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Understanding Mental Health Applications in India

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SELF-DECLARATION

This is to certify that the thesis submitted by me titled "Understanding Mental Health Applications in India" is my original work and has not previously formed the basis for the award of any Degree, Diploma, Associateship or Fellowship to this or any other University.

Lasya Chelikani

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LIST OF FIGURES AND TABLES

ABBREVIATIONS

Abbreviation	Full Form
MHApp	Mental Health Application
WHO	World Health Organization
MoHFW	Ministry of Health and Family Welfare
CBT	Cognitive Behavioural Therapy
AI	Artificial Intelligence
LMIC	Low- and Middle-Income Countries
NIMHANS	National Institute of Mental Health and Neurosciences
ABHA	Ayushman Bharat Health Account
ECHO	Extension of Community Healthcare Outcomes
DPDP	Digital Personal Data Protection (Act)
AAAQ	Availability, Accessibility, Acceptability, and Quality
NDHM	National Digital Health Mission
ICD	International Classification of Diseases
GDPR	General Data Protection Regulation
APA	American Psychological Association
UX	User Experience

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EXECUTIVE SUMMARY

India's growing mental health challenges, especially among its youth, have made mobile mental health applications (MHApps) an emerging solution. This study explores how young people between 18 and 30 experience these apps, what they expect, and why usage lags. Using surveys and in-depth interviews with psychologists and developers, the research uncovers deep concerns, ranging from poor cultural relevance and lack of emotional connection to gaps in privacy, trust, and professional oversight.

While mental health professionals worry about ethical risks and app reliability, developers face challenges like tight deadlines, limited budgets, and little guidance from regulators. Young users want accessible, affordable, and culturally sensitive tools that do not just rely on AI but also offer real human centric oriented.

The research shows that most MHApps today fall short, not because of lack of effort, but because they are built in silos. There is a clear need to treat these tools not as quick fixes or market products but as essential public health infrastructure. The report calls for collaboration between policymakers, clinicians, developers, and users to co-create a digital mental health ecosystem that feels safe, local, inclusive, and genuinely supportive—especially for the generation that needs it the most.

INTRODUCTION

The rising numbers of public health concerns related to mental health now represent a crucial situation in India at the same time as the number of youth aged 18 to 30 show increasing mental healthcare needs. The National Mental Health Survey (NIMHANS) shows that 150 million Indians require mental health interventions, but treatment availability reaches only 70% of patients, depending on their condition (WHO, 2020). Research has proven that academic pressure, unemployment, social media prominence, and urban isolation are primary causes of youth stress (Khandelwal et al., 2019). The availability of mental health services suffers from constraints in the Indian healthcare system because psychiatric professionals number only 0.75 personnel per 100,000 people. While the WHO recommends a minimum of 3 psychiatrists per 100,000 individuals (WHO, 2021).

Digital health innovations have started to address health service gaps through mobile mental health applications (MHApps). Digital platforms supply independent therapeutic content such as emotional assessment tracking, meditation techniques, cognitive behavioural therapy units, and automated artificial intelligence chatbots. Young adults find MHApps attractive due to their autonomous operation and availability, which aligns with their preference for technology, smartphone usage, and digital skills. Numerous health technology tools have received accelerated adoption throughout India due to the Digital India programme and National Digital Health Mission, thus leading to rapid growth in the mental health app ecosystem (Centre for Mental Health Law & Policy, 2025)

Mobile health applications receive worldwide acceptance as efficient tools that augment clinical care and extend mental health services to newer populations. The study conducted by Firth et al. (2019) through meta-analysis demonstrated that MHApps effectively lower the symptoms of depression and anxiety for patients with mild or moderate severity. The

effects of these mobile health applications remain limited because of multiple concerns regarding their clinical success and data security, together with user participation and cultural compatibility, particularly in low- and middle-income countries (Aggarwal & Berk, 2014). A lack of formal regulatory standards in India allows numerous MHApps to enter the market without mental health professional involvement, thus posing safety and ethical threats to users (Aggarwal & Berk, 2014b).

The 18–30 age segment of India demonstrates a distinctive profile that comprises mental health exposure to risks but simultaneously shows an interest in digital mental health resources (Brassey et al, 2021). A scarcity of empirical research exists that investigates the user behaviours of the population group when interacting with MHApps and their determinants for acceptance or rejection, along with professional and developer mindsets about their mental healthcare roles.

This study incorporates Indian youth demographics while studying multiple stakeholder groups to develop practical knowledge about mobile mental health application use and necessary standards for their appropriate utilisation.

BACKGROUND

While the rapid growth of mobile mental health applications has offered an avenue of support unbridled by physical distance, time, and cost, the digitalisation of traditional interventions has also raised doubts surrounding their effectiveness. As such, there is an urgent need for a more comprehensive and up-to-date understanding of mobile mental health apps in traditional treatment.

The current mental health applications model has often been plagued by a gap between software development and the expertise needed. Because so many apps are being developed without substantial involvement by mental health professionals, there is concern about their effectiveness and safety. As a result of this gap, adoption rates can be low, and apps may become redundant because users might find them ineffective or unable to engage with them (Palmer & Burrows, 2020).

Additionally, most apps neglect to place patient education at the forefront so users can fully understand and control their mental health. Harvard Studies suggest that psychoeducational interventions are helpful in the treatment of depression and the treatment of anxiety. Integrating psychoeducational content, like guided mindfulness exercises or cognitive behavioural therapy modules, into the user's experience may increase user engagement and improve outcomes. (Donker et al., 2013)

Furthermore, cost accessibility remains a significant concern, even more so for students who have extra stress on their mental health. Although digital mental health apps offer cost and time efficacy, they can sometimes bear a significant cost in terms of prices, either a subscription fee or only a few free trials.

Technology in the arena of mobile mental health has been known to improve reachability and help disseminate information and resources to underserved communities in this regard. Still, the reach of digital and online interventions is limited to people with access to digital devices and, in many cases, to the internet. The internet penetration rate in India is around 50 per cent, meaning that half of the country's population does not have internet access, hence highlighting the issue of accessibility to mobile mental health apps. (World Economic Forum, 2022).

According to the National Mental Health Survey (Gururaj et al., 2016), nearly 13.7% of Indian people suffer from diagnosable mental disorders, while over 80% of these individuals are untreated. India maintains a substandard mental health infrastructure that lacks enough psychiatrists to meet the WHO requirement of three psychiatrists per 100,000 individuals because the country currently has only 0.75 psychiatrists for every 100,000 people (WHO, 2021). MHApps have received increasing interest because they offer an economical approach to reach many people. The Tele-MANAS program under the National Tele-Mental Health initiative began operating in 2022 under the Ministry of Health and Family Welfare to provide free 24/7 mental health support through mobile platforms and call centers (Ministry of Health and Family Welfare, 2022). The service processed over 400,000 telephone calls during its inaugural year due to the high demand for accessible mental health services.

The Ayushman Bharat Digital Mission works to digitise health records and establish digital health systems that communicate with each other. The non-specific technology infrastructure enables the potential integration of MHApps, as per the Ministry of (Health & Family Welfare,2022). NIMHANS has developed ECHO tele-mentoring as a training program to prepare frontline workers for remote mental health service delivery through digital platforms

(Mehrotra et al., 2018). India needs specific regulatory standards that assess MHApps to confirm their clinical worth, safety, and compliance with privacy regulations.

Product success for MHApps depends significantly on the combination of User Experience design and app interface creation (NIH, 2024). Research shows that user retention levels remain low because users get bored interacting with the interface or do not find relevant content, and cultural information works against them. Several applications deliver interventions as general solutions while neglecting individual user preferences and contextual needs, according to Borghouts et al. (2022). User dropout occurs during the first few days primarily because of unusable interfaces and technical issues that users encounter. The challenge within India becomes more difficult because of the numerous languages combined with different user levels of digital proficiency.

India also started its own applications, Wysa and InnerHour have started approaching the documented client gaps. According to peer-reviewed studies, Wysa provides users total satisfaction through its AI-driven system, including therapist support (Inkster et al., 2018). The CBT modules of InnerHour contain personalised content through its localisation options and features, which helps urban Indian users access its services more efficiently. The target audiences of these apps mainly consist of English-speaking middle-class users.

Data privacy stands as a significant concern in digital mental health networks throughout the world while existing as a priority issue in India. The user information on mental health represents highly sensitive data because breaches may bring severe impacts to users. The World Economic Forum (2022) reported 10,000 mental health applications worldwide, yet less than 5% have complete privacy policies and encryption standards. Users in India face data privacy concerns resulting from not understanding data storage methods and access and revenue practices.

Several MHApps operating in India do not use end-to-end encryption while enabling third-party data access that occurs without users' explicit consent, according to Saini et al. (2022). Youth scepticism regarding digital surveillance grows because they notice such risks that create an atmosphere of distrust. MHApps maintain minimum privacy standards along with the protection of informed agreements specifically for their vulnerable users (NICE, 2020). The absence of proper regulatory oversight creates various ethical problems. Users could choose unverified tools from unaccredited sources for inaccurate medical diagnoses and incorrect pseudoscientific advice because there is no government oversight of app evaluation. Sethi et al. (2023) recommended a tiered accreditation system for MHApps within the Indian framework, which classifies applications by their clinical risk levels and evidence-based success.

Worldwide and within India, the 18–30-year-old demographic constitutes the biggest group of users of MHApps. Young adults who exhibit digital fluency deal with specific psychological stress factors, including academic demands, job market risks, social detachment and struggles with personal self-identity.

The co-design approach with youth members is a potential solution to make apps more appealing while boosting user adoption. The State of the World's Children 2021 from UNICEF calls for developers to involve youth in designing digital mental health tools by bringing them into feature development and testing stages (UNICEF, 2021).

Multiple guidelines worldwide assist in assessing the ethical aspects and clinical evaluation of MHApps. Stoyanov et al. (2015) created MARS, which now serves as one of the primary evaluation measures to determine app engagement alongside usability information quality and functionality. The American Psychiatric Association (2021) supports organisations to evaluate MHApps using a step-by-step assessment system based on clinical requirements,

security measures, user access standards, and data sharing compatibility. Digital health technology evaluation at the National Institute for Health and Care Excellence (NICE) divides MHApps through evaluation levels and risk assessment. These criteria set measurement points that both regulators and developers need to follow. Public support in India for the establishment of a comprehensive healthcare framework is increasing. Sethi et al. (2023) suggest creating an India-specific MHApp Registry that should assess applications according to their data protection compliance, evidence-based base, cultural adaptability, and linguistic diversity. NIMHANS, together with ICMR, focuses on developing accreditation models that can be implemented across the nation.

MHApps present a promising solution to meet the mental health needs of India through technology-based, accessible interventions. The effectiveness of MHApps relies on their evidence-based design, cultural appropriateness, user participation, and strong regulatory systems. The complete potential of MHApps for enhancing mental health results in India requires stakeholders to work together collaboratively.

Despite the potential benefits of MHApps, several barriers hinder their effective implementation. A significant challenge is the lack of trained mental health professionals; as of last year, there were only approximately 3,372 registered clinical psychologists in India (Nair, n.d.). Furthermore, many rural areas lack access to reliable internet infrastructure, limiting the reach of digital solutions (Kulkarni et al., 2023). Additionally, a systematic review highlighted that while technology can improve help-seeking behaviors for mental health concerns, culturally relevant and user-friendly applications still need to be tailored to the diverse Indian population (Croma, 2024). Accepting these technologies among the ones who need them and healthcare providers is crucial for their success.

LITERATURE REVIEW

Mobile mental health applications (MHApps) have created new opportunities for Indian public health while generating complexities in its modern development paradigm in recent times. According to (Cho et al. (2022) Research analysts now view MHApps beyond standalone treatments because these mobile interventions dynamically react based on cultural rules alongside therapy limitations and administrative regulations. The review investigates academic evaluations of MHApps to describe how researchers study them while focusing on student utilisation patterns and concerns about ethical implementation and regulatory preparedness.

New research shows that student population adoption of MHApps depends on cultural alignment and trustworthy features that build emotional connections with students. The results from Delhi-NCR research showed that students' digital knowledge was high. However, actual application usage remained low due to missing culturally adapted features in these apps. As noted by (Chawla and Saha (2024). shows that technology platforms that ignore regional languages combined with academic stresses and local emotions fail to retain user engagement. Multiple factors make the people reluctant to keep using mental health applications even though they have digital competence.

Koh et al. (2022) reported that Western-based clinical framework applications do not reach Indian users in non-metropolitan areas successfully. Research by Prerna and Rao (2023) shows that emotional adherence and cultural connection can be achieved by adding region-specific stressors to healthcare applications and culturally appealing idioms and metaphors.

Academic stress patterns of students become clearer through investigation of their application usage behaviour. The application attracts more students to download it, but the

users stop using it because they find the interface uninteresting and lacks a personalised touch. As highlighted by (Linardon et al. (2024), research in the learning field indicates that new student mental health applications will integrate artificial intelligence capabilities into existing professional mental health advice frameworks. The change promises solutions for design-related issues that lead users to disconnect from the system. Creating customised minor UI components to add human elements should reduce student detachment from the platform.

Indian youth who do not speak English or come from traditional backgrounds show low interest in using mental health applications that are created for everyone, Pedrelli et al. (2014). Youth report worries about their psychological data exposure to employer institutions, their families, and educational organisations (Saini et al., 2022)

Success in digital mental health systems heavily depends on the predictors of emotional intelligence and contextual reactivity. Several students have discontinued using these applications while download numbers persist high because of basic interfaces and inadequate human interaction capabilities. Academic studies suggest mental health apps directed by students will achieve success through the implementation of AI technologies into professional psychological assistance platforms for future use. Success rates of digital mental health programs need emotional intelligence and contextual change capabilities based on these research frameworks. As noted by (Karishiddimath et al. (2025) The evaluation produced additional results from studies about their initial development process when directed toward Indian end-users. The precise localisation of application development teams occurs when they implement language and privacy options with interface elements tailored for specific local cultures. Data collection indicates scholarly agreement regarding how community-developed applications accumulate credibility with emotional value from users and increased acceptance from   end-users.

The impressive smartphone usage combined with these psychological factors makes MHApps attractive support services for young adults, according to Torous et al. (2021). However, awareness remains limited. Many Indian university students stayed unaware of reputable MHApps and questioned their validity, according to Chakraverty and Sinha. (2020). Despite knowing about these solutions, Indian university students usually avoid continued usage; according to a survey by (Pedrelli, P. (2014), medical students who demonstrated strong digital literacy failed to find emotional benefits from app-based interventions, which they abandoned after their initial engagement.

Literature shows growing awareness about MHApps as morally complex devices that require intense therapeutic supervision. Numerous MHApps within Indian and LMIC settings remain poorly assessed even though they offer accessibility and affordability. The inconsistencies identified by academics damage user confidence because they can affect treatment purposes. (Koh et al. (2022) note that the academic field now pays particular attention to ethical-by-design frameworks and evidence-based development protocols because they determine these technological systems' safety and legitimacy. The initial step for users should ascertain if the applications respect their privacy as well as emotional integrity to maintain trust in continued platform usage.

 Public health researchers accord importance to the limitation of digital access expansion. Applications that lack built-in crisis escalation functions and expert referral choices increase the psychological risks for users requiring such support (Koh et al. 2022) demonstrate how students and novice help seekers face harmful impacts from unprotected systems which they propose should use MHApps to create an ethical infrastructure for universities and public health (Koh et al. (2022). According to perceptions, widgets with unclear pathways for crisis escalation or human help pose more significant risks to new help seekers who are already at

risk. Mental health applications need to be integrated into university counselling systems and governmental programs because this measure is now viewed as the standard for excellence and mandatory for ethical operations.

The policy and structural literature develop this perspective to a greater extent. Research implementing the AAAQ (Availability, Accessibility, Acceptability, and Quality) framework evaluates MHApps within a system where availability joins with accessibility to create the environment for acceptability and quality in service. Their studies show that having technology does not guarantee inclusive services. (Gama and Laher (2023) shows that implementing MHApps needs active measures to support multiple languages while managing diverse user skill levels and gender-specific language to establish fair mental health outreach practices. Lack of identified factors can lead applications to unintentionally reinforce the social inequalities they are designed to resolve when dealing with diverse linguistic and social groups like India.

According to experts, a critical examination is required in India's digital health policy because the policy does not differentiate regulations for wellness tools from those for clinical-grade applications. (Sethi et al. (2024) recommend developing multilevel governance systems with specific accreditation policies, consent frameworks, and accountability provisions. These proposals establish the scientific basis that MHApps need both technological advancement and institutional growth within digital health and rights-based policies. In an environment where trust governs utilisation, explicit legal parameters may prove to be as crucial as technical attributes.

Research on mental health applications (MHApps) grew globally over recent times but most current literature focuses on high-income settings while analyzing clinical performance and user experiences alongside technological features. Lower and middle-income settings

require specific adaptations to standardized evaluation frameworks provided by the APA guidelines along with the Mobile App Rating Scale (MARS).

The majority of published research about mental health apps in India focuses on two aspects: small medical trials and listing app functions but does not address user experience development or user trust building or extended app usage. A lack of research exists regarding how users perceive mental health apps beyond controlled environments and particularly among key digital user demographics who face barriers in seeking mental health care. Empirical research currently fails to properly show how users feel about privacy matters as well as costs and clinical accuracy concerns.

User feedback and viewpoint analysis from mental health professionals and app developers occurs only sporadically alongside each other. The current research fails to explain how professional reluctance and technical restrictions and business factors interact with user expectations. Public policy faces essential problems because there are no existing regulation systems or quality control mechanisms alongside integrated mental health program standards.

RESEARCH METHODOLOGY

This study is an exploratory research study. The study uses both quantitative and qualitative data collection methods since the use of digital mental health solutions with students involves both the recording of numerical figures and the collection of narratives.

Secondary research offered some background to the problem and gave historical insights. Since the project deals with understanding mental health, it became important to include mental health experts or doctors practising in the field as part of the study. Therefore, structured interviews with licensed psychologists were conducted. The study also deals with mental health applications, so application developers who have worked in this arena were also interviewed.

A quantitative study was also conducted using an online self-administered questionnaire to gather information from students on their utilisation practices, perceived challenges, and preferences towards technology-supported mental health services with special emphasis on costs, availability, and quality. This was part of a survey conducted for individuals between 18 and 30, to understand students' mental health perspectives. Following data collection, R Studio ran quantitative checks, and tests were done to gather insights about the data.

An online questionnaire was administered to university students aged 18-30 through a stratified random sampling system. For quantitative data, the participants were university students. Quantitative data was analysed through statistical tool R for data-driven recommendations. I collaborated with a friend of mine who created my graphs used in the analysis chapter of this capstone project. I believe 'R' is more useful for data visualisation than other tools.

RESULTS AND ANALYSIS

The findings demonstrated through a combination of research methods combine respondent survey data obtained from youth from 18-30 and interview data collected from psychological practitioners and mental health application developers. The integration of these three viewpoints enables researcher to identify both practical and psychological and systemic influences on Indian mental health application usage. The analysis follows a Triangulation structure, the evaluation in this part brings together evidence from both users and experts and application developers to present a comprehensive view of India's current mental health application utilization pattern. Research in digital mental health science supports triangulated methods because they create a basis of understanding complex relationship networks involving multiple actors (Torkar et al., 2022). An overview of the conducted interviews including participant profiles and thematic observations has been included in the Annexure to support the analysis presented in this section

Fig 1: MHA Familiarity

Source: Author Analysis


Fig 2: MHA Usage
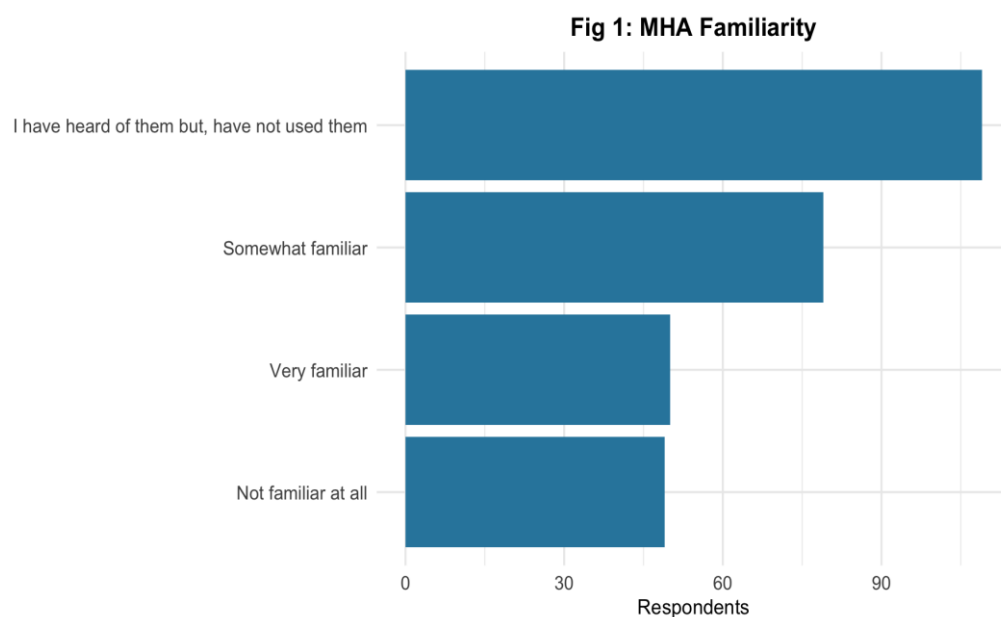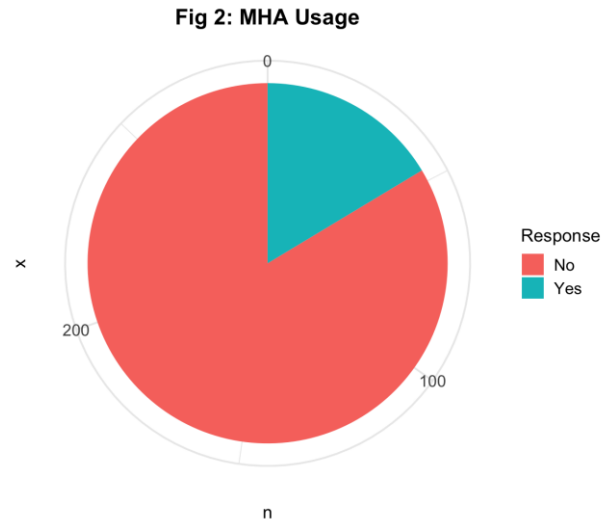
Source: Author Analysis

The data reveals that young people possess knowledge of MHApps, yet their usage remains insufficient (Figures 1 & 2). Most students understood MHApps even though only a few used them. This indicates people display digital awareness yet this knowledge fails to motivate them to actively use their familiarity with technology for adoption or engagement purposes.The gap exists because there is no official backing or support from institutions for awareness and acceptance. People display digital awareness yet this knowledge fails to motivate them to actively use their familiarity with technology for adoption or engagement purposes (Prinja et al., 2020).

Students obtained information about these applications from social media sources and social contacts rather than from healthcare providers or educational institutions. Users lose confidence in mental health aids because of this experimentation-based development approach, which leads to increased abandonment of these tools. Studies indicate that users who judge

fragile mental health applications using trial-and-error methods develop lower levels of trust during brief periods of usage (Viksveen et al., 2021). Psychologists refrain from recommending mental health applications to students because official guidelines and certified app lists do not exist. This absence leads to most student requests remaining unanswered.

According to psychologist A1, "*Students know about available mental health apps but struggle to choose one among all available options.*" This was collaborated by the research that was done among the 300 participants where it came through that as per fig 1 that I have heard of them but not used them at all was the maximum number of responses even though they were somewhat familiar with 67% of respondents their usage was not so high.

Developers understand that user awareness has grown, yet conversion success continues to fall short. Significant internet marketing investment fails to help mental health apps reach their target audience since these platforms lack institutional partnerships. Research indicates that marketing single-handedly fails to establish long-term adoption in digital health fields since users prefer to rely on trusted institutions to develop their confidence (Auxier et al., n.d.).

Fig 3: Usage Frequency of MHA
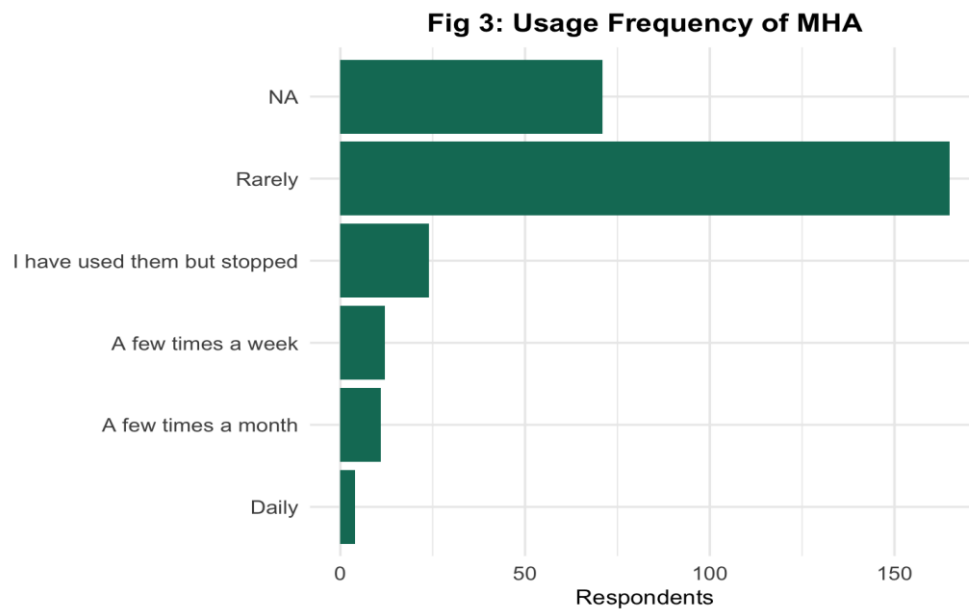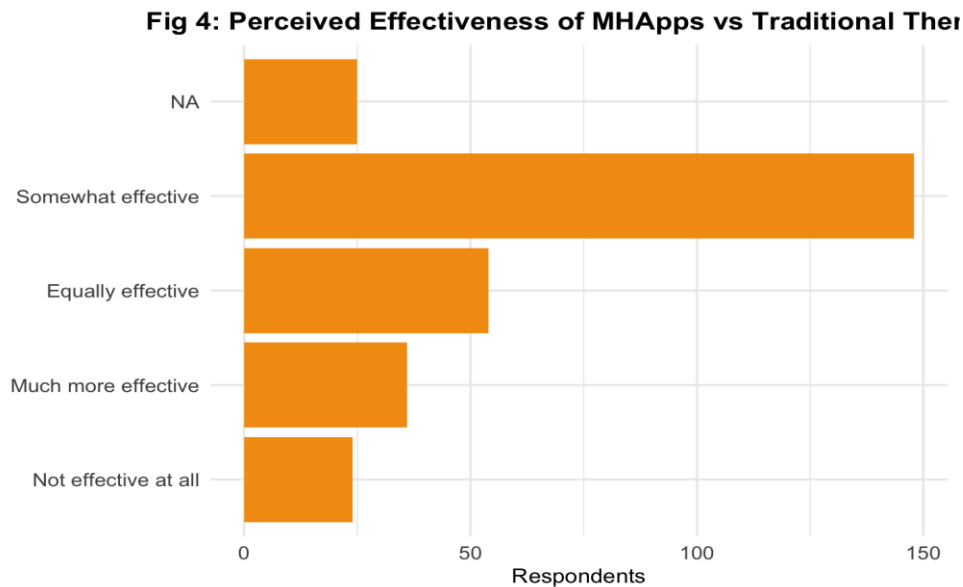
Source: Author Analysis

Figure 3 shows that participants used mental health applications for a limited duration. All study participants reported only limited usage of MHApps despite "NA" and discontinuation responses by a notable percentage of survey respondents. The pattern reveals minimal participation as well as substantial discontinuation and dropout among users who first tried out mental health applications.

These findings from the survey further were supported by the 18-30 age group explanations gathered through open ended responses. Student inconsistency with app usage occurred because they detached emotionally or became tired of the interface design. According to (Linardon et al. (2024) the users reported that the applications lacked therapeutic value but only provided transactional features. The app kept delivering regular reminders, yet users felt no authentic support. Emotional detachment as an early process appears to cause the premature termination of user interaction. The design of MHApps faces an essential challenge because

tools that do not establish human connection lose their value for users who need emotional support (Torous et al., 2020).

Following their clinical observations, psychologists supported this behavioural pattern by attributing it to absent therapeutic connections within digital therapy. The observation highlights rising worries in research about MHApps which fail to duplicate crucial therapeutic aspects such as empathy, responsiveness and personalization (Hollis et al., 2015). The psychologist explained that applications that fail to interpret user context or emotional expression produce shallow interactions, so unpractised users seeking help often feel this way. Psychologists emphasised that extended utilisation requires more than operational efficiency because it requires users to feel emotionally acknowledged by the system and receive clinical support resources.

The developers who acknowledged the problem described various organisational hurdles blocking their progress. According to a developer statement, *retention is our leading problem today. People look for help in times of crisis, yet they leave applications when they do not meet their immediate needs.* The research (Mohr et al., 2017) supports this finding by showing that mobile health applications without immediate relief and professional assistance result in high user attrition.

Fig 4: Perceived Effectiveness of MHApps vs Traditional Ther

Perceived Effectiveness of MHApps vs Traditional Therapy

Source: Author Analysis

Users evaluate the effectiveness of MHApps versus conventional treatment through the information presented in Figure 4. The survey results showed that most users viewed the techniques with a "somewhat effective" effect.
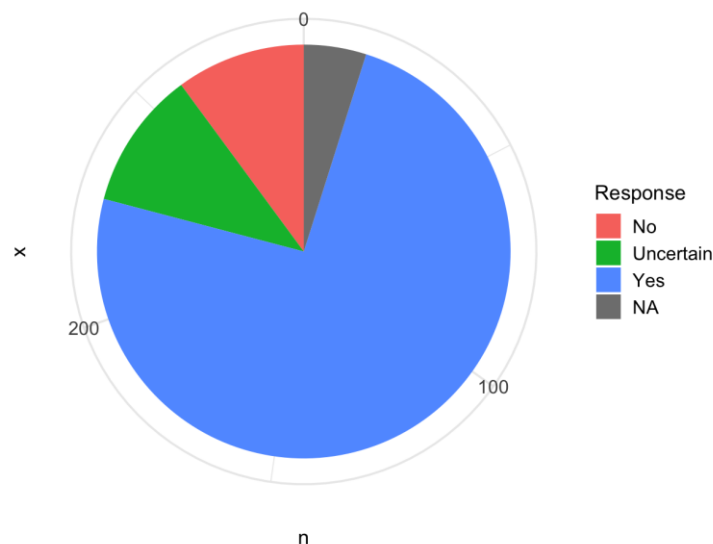
User perspectives indicate that many students were unsure if MHApps have a scientific foundation or self-help content. Several participants expressed difficulty determining if health applications are authentic professional creations or if they appear attractive on the surface. (Chawla and Saha (2024) suggest that user hesitation about using these applications persistently arises from the lack of clarity between scientific platforms and unverified self-help tools.

Psychologists expressed this skepticism. Students reached out saying incorrect or misleading advice they had learned from applications—multiple uncertainties developed

because of insufficient professional supervision, hard-to-understand evidence foundation, and undefined qualifications. A psychologist (A9) stated that *applications should avoid providing therapeutic services while failing to follow established therapeutic procedures*.

The development community, on the other hand, complained about lacking official methods to validate or certify their products. Ethically and therapeutically developed applications struggle to demonstrate their value because no regulatory authority or certification norm can help them stand out. D3 stated *that they conduct the proper work yet lacks a system to demonstrate its credibility to the public.*

Privacy Concerns Regarding Mental Health Apps

Source: Author Analysis

The data displayed in Figure 5 shows that participants have significant privacy and security-related concerns about mental health applications. Over 75% of respondents expressed data concerns regarding their information management practices when using these apps.

However, users holding dual or no concerns about these security issues constituted a minority percentage. The MHApp market faces a significant issue because users fail to trust applications.

The concept of trust precedes encryption in student user perception by including aspects of clear communication, complete transparency, and subjective assurance. Multiple users chose not to reveal their personal or emotional materials to applications because they found their privacy policies and terms of service unclear and complicated. Among students, there is a persisting doubt regarding the status of their data even when using anonymous functions.

According to psychologists, the therapeutic relationship depends on anonymity, and this requirement must also apply to mental health applications. The absence of evident privacy makes the actual situation borderline unnoticeable, according to Practitioner A3. *Trust dissolves entirely within obscurity. The fundamental pledge of data privacy is an essential frontend function that app developers must understand and implement.*

The application developer identifies a communication barrier as the fundamental issue. Users find it difficult to understand basic security measures in applications due to developers supplying unclear explanations about these features during usage. D5 explained that their platform features security capabilities, yet users do not find enough explanations for feeling secure. The gap exists primarily because users lack both satisfactory user experience and trust in the system. The built-in data protection systems in place are difficult for users to detect because they lack adequate user education and clear explanation. The insufficient disclosure of data practices creates substantial obstacles to mental health institution adoption. Security technology requires users to receive accessible information about their system safety and the reassurance that plain-language explanations will provide them.

People form their sense of security primarily through messaging style rather than depending solely on technological backend procedures (Torous et al., 2018). The lack of user understanding about privacy features causes well-made privacy protocols to lose trustworthiness because users do not comprehend their operation.
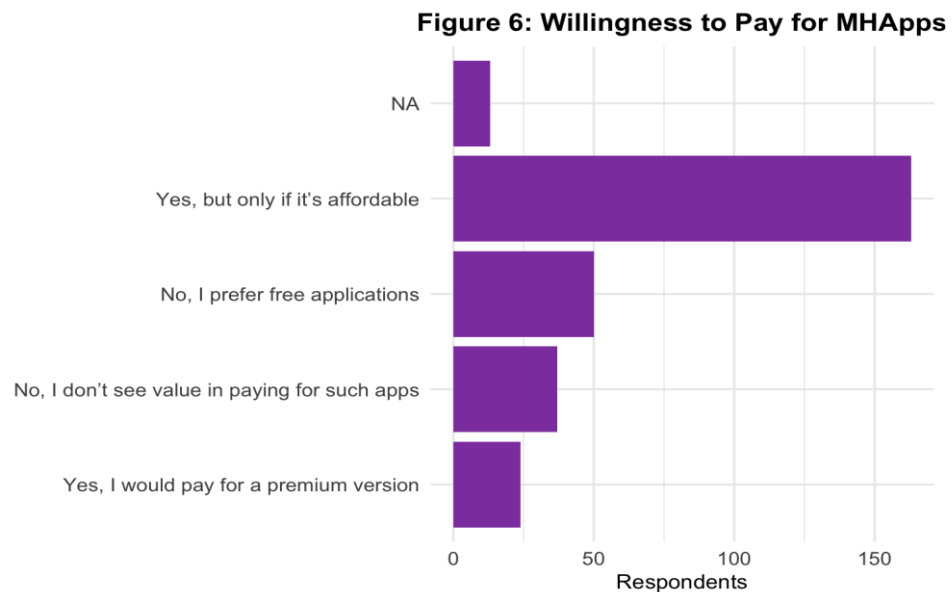

Figure 6: Willingness to Pay for Mental Health Apps

Source: Author Analysis

Users of mental health applications demonstrate their most substantial concern about affordability through Figure 6 data. A majority of mental health treatments in India are covered by individual costs because insurance typically does not support these services as identified by (Sussman, N 2018). Most were willing to pay for MHApps "only if they are affordable,". The results show that premium versions of MHApps only interested a few users who demonstrated that price represents monetary value and emotional gain from the investment. India is a growing economy and most money is spent in the metropolitan cities and also these applications are designed in the metropolitan area yet, they find it pricey and difficult to afford despite living

in city areas, youth often face financial challenges due to the mismatch between application costs and their available funds.

Mental health serves as a personal top priority for students despite financial resources being limited for some to dedicate funds toward it. Several participants decided to utilise the restricted free alternatives instead of paying for services that they regarded as excessively expensive and indecipherable. A student expressed*: "I would not spend money on it because I cannot determine its advantages for myself."* When people lack understanding about the value proposition they feel dissatisfied with costs. People with this cautious attitude demonstrate a lack of financial resources and fundamental doubts about the tool's effectiveness.

Various mental health professionals observed that many young people could not access therapy because of social discrimination and cost issues. Students find it difficult to accept the notion that mental wellness should be converted into a commercial product, according to A7*, "Our society requires official backing instead of commercial marketplace solutions".* They believe that integrating MHApps into a generalised public health program offers solutions for expense reduction and psychological barriers. Multiple experts along with policy reports advocate for public-private models as a solution to reduce the cost of MHApps (MoHFW, 2020).

The developers required significant economic requirements for their activities. People have reported experiencing accessibility-enhancing functions getting eliminated to cut down development expenses. The developer (D2) explained that although they *pursued creating inclusive tools, they had commitments to their funding sources and deadlines. Without governmental funding or subsidies, our organisation cannot provide mass-scale subsidisation.*
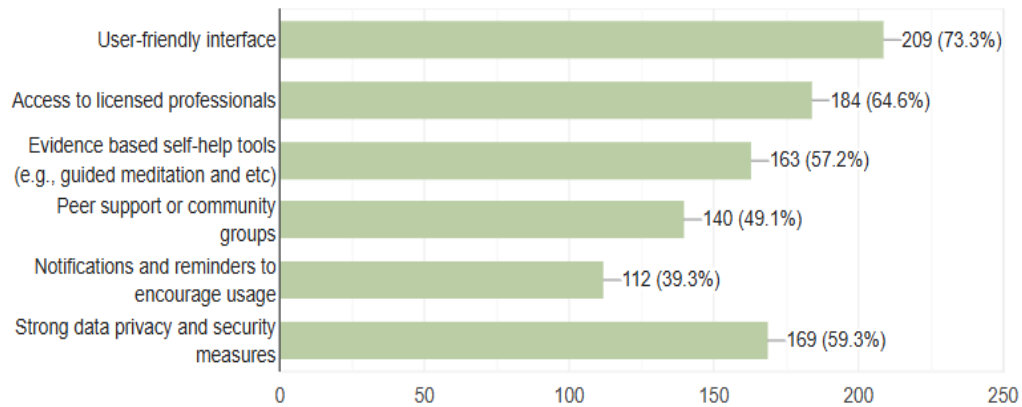
Figure 7 Essential features for a mental health application

Source: Author Analysis

Fig 7. Users identified three core features of ineffective MHApps, which included user-friendly design (73%), services provided by licensed practitioners (65%) and robust data protection systems (59%). Evidence-based features and peer counselling emerged as mandatory elements, according to users. According to (Gama and Laher (2023) the preferences of Indian users match well with global benchmarks such as the MARS and APA models, thus demonstrating their interest in accessing high-quality services and being protected and safe within digital spaces. These demands for evidence-based solutions indicate that users are digitally aware of pseudoscience and automated treatments needing human monitoring.

The study revealed that privacy concerns stood out as the main concern for participants because 78.7% explicitly watched how their data would be handled. The respondents ranked understanding how their data is utilised as a "fundamental" matter and approved this statement at 70%. This level of sensitivity, especially among a digitally native generation, highlights the urgent need for transparent data governance and ethical safeguards in MHApp design and deployment. User wariness about data monetisation in the digital realm extends to mental

health information since this category represents a particularly exposed domain for which consent is required.

App developers recognized that they encountered obstacles when trying to meet user expectations. The developers accepted the value of privacy along with clinical credibility despite their constraints in funding and time. The developer explained how advanced privacy protections together with inclusive features get postponed since they consume extensive resources and developers must work quickly to create functional solutions. Users expect higher data protection which creates an essential gap compared to the current developer capabilities.

Users demonstrate growing digital competency because they highly value evidence-based features in their health-related applications. A psychologist determined that applications without human oversight and clinically verified content provide value that might be both unhelpful and harmful to users. The mental health app ecosystem needs regulatory frameworks which must ensure both professional standards in creation and user protection and quality control of these applications.

DISCUSSION

This study recommends a united effort between secondary research with new primary data from user surveys and expert interviews to build the future of mental health applications in India into a system that includes public involvement and responsible, ethical protocols. Users observe multiple problems that show that a disjointed system requires more than individual technology solutions. The treatment of MHApps requires them to function as an essential framework alongside mental healthcare and digital governance management.

The discussion explains that MHApps need integration into university structures, public health programs, and digital health governance systems. Mental health app development serves Indian public health infrastructure development as its core purpose rather than existing solely for commercial reasons. The system should integrate developers with psychologists, government regulators, educational bodies, end-users, and institutional actors.

Stakeholder involvement as a procedural measure should be applied when designing testing and governing MHApps, focusing specifically on users and their clinical counterparts. The system must also provide consultation sessions with feedback systems through active participation in platform decisions.

Everyone should have safe and adequate access to MHApps regardless of their residence or language background. Health apps require affordable costs, local language support, and culturally appropriate content, which should become top priorities.

RECOMMENDATIONS FOR MENTAL HEALTH APPLICATIONS

Digital literacy:

- Many apps need minimum digital literacy to access, which is not distributed uniformly across India.

- Many MHapps run in isolation; associating them with existing hospital services or government helplines for MH can bridge the gap between self-help and professional service

- Ethical AI in mental health apps is important, as ethical AI, decision transparency, and AI automated approaches remain a concern. We must ensure AI approaches align with clinical best practices and how bias can affect different demographics of users.

- Social media is key in influencing young adults. So, in the future, influencer collaborations and peer support features should be added to increase trust and adoption.

Language support

- Many apps are primarily available in English, causing language barriers. Provide regional-based language options and introduce relevant case studies (context-specific content) to reduce barriers for non-English speaking audiences.

Mandating a board advisory committee

- Including licensed psychologists in the board advisory committee for better outcomes in applications

Promoting youth in the design process

- Involving youth users in the design process can improve innovations for user-friendly applications

Improving accessibility and affordability

- Research says high subscriptions lead to less usage and lower adoption rates; to improve that, keeping a sustainable plan could help in good growth.

CONCLUSION

The researcher has conducted an authentic investigation of Indian mental health application developments (MHApps), specifically among the digitally native demographic of 18–30-year-olds. Through a triangulated approach, this study used a literature review, survey data, and expert interviews conducted with psychologists and app developers to identify the main results.

The research reveals significant hurdles that impact how MHApps are received and put forward user practices and expected results, as well as worries about ethical matters for MHApp adoption effectiveness.

The research shows active cultural mismatches combined with privacy vulnerabilities, the absence of medical system integration, and institutional backing, which persist as ongoing problems in these applications.

The current obstacles in these applications impact their potential utilisation in India. Results show that MHApps can provide democratised mental health assistance, yet they must improve to achieve this goal.

The existing version of MHApps shows insufficiency when addressing the emotional requirements and expectations of Indian youth. Insights from

The psychological field has identified a lack of proper therapeutic care continuity through MHApps. However, developers face restrictions because they work without clinical frameworks or institutional endorsement—the constraints of working without clear clinical frameworks or regulatory guidance. Survey respondents echoed these.

The survey findings revealed widespread scepticism, which few participants displayed, about app authenticity, privacy problems, and the absence of real-time human support. The proposals presented in this research derive from recognised global best practices and user feedback data.

Cross-sectoral collaboration between regulators and designers must prioritise interaction with cultural elements and support systemic integration of MHApps through healthcare services integration of MHApps into educational and healthcare frameworks. The proposed governance model in this study integrates all necessary components for an integrated solution. Digital mental health justice principles, procedural, distributive, restorative, and recognitional, provide guidelines for future Indian policies and implementation of mental health measures.

Through this study, the researcher addresses MHA's by studying their function as public health tools instead of digital products. A lasting mental healthcare framework demands the appropriate integration of technology as an enhancing element that operates together with healthcare professionals, educational institutions, and community support systems.

Compassionate contextual care requires clinicians to collaborate with educators, community structures, and digital mental health professionals.

STUDY LIMITATIONS AND FUTURE RESEARCH DIRECTION

This exploratory study focuses primarily on students and young adults aged 18–30, which may not represent all user groups, especially those in rural areas or from older age brackets. The primary data is drawn from Google Form responses and qualitative interviews, which, while insightful, may reflect self-reported biases and a limited sample size.

Only psychologists and developers were interviewed; perspectives from institutional counsellors, government stakeholders, and app investors were excluded. In addition, the study did not explore the financial models of MHApps.

Future research could examine the effectiveness of MHApps across diverse populations, evaluate the long-term impact of app usage on mental well-being, and study user behavior using advanced analytics or clinical trials. There is also the scope for exploring regulatory models, different frameworks, and the integration of MHApps with public mental health systems in India.

In addition to scope and stakeholder limitations, some methodological threats to validity should also be acknowledged

- The researcher deliberately chose to interview participants from a selected group of licensed psychologists and MHApp developers because of their involvement in digital mental healthcare systems.

- Reactivity or reflexivity: The way questions were curated, and the line of questioning could impact or show an underlying bias to the participants, thus influencing their

responses (Hammersley & Atkinson, 1995). Though specific care was taken to curate a neutral interview guide, the possibility cannot be omitted.

I received the following comments from my external evaluator of this capstone project, which I would like to add as my limitations:

I received the following comments from my external evaluator of this capstone project, which I would like to add as my limitations:

One challenge I have faced is that my research participants took significant time to respond to my emails on time. I acknowledge this might have impacted how the study turned out.

I acknowledge that a selection bias is present in the methodology of the study. A question in my survey questionnaire asked whether my participants are from a rural or an urban background. I have relied on participants' perceptions of what they perceive as rural or urban.

I acknowledge that my laptop was not functioning well during my capstone project. This is why I may have referencing and citation errors in my capstone project.

I could have included an older population (individuals beyond the age of 30) as a sample in my capstone. The reason I could not do this is because of time constraints. The inclusion of an older population would have made my analysis richer as it would have offered insights into how individuals beyond the age of 30 understand mental health applications in India.

My evaluator perceived a conundrum from use of graphs - Figure 1 suggests that while many individuals know of these apps, they do not use them. Figure 3 suggests that usage frequency of these apps are rare. Figure 4 suggests that I think these apps are somewhat effective despite rare usage and rare knowledge. My clarification here is that while many of them have installed the apps, they have not used them enough to comment on the

efficiency of the apps. This is why I say that the efficiency is somewhat and not equal or additional.

My evaluator raised the ethical concern that I made many of the questions mandatory. I agree I should not have done this because it is not ethical. A capstone with research participants gives the participants the option to back out of the study voluntarily. This is present in my informed consent sheet and I agree I should have been careful.

My evaluator suggested looking into using Google Forms as a data visualisation tool. I agree this could have been done and will keep this in mind for future research.

A final comment from my evaluator is that I should have looked at gender more inclusively in terms of studying more women than men. I agree that men were less open to answering questions I asked in my research instruments since mental health is a sensitive topic.

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APPENDICES

Appendix I

 Questions to the age group between 18 to 30

1. How familiar are you with mental health applications available in India?

2. Have you ever used a mental health app? If yes, which one(s) and what motivated you to use them?

3. how effective are mental health apps in addressing mental health issues compared to traditional therapy or counselling?

4. What features are essential for a mental health app to be effective?

5. What challenges have you faced in accessing or using mental health apps (e.g., cost, internet connectivity, lack of awareness)?

6. Do you think cultural perceptions of mental health influence your willingness to use these applications? If so, how?

7. When using mental health apps, Are you concerned about privacy and data security? What specific concerns do you have?

8. How important is it for you to understand how the app developers are using your data?

9. What improvements would you suggest for existing mental health apps to better meet users' needs in India?

Appendix II

Questions for tech developers/app makers

1. Can you describe the primary goal or mission of the mental health app(s) you have developed? (Possible Prompt: Describe your role in developing this mental health application?)

2. What target audience or demographic is the app designed for, and how did you identify their needs?

3. What organisations or stakeholders have you collaborated with during development?

4. What factors influence your decision-making process when designing features for a mental health app?

5. What challenges have you faced in incorporating evidence-based psychological principles into the app?

6. What are the primary features of your app, and how do they support mental health?

7. How do you ensure the app is user-friendly for diverse demographics, including those with limited technical literacy?

8. Have you incorporated culturally relevant aspects into the app's design or content?

9. What measures have you implemented to protect user data and ensure compliance with privacy laws in India (e.g., the DPDP Act)?

10. How do you manage user consent, especially for sensitive data related to mental health?

11. What have you learned about mental health while working on this app?

12. What advice would you give to other developers creating mental health applications?

Appendix III

Questions for Psychologists

1. Please describe your professional work as a mental health counsellor by providing

your years of experience and main clinical areas of expertise.

2. Do you currently use digital mental health applications with your patients in practice?

Please explain the different situations where you implemented digital health

applications for mental healthcare.

3. How do digital mental health applications help professionals treat mental health

conditions according to your professional understanding?

4. Which clients utilise mental health applications? The primary motivations for clients

to utilise various digital tools, along with their assessments of the technologies'

efficacy.

5. Do clients thoroughly understand application features and constraints

before usage?

6. How do you observe situations when clients build excessive dependency on mental

health apps that push them toward skipping or delaying actual in-person therapy

sessions? In what ways do you handle these situations when they occur?

7. According to your professional view, what factors support or prevent clients from using digital mental health interventions?

8. Do you understand any potential ethical problems relating to mental health app utilisation that significantly impact client information privacy, data protection, and the spread of inaccurate information?

9. What are some ways that mental health apps don't do a good job of telling users about their data practices and privacy rules? What changes would you suggest to make these apps more open and trustworthy?

10. What position do you hold regarding implementing AI-based mental health therapy solutions like chatbot therapy within professional mental health services? What are your possible ethical issues and practical difficulties regarding their deployment?

11. According to your observation, should mental health applications require clinical validation and regulatory oversight like traditional psychological interventions? Please specify what you think about it.

12. Please describe your vision for developing digital mental health applications in the coming five years. Will stronger connections be created between these mental health applications and established therapeutic practices?

13. Recommendations for mental health applications should include structural

enhancements to achieve better effectiveness and ensure compliance standards,

including accessibility across different populations.

14. Please provide your views to developers and policymakers regarding mental health

application development for compatibility with practitioner needs and user-ethical

standards.

Appendix IV

S.N.	Date	Location	Pseudonym	Particulars
1	24-02-2024	Virtual – Zoom	A1	Counselling psychologist: works with university students, recommends MHApps
2	25-02-2024	Virtual – Zoom	A2	Clinical psychologist; expertise in early interventions
3	28-02-2024	Virtual – Zoom	A3	School psychologist; Tier-2 city context
4	1-03-2024	Virtual – GoogleMeet	A4	Psychologist working remotely for a firm
5	5-03-2024	Virtual – Zoom	A5	Private urban practitioner; focus on youth engagement
6	6-03-2024	Virtual – Zoom	A6	Clinical counsellor focuses on tech-assisted therapy

S.N.	Date	Location	Pseudonym	Particulars
7	7-03-2024	Virtual – GoogleMeet	A7	Psychologist at crisis helpline team
8	9-03-2024	Virtual – Zoom	A8	University counsellor; involved in peer support programs
9	14-03-2024	Virtual – Zoom	A9	School psychologist; experience with mobile-based interventions
10	15-03-2024	Virtual – Zoom	A10	Senior psychologist at a private firm

Appendix V

S.N.	Date	Location	Pseudonym	Particulars
1	12-03-2024	In-person	D1	Full-stack developer working on a mood-tracking MHApp with AI integration
2	12-03-2024	In-person	D2	Product manager in a startup creating CBT-based tools
3	12-03-2024	In-person	D3	UX/UI designer for a multilingual MHApp
4	12-03-2024	In-person	D4	Backend engineer at a health-tech firm partnered with an NGO

S.N.	Date	Location	Pseudonym	Particulars
5	12-03-2024	In-person	D5	Developer team lead building MHApp for students and college campuses

Appendix – VI

Consent Form

The study Understanding Mental Health Applications in India is conducted by Lasya Chelikani, affiliated with the Kautilya School of Public Policy. You may contact me at **lasyachelikani@gmail.com/ lchelika25@kautilya.org.in.** This research explores the present mobile mental health applications, their utilisation, challenges and potential improvements for students in India. This research aims to identify barriers to these apps' effective adoption and use, including accessibility, cost, cultural relevance and data privacy.

You have been selected to participate in this study because of your relevant experience or knowledge in mental health care delivery as an individual with lived experiences of the system. During the study, you will be asked about your views on accessibility, challenges, and possible improvements in mental health care delivery. Data will be collected through interviews and surveys and may be recorded with your consent. All collected data will be securely stored on encrypted systems, accessible only to the researcher, and will be compliant with institutional data protection policies. Your responses will remain anonymous, and any

findings will be used in research reports, academic papers, or presentations, ensuring your privacy through anonymisation or pseudonymisation.

No physical risks are associated with this study, but some topics may evoke emotional discomfort. You are free to skip any question or withdraw from the study at any point without any obligation or consequences. While there are no direct benefits to you, your participation will improve India's mental health care systems. Participation in this study is entirely voluntary, and you have the right to withdraw at any time without affecting any services or benefits you are entitled to.

The nature and purpose of this research have been sufficiently explained, and I agree to participate in this study.

OR

The nature and purpose of this research have been sufficiently explained, and I do not agree to participate in this study.

Participant Name: _____

Participant Signature: _____

Date: _____