



Delving into Digital Mental Health: Part 1

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An introduction to the field
in India

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Background

Technology plays a significant role in mental healthcare, offering various tools, resources, and platforms to support individuals in managing and improving their well-being. Technology supplements mental healthcare in a myriad of ways, ranging from basic (e.g., tele-mental health or online consultations) to advanced services (e.g., the use of artificial intelligence). With rapid advancements in the field, digital mental health interventions are becoming increasingly prevalent.

Mental health issues have a significant impact on individuals, communities, and societies as a whole. A Lancet Study published in 2017 estimated that around 197 million Indians have a mental illness¹. Over 80% of individuals with mental illnesses do not receive the care they need². Digital mental health interventions offer innovative ways to enhance mental healthcare delivery and address this treatment gap. This field is characterised by rapid development and innovation, with new tools and applications continually emerging.

This issue brief, the first in a series on digital mental health, aims to provide a broad overview of the digital mental health field, common challenges, and the stance of the Indian Government on digital mental health.

Digital mental health is significant in India for several reasons:

- India has a large treatment gap (83%) for mental health conditions due to a dearth of mental health professionals in the country, poor access to care, and high stigma and discrimination around mental illness². Digital mental health interventions like telemedicine have the potential to bridge the gap between individuals and mental health services, particularly for those who face barriers to accessing traditional in-person care. They can reach individuals in remote areas and offer support to underserved populations, including people with physical disabilities for whom health facilities are inaccessible.
- Digital mental health interventions are scalable and affordable owing to the reduced need for physical spaces, the reduced cost of operation for larger populations after the initial set up cost, and the use of self-managed interventions and artificial intelligence that reduces dependency on trained professionals.

- These interventions have the potential for privacy and anonymity and may counteract stigma by providing alternatives that do not involve going to a mental health professional in person.
- They can inform timely treatment through real-time monitoring of symptoms through wearable devices or tracking applications.

Types of interventions

Digital mental health tools and interventions can be categorised based on their functionality as:

- **Monitoring tools:** These include tools and interventions used for monitoring of medication, mood, sleep, and other parameters relevant to mental health. Monitoring tools may operate manually, such as medication trackers where the user enters input, or automatically, such as digital phenotyping. Digital phenotyping for mental health involves using data automatically collected from smartphones and wearable devices to analyse patterns and indicators related to an individual's mental health status and behaviours.
- **Treatment tools:** These comprise tools or interventions that support treatment. They could include in-person interventions carried out digitally, such as tele-mental health services, unsupervised digital alternatives to treatment, such as self-guided cognitive behavioural therapy applications, treatment aids, such as clinician support tools, and non-professional online support, such as peer-to-peer chats.

The end users of such tools are people with mental health concerns, mental health professionals, government authorities, entities such as social media firms, and other users of electronic health records, such as educational institutions.

While these interventions are promising in their ability to address the gaps in mental health care, they are confronted with a range of challenges. The intersection of technology and mental health brings forth a range of complex issues that must be



addressed to ensure their effectiveness, safety, and equitable access. Some of the common challenges include:

- **Data privacy and security:** Digital tools require some form of data collection and electronic storage. This poses the risk of unauthorised access, use, disclosure, alteration, or destruction. Digitally collected data often contains personally identifiable information, such as names, and sensitive health data. This data, if leaked, sold, or stolen, could lead to violation of an individual's privacy, potentially causing embarrassment, discrimination, or stigmatisation³. Discrimination is particularly a concern where sensitive medical data can be used to deny employment or housing opportunities or increase insurance premiums.

Data security issues

An example of a data leak is a recent incident where COVID-19 test data of thousands of individuals were leaked online. This included information about the names, dates of birth, COVID-19 test results, report identifiers, etc. of individuals tested for COVID-19⁴. Health data leaks are not the only security concern, with hackers sometimes causing disruption in the data collection, storage, or access process. As an example, in 2022, AIIMS Delhi was hit by a major cyberattack that prevented the data of patients from being accessed, disrupting care⁵.

- **A digital divide:** Access to digital devices and digital literacy vary across populations. Only 31% of the rural population uses the internet, while this number is 67% in the urban population. The percentage of urban population having a phone is about 12-14% greater than that of the rural population. Among the poorest fifth of the population, only 2.7% have access to computers and 8.9% to the internet, while in the richest fifth of the population, the proportions are 27.6% and 50.5%. While access to mobile phones is more widespread, 40% of mobile subscribers do not have smartphones or internet access on their mobile phones. Gender plays a role too, with around 61% of males having access to mobile phones when compared to 31% among females⁸. Introducing digital interventions in this setting could widen the already existing treatment gap, perpetuating healthcare inequities.

Data protection legislation

The recently enacted Digital Personal Data Protection Act 2023 aims to offer some protection to individuals' right to privacy and impose penalties for data breaches, especially if the entity collecting or processing the data did not take sufficient measures to ensure data security. However, the Act provides exemptions to the government, allowing for potential misuse of data⁶.

The Digital India Act, designed to replace the IT Act 2000, is in the works. It is expected to address digital user rights such as the right to be forgotten, the right to secure electronic means, and the right to redressal⁷.

- **Biases and marginalisation:** Machine learning or artificial intelligence based digital tools rely on algorithms and training data that is not derived from an Indian context. This bias leads to the presence of systematic and unfair discrimination in AI systems, resulting in misdiagnosis or underdiagnosis, cultural insensitivity to differences in how mental health is perceived or expressed, or mental health support being provided and received by only a small set of the Indian internet user population. For instance, an AI diagnostic tool is more likely to accurately diagnose mental health conditions in a demographic that closely represents the training data⁹. These biases can lead to inadequate support and marginalised communities being further excluded.
- **Lack of regulations:** Most digital interventions do not fall under the umbrella of medical care and are not regulated by any rules or ethical standards. This makes it easy for creators or developers to create new tools without adhering to standards, compromising quality of care, increasing the risk of harm to the user, and removing liability or a sense of responsibility from the creators. For instance, an app claiming to provide digital therapy to users may not be tested and trialled for effectiveness and safety before being deployed or scaled. Such an app could do more harm than good, but there are no regulations preventing the app from being available publicly and no regulations that would penalise creators for adverse effects.



- **Limited evidence:** It is essential to ensure that interventions are based on scientific evidence about their effectiveness, potential adverse effects, and a thorough evaluation. While digital interventions are becoming more common, the evidence supporting many of the interventions is limited to a few studies. Research is also needed to determine the cost-effectiveness of the interventions and the populations and settings in which the interventions are suitable.

Digital mental health and the Indian Government

While the development of and research on digital mental health interventions is crucial, developing, researching, and implementing digital tools and interventions is not enough, since policy and budget considerations have a significant impact on the effective uptake of such interventions. The Indian Government has taken a proactive approach to digital mental health, with various initiatives being undertaken.

Government initiatives in digital mental health

Tele MANAS (Tele Mental Health Assistance and Networking Across States), a tele-mental health service, is the most prominent initiative of the government in the field of digital mental health¹⁰. India's challenges in mental health care include a shortage of mental health professionals, the stigma associated with seeking help, and insufficient access to specialised care, especially in remote areas. Digital mental health offers a potential solution in the form of tele mental health services. Tele MANAS aims to provide free, 24x7 remote mental health care. Since its inception in 2022, Tele MANAS has set up 51 cells and received nearly 8 lakh calls.

Apart from tele-mental health services, Tele MANAS in Jammu & Kashmir launched a chatbot that primarily encourages users to talk to Tele MANAS counsellors on WhatsApp¹¹. However, on trying the chatbot, it was seen that the chatbot does not consistently offer the option of talking to a counsellor and sometimes only offers relaxations techniques, an approach that may not be effective for individuals in crisis.

Tele MANAS faces challenges commonly faced by digital interventions. It does not have a privacy policy protecting the data of service users¹². While

phone calls are more accessible than internet-based services, a significant fraction of individuals do not have access to phones or lack knowledge about Tele MANAS and how to access it⁸.

Expanding upon its standalone implementation as a mental health service, it has been recently integrated with eSanjeevani, a government initiative for doctor consultations through video conferencing for remote healthcare access that would enable remote prescription of psychiatric medication¹³. In practice, however, eSanjeevani has encountered challenges associated with healthcare personnel being overburdened and technological glitches, raising questions about its capacity to effectively manage Tele MANAS referrals¹⁴.

In 2020, the Ministry of Social Justice and Empowerment established a crisis support hotline known as KIRAN, which is available in 13 different languages across the country. The helpline was designed to provide round-the-clock crisis support and facilitate referrals to mental health professionals when necessary, but experienced inconsistent functionality¹⁵. KIRAN is now to be merged with Tele MANAS. Calls to KIRAN will be redirected to Tele MANAS for a period of 3 months, after which KIRAN will be phased out completely¹⁶.

In 2021, the government introduced an application focused on mental well-being named MANAS (Mental Health and Normalcy Augmentation System)¹⁷. The application offers a range of features related to mental wellness, including guided meditation, mood tracking, sleep guidance, and task planning and organisation. However, reviews on the Android app store indicate that it faces technical issues that render it completely unusable to some users.

In addition to leading these initiatives, the government has also taken steps to promote artificial intelligence (AI) in mental health care. In 2018, NITI Aayog, the government's public policy think tank, published the National Strategy for AI that offers guidance for the research and application of AI within the healthcare sector¹⁸. However, it primarily emphasises the promotion of cutting-edge AI research rather than assessing the validity of pre-existing effective AI-based health care tools and adapting them for the Indian context.

In 2023, the Indian Council of Medical Research also released ethical guidelines for AI in healthcare and biomedical research. While they cover important aspects such as consent, liability, data



security, and inclusivity, these guidelines do not address a significant application of AI: chatbot apps in mental health. The guidelines on liability and risk mitigation are not directly applicable to these applications, as they assume the presence of a healthcare professional or researcher as a mediator between the AI and the end user¹⁹. This does not hold for AI chatbot apps designed for direct use by service users.

AI chatbots responding inappropriately

Numerous recent instances highlight AI chatbot apps delivering inappropriate responses. For example, consider Tessa, an AI chatbot tailored to assist individuals in the United States dealing with eating disorders. It was discovered that Tessa was providing weight loss advice, which could potentially harm those already struggling with their health²⁰.

Another case that underscores this issue involves Woebot, another AI chatbot. In this scenario, a user stated, "I want to go climb a cliff in Eldorado Canyon and jump off it." The AI's response, "It's great that you're taking care of both your mental and physical health," is inappropriate and potentially harmful²¹. Such insensitive responses to individuals in vulnerable situations may result in severe repercussions.

In addition to providing guidance for researchers and developers, the document recommends the regulation of AI technology. However, there are no regulatory authorities or auditing mechanisms in place, except within the research context, where ethics committees fulfil a regulatory role.

Conclusion

While these digital mental health initiatives are forward-looking and hold potential, implementation has consistently fallen short due to a shortage of trained professionals and volunteers, unequal technology access, and technical issues.

Although digital interventions provide convenience and accessibility, they cannot supplant the necessity for a comprehensive community mental health care system. While digital interventions can provide support and bridge gaps in care, they cannot compensate for the human expertise and clinical judgement necessary for diagnosing, treating, and managing complex mental health conditions. Digital interventions such as Tele MANAS that rely on healthcare professionals cannot be used effectively in the context of a shortage of such professionals. Further, mental health care often requires a holistic approach that includes not just individual interventions but also community-based support systems, family involvement, and integration with other social services. It is imperative that the government place emphasis on allocating resources towards preventive and promotional mental health services, including psychological interventions, social welfare provisions, and rehabilitation programmes. Digital mental health interventions will be most effective when integrated into this comprehensive framework.

The next brief in the series on digital mental health will be a deep dive into the evidence supporting various categories of digital mental health interventions, the extent of their use in India, and recommendations for research and policy from a public health perspective.



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