Sattva Knowledge Institute SKI perspective

STRENGTHENING MENTAL HEALTHCARE DELIVERY THROUGH DIGITAL SOLUTIONS

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Acknowledgements

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Executive Summary

More than 13% of the population suffers from some form of mental illness in India. The COVID-19 pandemic increased the prevalence of anxiety, social isolation, stress and death by suicide, and has brought the dialogue on mental health to the forefront.

This opportune moment in the mental health ecosystem has seen a rise in digital solutions, including policy recognition with the launch of the National Tele-Mental Health Programme. However, these efforts have not been adequate to meet the diverse needs of the entire population.

Digital solutions for mental health have emerged across the continuum of care focusing on prevention, promotion, detection, diagnosis, treatment and follow-up care, providing a wide array of interfaces and content for users to choose from. However, these solutions encounter challenges at three levels. These are i) **foundational challenges in mental health**, whereby the huge supply and demand gap and limited systemic prioritisation are contributing towards a wider treatment gap, lower accessibility and affordability to services; ii) **common concerns with technology** solutions such as privacy and data protection, which form barriers to solutions in mental health; iii) **mental health solutions leveraging technology** which create a unique set of challenges, including limited customisation of solutions based on cultural and local contexts, involvement of users with lived experiences, monitoring treatment, limited hybrid models of care and a lack of standard processes to evaluate the effectiveness and quality of digital solutions for mental health.

In order to strengthen the delivery of mental health care via technology-based solutions, it will be critical to **approach solution design with central focus on users and their needs, adopt a *phygital* (physical and digital) combination of care** to fortify digital approaches to mental health care, and **customise solutions to be more inclusive and address the diversity needs of different user groups and regions**.

While investment towards digital solutions for mental health and wellness has witnessed a rise, there is a need for greater prioritisation and strengthening of solutions. This presents an opportunity for all stakeholders to leverage technology-based solutions that give a critical focus to strengthening care delivery. At a systemic level, the government has a crucial role to play in creating an enabling environment through guidelines, processes and regulation of digital solutions to enable quality and effective care at the last mile.

Background

With a population of over 1.39 billion people, technology has been pivotal in addressing healthcare challenges in India (World Bank 2021). More than 13% of the population suffers from some form of mental health issues (Dattani et al. 2021). Mental morbidity (weighted prevalence) affects over 1 in 7 Indians in their lifetime (Murthy 2017).

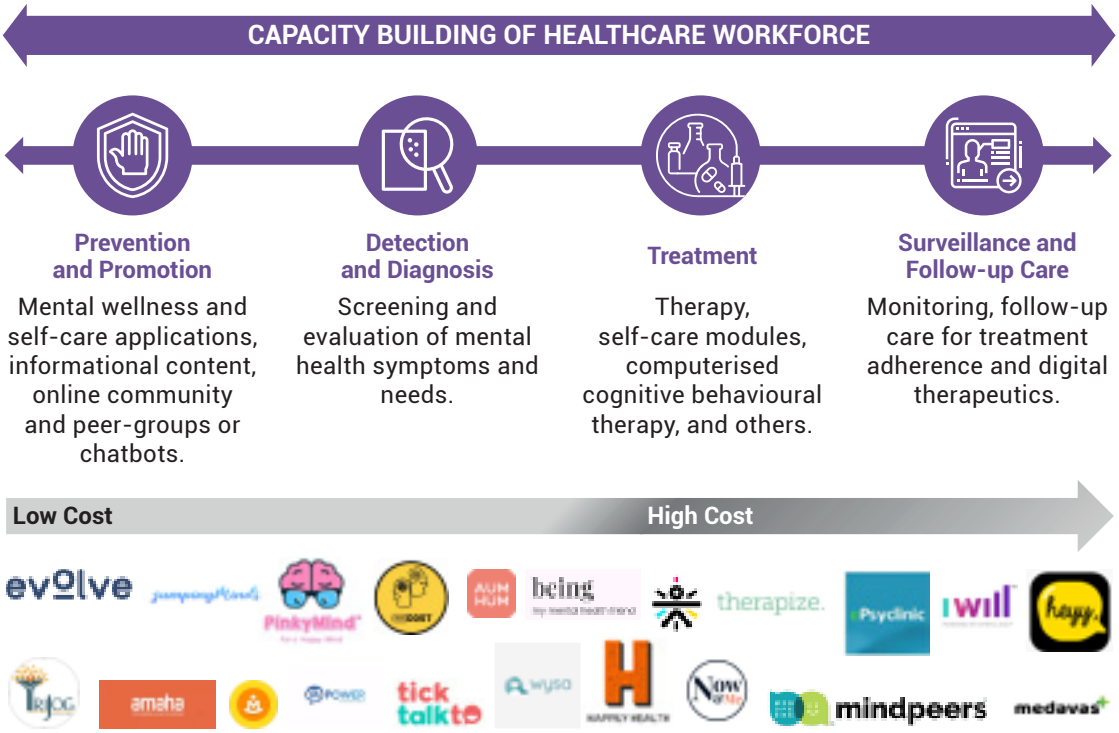
According to data sourced from industry tracker Traxcn, the five-year period between 2016 to 2020 saw US $20 million of private investment towards mental health and wellness startups in India (Mittal 2021). With the increase in the prevalence of mental health issues since the onset of the COVID-19 pandemic, there has also been a rise in the number of solutions, especially digital solutions, in mental health. The global wellness market in 2021 was estimated to be more than US $1.5 trillion, with an annual growth rate of five to ten per cent (Callaghan et al. 2021). However, the investment is not adequate to address the rising need for solutions in mental health and the funding that is required to prioritise mental health. Technology has the potential to catalyse healthcare delivery and presents a notable opportunity to strengthen the delivery of mental healthcare. The national government has also recognised the role of technology in mental health solutions and announced the National Tele-Mental Health Programme in the FY 2022-23 budget (IMHO 2022).

Digital solutions for mental health have shown the potential to lower barriers in accessibility, enable dialogue, and encourage health-seeking behaviour for mental health care. Digital solutions in mental health offer the additional comfort of anonymity and privacy to users, which can be critical in India where the issue is highly stigmatised. Accessibility of these services in the convenience of their homes, by using smartphones is aiding greater demand among users. Moreover, with there being only 0.75 psychiatrists per 100,000 of the population, digital solutions leveraging psychotherapists, counsellors and other trained professionals will be critical to bridge the treatment gap (Garg , Kumar, & Chandra 2019).

Diverse Solutions Across the Continuum of Care (CoC)

Mental health lies on a complex continuum and is not merely the absence of mental illness (WHO 2022). There are different levels of care and interventions can reach individuals at all levels, addressing specific needs. There are four components in the CoC for mental health: **prevention and promotion, detection and diagnosis, treatment, and surveillance and follow-up care** (WHO 2018). Supporting the implementation of solutions across the continuum to build the capacity of health professionals in mental health is critical. Cost of services provided by digital solutions varies across the spectrum, with the cost of treatment being the highest.

Figure 1: Digital Solutions available across CoC



(Sattva 2022)

Prevention and promotion.

At this level, technology solutions are largely available publicly and are affordable, often virtually free. These solutions are accessible to anyone who is digitally literate and has access to either a smartphone or other mobile devices. Users can use these self-care applications or platforms at their own convenience. For example, **Amaha** provides care-management modules for users, which curates a highly personalised self-care journey for each individual user.

In addition to providing information about mental health to raise awareness and address misconceptions, there is a focus on preventive and promotive solutions to encourage wellness and self-care. **Without the need to actively engage with a professional, self-care solutions equip users with tools that enable them to identify and understand their emotions and thoughts, and manage their needs.** Applications today provide an array of solutions which include journaling feelings, tracking moods, guided meditation, yoga, mindfulness exercises, tips to deal with loneliness, self-assertive affirmations for body image improvement, and sleep management among several others. Digital applications such as **JumpingMinds** provides an anonymous, smart and interactive community to talk, listen and get clarity, thereby helping lower the user's stress. The application provides features such as an "Inspire Wall" that allows users to interact, engage and inspire each other anonymously and "M-Corners", where the users can personalise their mindful corners with comics, games, yoga lessons and other activities.

Platforms also provide a community and peer groups for users to connect with those who are having similar experiences, assuring people that they are not alone and enabling a sense of relatability. For example, the **Now&Me** application provides a community for users to share their feelings anonymously and connect with people facing similar mental health experiences. Artificial Intelligence (AI) chatbots are available to users at all times day and night, and provide a critical outlet to manage feelings of anxiety, loneliness or distress, especially late at night. For instance, **GoodLives** provides a round-the-clock talk buddy called 'Aura', an AI bot that helps guide the user through emotional distress and to resources available on the platform.

Detection and diagnosis.

Digital application-based solutions use questionnaires to screen the symptoms of users. Users self-report their symptoms and feelings and the responses allow the application to evaluate their needs. Applications provide these services for free. They are prompted to share responses in the form of a scale or multiple choice questionnaires to help understand the severity of their problem. For example, the **MindPeers** application has a mind-care index tool which gives a detailed evaluation of the user's mental well-being, which includes assessing their mental strength score, behavioural parameters and an analysis of their personality. It provides users a personalised level-up plan to optimise their mental strength based on their responses to a set questionnaire.

Often solutions provide combined services for treatment after detection and diagnosis. **Depending on their responses, users are directed to treatment interventions best suited to their needs.** This could range from self-care modules such as meditation exercises to psychotherapy services with a professional. For instance, **the IWill platform** has a screening assessment tool which allows the creation of a personalised therapy journey that is unique to the user's concerns, and connects with a therapist best suited for that user.

Treatment.

Treatment most commonly entails psychotherapy services with a trained therapist or psychiatrist. Applications may require users to answer questions to evaluate their needs and guide them to the right professional or may allow users to select who they want to connect with. The cost of treatment varies as per the type of intervention. Based on an internal analysis of a range of different digital solutions, therapy on digital platforms may cost anywhere between US $4 to $36 per session in India, depending on the number of sessions availed by users and the nature of the professionals engaged. Services provided by mental health specialists, especially psychologists, can be expensive in India and often act as a deterrent to availing and continuing treatment. Technology-based solution providers are able to offer low-cost services to certain population segments by channelling funds from other revenue generating arms or from external funding.

The type of treatment interventions vary depending on the nature of symptoms detected and diagnosed. Applications such as **IWill, ePsyClinic, Juno Clinic, YourDOST, Trijog** and other platforms design customised treatment interventions based on diagnosed symptoms.

A critical component of this care is in cases where users showcase suicidal tendencies or other symptoms needing urgent care, and they are directed immediately to helplines or other appropriate care. Applications often take two distinct approaches to emergency care. A number of platforms include a disclaimer stating that they do not offer emergency helpline support. This is the case in applications such as **TickTalkTo** and **Amaha**, which state a disclaimer clarifying that they do not provide crisis or emergency support. Users are instead advised to immediately call the appropriate emergency numbers in their region or country if they are experiencing any kind of crisis. However, a few applications connect users to relevant resources and emergency helplines for such care. **JumpingMinds.AI**, **YourDOST**, and **heyy** applications direct the user to emergency services and crisis helplines such as **National Sucide Prevention Helpline**, **iCall**, **Samaritans**, **Sumaitri**, **Arpita Suicide Prevention**, **Vandrevala Foundation** and others. However, a critical challenge with hotlines is their lack of responsiveness, and hospital-run helplines sometimes make callers wait for five to ten minutes. This can be a critical differentiator in the case of people with suicidal tendencies requiring emergency care. Digital platforms should therefore test the efficacy and appropriateness of hotlines before directing users there.

Surveillance and follow-up care.

Applications leverage screening tools to monitor the nature of reported symptoms by users at frequent intervals to assess their progress. As users avail treatment services, such as therapy, ongoing surveillance helps evaluate the effectiveness of the treatment and can help identify the need to change the type of treatment services. Applications also seek feedback on the services of professionals to ensure quality. Since these are often linked to ongoing treatment services they may not be charged separately, but

may be covered as part of treatment or other subscription costs. Information on the costs of these services is limited.

Follow-up care is also built into solutions whereby adherence to treatment is monitored and users are prompted to continue their treatment, including reminders for medication, therapy, or self-care practices. For example, **JumpingMinds.AI** has designed a dashboard that allows users to track their mood and monitor their mental health and provides personalised insights on their productivity rate, their happiness score, emotion trends and other useful information. **Amaha** ensures that their therapists monitor the users' progress and supports them between their therapy sessions with regular check-ins and self-care tools.

Digital solutions emerging in the capacity building of professionals at all levels.

Technology-led solutions for training have emerged as a critical enabler in addressing barriers of high cost and accessibility. Digital platforms can host training content for users even beyond training, thereby enabling continued self-learning. Curriculums can be customised to the needs of specific cadres, such as the upskilling of front-line workers and general practitioners to provide mental health care, as well as the training of mental health professionals to provide empathetic and ethical care using digital platforms. Digital tools also aid in the supervision and monitoring of the quality of psychosocial interventions that are provided at scale. For example, the National Institute of Mental Health and Neuro Sciences **(NIMHANS) ECHO model** leverages digital technology to provide virtual mentoring and training to counsellors, doctors, and nurses in rural and underserved areas on how to provide quality care for mental health and addiction (Mehrotra et al. 2018). **ePsyClinic** trains Accredited Social Health Activists (ASHA), through video-based webinars, to screen patients with mental illnesses and refer these patients to specialised care if needed.

Overcoming Foundational Challenges in Digital Health and Mental Health-focused Digital Solutions

On the demand side in India, there is a high social stigma around mental health, a lack of awareness and misconceptions that result in poor health-seeking behaviour. On the supply side, there is a shortage of trained mental health professionals, gaps in availability of services and medicines in health facilities, and limited systemic prioritisation of mental health. High out-of-pocket expenditure (OOPE) of approximately US $12 to $19 per month, on average, especially for treatment and travel for mental health services, acts as a critical barrier to access and for the continuation of mental health treatment (NMHS 2016 pp. 24).

Foundational challenges in digital health solutions also act as barriers to digital solutions in mental health.

Privacy concerns and data protection challenges in technology-based solutions are compounded by nascent governance mechanisms by the government and a lack of guidelines to protect user data gathered by digital platforms. Technological errors and scepticism over privacy make it difficult to establish trustworthy and secure digital counselling spaces for mental health treatment. Further, while preventive and promotive solutions are critical among adolescents to drive positive health outcomes at a later stage in their lives, mental health digital solutions for minors below the age of eighteen require informed consent from a parent or guardian by law, under the Mental Healthcare Act of 2017, and are tricky to navigate (Sharma & Kommu 2019).

Digital inequality in India remains a persistent barrier. Technology-based solutions are often skewed towards urban populations and limit access by rural populations from vulnerable socioeconomic backgrounds. According to the International Telecommunication Union (ITU) World Telecommunication/Information and Communications Technology (ICT) Indicators Database of 2020, only "43 per cent of the population in India uses the internet" (World Bank n.d.). This access divide also limits the adoption and reach of mental health solutions among populations with a high need.

In addition to conventional foundational challenges, mental health solutions that are leveraging technology create a unique set of issues.

There is limited focus on involving people with lived experience of mental illness in designing the solutions. With technology solutions in mental health mushrooming today, solutions are often designed to address a perceived need of users without accounting for the perspectives of those with lived experiences. As a result, technology-based solutions are also often unable to recognise diversity in contexts and the insights of users across regions in India, to offer customised experiences that can address the root cause or driver of their mental health issues.

A digital solution addressing adolescent mental health will need to recognise the heterogeneity in the experiences of users across various regions or contexts. While adolescent users may present with similar symptoms based on standardised questionnaires, their mental health conditions may be arising due to varied reasons such as abuse, academic stress or the loss of a family member. Moreover, their level of comprehension and use of the content is also likely to vary based on their education or exposure. There is a very limited number of digital solutions today that are able to recognise qualitative nuances of user experiences in a roughly similar target group.

Digital solutions also face challenges in ensuring **adherence to the prescribed treatments**. While applications are able to monitor the usage and activity of users on the platform, virtual

platforms are unable to capture or ensure compliance with medication and other treatment protocols. Amidst the pandemic in 2020, the National Medicine Council (NMC), erstwhile Medical Council of India (MCI), and the Ministry of Health and Family Welfare published telemedicine guidelines for all registered medical practitioners to abide by, including the provision of online prescriptions (MCI 2020). Further, the Indian Psychiatric Society, Telemedicine Society of India and NIMHANS, Bengaluru collaborated to establish a resource guide on telepsychiatry for practising psychiatrists in India. The main aim of this guide is to assist, educate and provide guidance to psychiatrists in setting up, implementation, administration and provision of telepsychiatry services, to be used in conjunction with other national policies and guidelines (Venkatesh et al. 2022; NIMHANS 2020). However, teleconsultations have their own limitations, such as a lack of face-to-face interactions and technological limitations.

Digital solutions for mental health are predominantly in English, significantly limiting usage and adoption in India. A considerable part of the population is unable to benefit from these solutions due to the dearth of content in regional languages. While a few digital solutions such as **MPower**, **Wysa** and **IWill** have practitioners who converse in regional languages such as Marathi, Punjabi, Hindi and Bengali, the inclusion of populations speaking other regional languages is a critical challenge that needs attention. Moreover, solutions face challenges in translations of English questionnaires and guidelines to other languages, due to the risk of perceived incorrect messaging or inaccurate interpretation.

Technology-based treatment interfaces may not be suitable for all mental health conditions and a limited number of such solutions offer a hybrid care model. Severe mental disorders, mental health disorders from substance abuse, and common mental disorders which severe symptoms may not lend themselves suitable for purely digital solutions. Telephonic counselling also makes it difficult for therapists to pick up on non-verbal visual cues of the patient which are critical for effective treatment. In addition to the high stigma, users are often sceptical of virtual treatments and prefer in-person options. In the absence of adequate **hybrid models complementing technology-based solutions with physical spaces**, there are limitations in providing care for users who are not digitally literate, prefer in-person contact, and users who require immediate care due to suicidal tendencies.

Finally, there is a lack of **standard processes, guidelines and metrics to evaluate effectiveness and quality of digital solutions for mental health**. With a steep rise in the number of technology-based mental health solutions, both originating in India and global solutions which have expanded their reach to India, there is an evidence gap in the effectiveness of solutions and insufficient central monitoring mechanisms (NIMH n.d.). Despite advancements in the use of AI and predictive analytics for mental health, algorithms have not been able to accurately predict anxiety attacks, dysthymia, or mood states such as depression effectively, and the use of such tools by digital solutions should be approached with caution.

Focus Areas to Strengthen Digital Mental Health Solutions

User-centric and user-led solution design.

Digital solutions for mental health need to start addressing diverse users, intrinsically recognising their needs. Involving end-users, including people with lived experiences of mental illnesses that the solution is looking to address, are critical to ensure ease of adoption, relevance of solutions and customised experiences suited to the needs of various users' state of mind. For instance, people with severe symptoms of depression may find it difficult to even engage in the screening process required by applications before treatment is offered. This access barrier can be addressed by incorporating the perspectives of people with lived experiences.

This is also applicable to specific target groups like young people. The **Stakeholder-led Advancement of Mental Health of Young People (SAMYP) programme by PATH** provided guidelines for the creation of a human-centred framework for mental health treatments, to enhance the mental health outcomes of youth. The programme engaged with youth to understand their needs, preferred modes of access and interests to inform solution design (Parikh et al. 2022). Based on inputs from the end-users, content was designed in the form of chats, animated videos and other ways to effectively engage their attention. For adolescents without access to the internet, however, Interactive Voice Response Systems (IVRS), and tele-counselling via phone or text-based messaging services, or SMS, may be needed.

Further, applications should update and strengthen their interface and services based on user feedback. For example, **Wysa** incorporates feedback from all their users to ensure that the application is addressing the user's needs and improving their experience and helpfulness. **Wysa** has iterated and updated their application 350 times based on the feedback and reviews received from 500,000 users across 65 countries.

> "There is a recognition that the academic and the scientific discourse around mental health is inadequate without getting in the perspective of the lived experience. And you have to bring these together to be able to find the right solution. It is a more humanistic approach to mental health care delivery."
>
> — **Neha Kirpal,** Co-founder, Amaha Health

A phygital (physical + digital) combination of care.

Digital solutions in silos cannot solve the care and access gaps in mental health. Fortifying service delivery via digital solutions with complementary physical interventions can improve accessibility and receptivity of care. These can be done in three ways.

First, technology solution providers could expand offerings to include physical solutions,

which provide care and access to populations that prefer a personalised human touch. **Amaha**, for example, is looking to open clinics across Bangalore, New Delhi and Mumbai to offer both outpatient and inpatient services to address diverse mental health needs.

Next, referral mechanisms can be established through partnerships with in-person service providers. Digital solution platforms may partner with helplines, clinics and hospitals to create a network of mental health professionals. One interesting application of this would be to equip healthcare cadres for basic in-person psychological first-aid in rural areas. Their assessment can then be followed up with a digital connection to a mental health professional at a local health facility. This can help address negative attitudes towards digital mental health options through an initial in-person interaction, while also leveraging non-specialist health cadres to support innovative pathways for last-mile access to mental health services. **ePsyClinic** has partnered with specialists in tertiary care settings in one of their intervention areas and has enlisted information about the District Mental Health Programme and local psychiatrists in the region on their platforms. Users who show severe symptoms of mental distress are directed to immediate care nearby via the platform or have a home visit by a nearby specialist. These phygital models create a robust end-to-end care package for users and can cater to diverse needs, which cannot be addressed in isolation by technology-based solutions.

Lastly, caregivers can be integrated into the solutions, along with those experiencing mental health issues, to enable better treatment adherence and support. There are digital solutions available globally, such as **Symple**, that integrate caregivers into their interface. This enables them to monitor their loved one's health by keeping a track of their symptoms such as anxiety, and their sleep, meals, and medication over a period of time and be alert on the go (Spec India n.d.). There is a need for digital solutions that engage caregivers to not only ensure adequate treatment adherence, but also help them manage their own mental well-being. India does not have adequate solutions in this space and merits greater focus from solution providers.

Customising for the diversity of contexts and needs in India.

Mental health is qualitative in nature and is determined by a complex interplay of social, political, cultural, economic, biological and other factors which form the environment and experiences of each individual.

> "Often, users can't define the problem. People have very limited vocabulary, especially for non-English languages, for a lot of mental health conditions, including terms for depression, anxiety, bipolar disorders and others. The language of expression and understanding doesn't exist. So the challenge for people is the lack of clarity and the lack of communication around the diagnosis and around the treatment plan that will work for them. And often, what they are finding online is not necessarily matching their needs."
>
> — **Neha Kirpal**, Co-founder, Amaha Health

Digital solutions should recognise the limitations in awareness, vocabulary, expression and understanding of mental health among users and move beyond a one-size-fits-all approach. Diverse needs of users based on their age, gender, urban or rural location, education levels, family situation and other individual factors vary across regions and closely impact mental health outcomes.

It is essential for solutions across the continuum of care to include customisation for their targeted populations and democratise access to non-urban users. Another critical feature is the pilot testing of solutions to ensure that the content does not trigger users and adheres to content which recognises sensitivities, attitudes and beliefs of populations in all regions in India.

Practitioners around the world are also beginning to recognise the potential of AI and digital assistants in understanding the state of mental health of populations. Research has demonstrated how machine learning may be used to forecast the likelihood of suicide attempts (Walsh et al. 2017). AI presents the opportunity to develop algorithms for predictive analytics whereby machine assistance could translate into clinical practice as well and allow for nuanced customisations of mental healthcare delivery.

Tailwinds to Strengthen Digital Solutions for Mental Health

Technology presents immense potential to catalyse access to mental health services in India. With the rising popularity of digital solutions in India, there is an opportunity now to effectively tap into them to address the significant mental health needs of the population. Funders, non-governmental organisations, digital solution providers, and other ecosystem players working in mental health can harness technology across the continuum of care. They can then enable the integration of digital solutions, within existing and new physical interventions, and prioritise action while actioning the highlighted focus areas.

The government is also keenly focusing on digital initiatives and there are policy prioritisation of initiatives, including the **Ayushman Bharat Digital Mission (ABDM), the E-Manas programme, and the National Tele-Mental Health Programme,** which all aim to harness the potential of technology. Digital innovations and advancements combined with a rise in funding for digital solutions in mental health present an opportunity for action. Furthermore, the Government is in a unique position to create an enabling systemic environment that can address both conventional foundational challenges, such as privacy and safety concerns, while also establishing governance for new and emerging mental health solutions.

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