’s disease) have found their way into top 25 global years lived with disability (YLDs), and major depressive disorder is the second leading cause of YLDs globally. The available resources to tackle the huge burden are insufficient, inequitably distributed, and inefficiently used, which results in a large majority of people with these disorders receiving no care at all. The serious cases had not received any treatment in a previous year in about 35%–50% (in high-income countries) to 76%–85% (in low and middle-income countries [LAMICs]) of the cases.

The problem is more acute in India. Recent National Mental Health Survey of India, 2015–2016, by Government of India showed that both severe mental illnesses and common mental disorders are highly prevalent in India (about 1% and 10%, respectively). Suicidal risk (1%) and substance use disorders (22.4%) are also of great concern. Since mental illnesses are closely associated with causation and consequences of noncommunicable disorders, their contribution to health burden is substantial. The study also revealed

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that there is a huge treatment gap that exists for mental illnesses (28%-83% for mental illnesses and 86% for alcohol use disorders).\(^{[3]}\)

The three main obstacles to better mental health in LAMICs like India are scarcity of available resources, inequities in their distribution, and inefficiencies in their use.\(^{[4]}\) There is a significant lack of adequately trained and skilled human resources (3 psychiatrists, <1 psychologists/psychiatric social workers, 1 nurse per 1,000,000 populations).\(^{[5]}\) Treatment facilities (outpatient, inpatient as well as day care) are meagre in number. The absence of cost-effective and evidence-based intervention protocol, nonexistence of aftercare and community-based network to address the crisis (suicide), and poor quality care for vulnerable populations, i.e., elderly, children and women add to the burden. The tertiary care centers are overburdened with the patient load. The patients travel to National Institute of Mental Health and Neurosciences from as far as 1000+ km for consultation expecting an affordable and quality care. Whereas in reality, the mental health professionals (MHPs) are forced to target finishing the outpatient services (out-patient department) and send patients back. Due to this lack of time, there is only reactive care (symptomatic) that is available and inpatient care happens only during crisis (if beds are available).

Training of primary health center doctors as well as nonspecialist health-care providers (Accredited Social Health Activists, village health workers, and village rehabilitation workers) for task shifting and task sharing are being tried to bridge this gap.\(^{[6,7]}\) One of the important barriers in sustainability of these programs is a lack of mechanisms for continued hand-holding.\(^{[8]}\)

Advances in technology can be used to address these concerns. While there are ample opportunities to explore and utilize technology, it is indeed sad that the health sector, including mental health sector, has not kept up with the technological advances. Health informatics is linking information technology, communications and health care to improve the standards of training, teaching and quality and safety of patient care. This would shift the care from being episodic and reactive to continuous and proactive. In this paper, we try to outline utilization of technology in mental health-care delivery in the current setting.

**CURRENT UTILIZATION OF TECHNOLOGY**

**In the United Kingdom**

Through the strategies and initiatives like “no health without mental health” and “digital first,” the UK government is increasingly trying to use information and communication technology. Some of the endeavours are: \(^{[9]}\)

1. Online psychological interventions: Xenzone (www.xenzone.com), PsychologyOnline (www.psychologyonline.co.uk), and Big White Wall (www.bigwhitewall.com)
2. Mobile apps to record mood, behavior and activities in real time. Usage of affective computing to perform automated analysis of a person’s mood by analyzing facial expression, speech rate and tone of voice
3. NHS has established a health apps library, which has about 23 apps pertaining to mental health. Some examples are Buddy App (www.buddyapp.co.uk), ClinTouch (www.clintouch.com), My Journey (www.sabp.nhs.uk/eiip/app), and WellHappy (apps.nhs.uk/app/wellhappy/). These apps usually include a symptom tracker and diary function, reminders for appointment and medication and motivational prompts.

**In the United States of America**

Mobile apps: PRIORI app for bipolar disorder mood detection,\(^{[10]}\) Substance Abuse and Mental Health Services Administration (SAMHSA) Behavioral Health Disaster Response App,\(^{[11]}\) SAMHSA’s Suicide Safe app.\(^{[12]}\)

**In India**

For patients

1. Telemental Health:
   a. NIMHANS in collaboration with Indian Space Research Organization has been running telemedicine service since 2010 for the state of Karnataka. There is an urgent need for upscaling the same across the country
   b. Schizophrenia Research Foundation’s mobile telepsychiatry as a part of community outreach program is another example\(^{[13]}\)
2. Mobile apps: There are various apps to track blood pressure, sleep, menstrual cycle, brain games, etc. However, none of them have been tested for their efficacy. Recently, NIMHANS has developed Practice and Use Self-Help for Depression, a computer-based self-care program.\(^{[14]}\) Department of Psychiatry at NIMHANS is also using the “SMS/Text” as well as “recording” linked services for patient care
3. Software aiding psychological assessment and retraining: For example Lumosity, a cognitive game-based training website\(^{[15]}\) Social Cognition Rating Tools in Indian Setting\(^{[16]}\)
4. E-commerce for buying prescribed drugs would help in combating the common barrier of non-availability of drugs in most of the pharmacies.
For MHPs
1. Virtual Knowledge Network, NIMHANS in collaboration with Project Extension of Community Healthcare Outcome (ECHO), USA has been running weekly tele-ECHO sessions for the last 1 year. The ongoing weekly sessions consist of components of both cases based learning (i.e., case presentations by community participants or “spokes” combined with guided practice by subject matter experts at the “hub”) and didactic sessions by hub experts.
2. E-hospital: Many hospitals now have their own E-hospital and data management systems which aid in appointment, tracking investigations, and services.
3. Software aiding in research and fieldwork: Open Data Kit and similar data capturing software can help capturing data with handheld devices (smartphones and tablets).
4. Information on treatment guidelines, drugs, their adverse effects, and interactions is readily available in apps/websites like Medscape[17] which aid in right prescription practices.

For general public
1. Providing right information: One can drown in the sea of information the internet provides. It is important that people can access right information. A knowledge repository is being developed by White Swan Foundation, a nongovernmental organization in the field of mental health with the help of NIMHANS.

In the horizon
Virtual reality can be used for many interventions such as exposure response prevention, social skills training, and cognitive retraining. Wellness component has not yet been targeted. Positive mental health movement can gain momentum if technology is used.

THE GOOD AND THE BAD

Use of technology in delivering mental health care would be affordable (cost effective for the end user), available 24 × 7, accessible and easy to use for the current generation.

However, initial cost in setting up the facilities would be very high (3–4 crore rupees). There is too much of junk information in the internet and filtering the information would be very difficult to the population. Digital divide still exists between ones who can access computer, smart phones and internet and ones who cannot (persons with intellectual disabilities, persons who are homeless, older adults, rural population).[9] Using technology would be a challenge in the areas where basic amenities are beyond reach. Ethical and legal issues such as confidentiality, data storage, e-prescription need to be discussed in professional forums, and consensus needs to be arrived at for better penetration of the health technologies to the persons in need.

CONCLUSION

Advances in technological field can be used to bridge the gaps in service need and delivery in the field of mental health. Currently in India telepsychiatry; mobile applications; software aiding psychological assessment, retraining, fieldwork; online training; e-hospital are being used. There is a need for further research in the field - both assessing utility and inventing newer technologies; and also up scaling of the existing technologies. Although using technology would be affordable and accessible, not everyone are digital literates. There are many ethical and legal considerations that need to be discussed in professional fora.

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Conflicts of interest
Dr. Prabhat Kumar Chand is the Team Leader for Virtual Knowledge Network, Project Extension of Community Healthcare Outcome.

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