

Role of Artificial Intelligence in Improving Mental Health Care

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Abstract — Mental health issues are increasing at a pace that our existing healthcare systems were never designed to accommodate. There's a huge number of people everywhere in the world, and largely here in India, who need psychological support of some kind but are unable to access it — either due to the lack of trained professionals or for reasons of cost, location or stigma. This paper explores one potential solution to that gap: artificial intelligence. The study looks at published studies and a small primary survey of 50 college students from Maharashtra to gauge levels of awareness, usage and concerns young people have about AI-based mental health tools. The reality is that AI-based tools are genuinely promising — chatbots, mood tracking apps and early detection systems are already helping people who might otherwise go unsupported. But there are serious issues as well, especially relating to privacy, the danger of erroneous answers in sensitive situations and the simple fact that a chatbot can never truly replace another human. This paper tries to look at both sides without overselling the technology.

Key Words: Artificial Intelligence, Mental Health Care, AI Chatbots, Mood Tracking Application, Early Detection of Mental Health Issues, AI-based Mental Health Tools, Privacy Concerns in AI

1. INTRODUCTION

Think about the time you felt super stressed. Maybe before a big test or when things were tough at home. In situations like that most people don't think about calling a therapist. They usually talk to a friend search online for answers or just sit quietly and hope the stress goes away. It's not that therapy doesn't work. The real issue is that for people in India and other developing countries getting professional help, for mental health is not easy. There aren't psychiatrists to support everyone who needs help. The cost can be high. To be honest people still feel uncomfortable talking about mental health.

That is in which era, artificial intelligence has started out to play a function. Artificial intelligence or AI is largely software that learns from data, finds patterns and makes decisions or suggestions. We already use AI each day without knowing it. For instance, when a music app suggests a track, or when a bank stops a transaction or when your smartphone corrects a spelling mistake. The same technology is now being used to build tools that can listen to someone describe their emotions and reply in a meaningful way.

Mental health is a problem. The World Health Organization said in 2022 that about one in eight people around the world have some kind of mental health issue and most of them do not get any help. In India the numbers from NIMHANS in 2021 show that around 150 million people need mental health care but there are fewer than 9,000 psychiatrists in the whole country. This is a problem. The numbers just do not add up, and it will not get better soon if we only do things the way we always have. Artificial Intelligence is not a solution to this problem, but it can be a useful tool if we use it in a careful and responsible way and it could really help make a difference in mental health care. ^[1] [7]

This paper explores how AI is currently being used in mental health care, what the research says about it, what young people in technical education think about it, and where the real limitations lie. The goal is not to hype the technology but to give a grounded, honest assessment of where things stand right now.

2. LITERATURE REVIEW

People have been trying to automate support for a long time. In the 1960s a computer scientist Joseph Weizenbaum made a programme called ELIZA at MIT. It was a chatbot that would rephrase what users said back to them as a question. This was like what a therapist might do. Many people were surprised when they found out that ELIZA was a programme. What surprised Weizenbaum was that people formed emotional bonds with ELIZA. He told them it was a programme still they got attached. This reaction had an impact on researchers for many decades.

The real growth in the health support area came with smartphones. Smartphones made it possible for people to have computers in their pockets. This meant that people could get health support when they needed it. One study that people talk about a lot is the work that Fitzpatrick and colleagues did in 2017. They worked with college students who had symptoms of depression and anxiety. These students used a chatbot called Woebot. The study was set up so that some students used Woebot and others got a list of things to read instead. After two weeks the students who used Woebot had lower depression scores. The people who did the study were careful. They said that the group of students was small and they only did the study for a short time. The study was still important. It showed that the idea of using a chatbot like Woebot for health support was worth considering.^[2]

Wysa is another app worth looking at. It was developed in India and tested on people there. A study in 2018 by Inkster and colleagues checked on Wysa users over time. They found that people who used Wysa often had fewer anxiety symptoms. Wysa uses a mix of ways to help people. It has behavioural therapy techniques, mindfulness exercises and mood journaling. The NHS in the UK now uses Wysa as a digital resource. This shows that health systems are starting to take these tools seriously.^[3]

Researchers are also looking into whether Artificial Intelligence can figure out if people have health issues by the way they talk or write on the internet. For example, a study by Coppersmith and colleagues in 2018 found that language patterns in social media posts can be used to identify signs of suicidal thoughts with pretty good accuracy. This kind of research is promising. It is also uncomfortable. It makes us think about issues like consent and surveillance.^[4]

In the year 2020 a team of researchers led by Linardon did a study. They looked at 72 health apps that you can download from app stores. What they found out is that very few of these apps — less than 4 percent — were tested to see if they really work. So even though there are hundreds of health apps that say they can help you, almost none of them have been proven to be effective.^[5]

Chancellor and De Choudhury also pointed out in 2020 that many artificial intelligence models used for health were trained using data from Western countries and people who speak English. This means that these models do not work well for people from other cultures and languages. This is an issue for a country like India, where mental health apps are used by people who speak many different languages and come from different backgrounds.^[6]

3. METHODOLOGY

3.1 Type of Research

This study is doing things a little differently. It is using a mixed approach. The part where we looked at what other people have found out involved reading a lot of published papers, reports from the World Health Organization and articles from Google Scholar. We mostly looked at things that were written between 2015 and 2025. The other part of the study involved asking students what they really think about AI health tools. We wanted to know what actual students think, not just what the papers and articles say.

3.2 How the Survey Was Done

A Google Form questionnaire was given to final year diploma and engineering students in the Pimpri-Chinchwad and Pune area in February 2026. This Google Form questionnaire was sent to the students through college WhatsApp groups and email. The Google Form questionnaire did not ask for names so students could answer the questions honestly. We got 54 responses. Out of these 54 responses, 50 were complete and could be used. The other 4 responses were not complete, so they were not used.

The participants were aged between 18 and 25. All had a technical education background. We chose this group because they are likely to be among the first to try out technology. They are also at an age where they often face a lot of stress and anxiety about their studies and other mental health issues. The survey had 15 questions. We focused on five key ones for our analysis.

3.3 Sample Questions from the Survey

Q1. I want to know if you are familiar with apps or artificial intelligence tools that are designed to help people with health issues. Do you know about these tools? (Yes / No / Somewhat)

Q2. Have you ever actually used an app like Wysa or Woebot or Headspace or something like these? (Yes / No / Heard of them but never tried)

Q3. If you were going through a tough time, would you be comfortable talking to an artificial intelligence chatbot about what you are going through? (Yes / Yes but with some doubts / No / Not sure)

Q4. How worried are you about your personal information being misused if you use an AI mental health app? (Not worried / A little worried / Moderately worried / Very worried)

Q5. If you are feeling a little stressed and you have two options — an AI chatbot or a human therapist — and both are free and available right now. Which would you prefer? (AI chatbot / Human therapist / No strong preference)

4. APPLICATIONS OF AI IN MENTAL HEALTH

4.1 AI Chatbots

The thing that people know the most about Artificial Intelligence in health is the chatbot. You can talk to these apps, type to them and they talk back to you like a person. The good ones, like Woebot, Wysa, Replika do not just say anything. Artificial Intelligence chatbots are using techniques that therapists use, like Cognitive Behavioural Therapy. They ask you questions in a certain order. They also help people do exercises that therapists do with patients. They do it in a gentle way. [2] [3]

The biggest thing that chatbots offer is that they are available. Someone who is having a panic attack at 2 AM cannot call a psychiatrist. This person can open an app on their phone. There is no waiting and no need to make an appointment. This person does not have to deal with a first session with a stranger. For people, especially young people who grew up using screens, using a chatbot is a more natural first step than walking into a clinic. The thing that worries people about chatbots is that they sometimes miss things. Chatbots can misread a situation, give a response that does not fit or fail to pick up on something serious. Chatbots are a starting point and not a complete solution for people who need help.

4.2 Mood Tracking

There are apps that ask you to tell them how you are feeling every day. You just must tap on a scale that says sad or happy. Some apps are more advanced. They look at things like how you use your phone and what time you go to sleep. They even check how much you are moving around and how you sound when you talk to them. These things help the apps see what you are usually like. If something changes — like you are not moving around much or you are sleeping at weird times — the app will notice. It can even tell if you are not talking to people as much as you usually do. The app can then say that something might be wrong with you. The apps use these patterns to figure out if you need help or not.

This kind of warning is helpful for things like bipolar disorder. When you catch a change in your mood early, it can stop a bigger problem from happening later. For people who use this a lot it is a way to keep track of how they're feeling over time. You can see how you are doing before things get bad, instead of only noticing when bipolar disorder is really affecting you.

4.3 Early Detection

Some AI researchers are working on spotting health issues early. They train machine learning models to find signs of problems before people notice them. One way they do this is by analysing speech recordings. They look at how someone talks. They check if the tone of voice is flat. They see how varied the words someone uses. All these things can be signs of depression. Researchers also study social media posts. They search for patterns in what people write and how people write. This helps them find mental health issues early. The goal is to help people get support sooner. [4] [5]

In a real-life situation this could mean that a college counsellor uses an AI tool at the beginning of a semester to find out which students might need some help. A doctor might also use a tool like this when they are doing a checkup on someone. The artificial intelligence technology is not good enough to say for sure if someone has a problem on its own. It can help people figure out who needs to be looked at more closely. This is what the artificial intelligence technology is good for — it helps people decide who needs a closer look.

4.4 Virtual Therapists

Virtual therapist systems are a step beyond chatbots. These are animated characters that can have voice conversations with people. They can even respond to facial expressions. For example, there is ELLIE, which was built by researchers at the University of Southern California. The researchers tested ELLIE with veterans who are dealing with PTSD. What they found out was surprising. These veterans told ELLIE more about their symptoms than they told human interviewers. The reason for this seems to be that people do not feel judged by a non-human, so they are more honest. This might sound a bit weird, but it makes sense in a way. Many people find it easier to write down their thoughts and feelings in a diary than to say the same things out loud to another person. Virtual therapist systems like ELLIE are like a diary that can also talk back and respond to what people say. [8]

4.5 Personalised Treatment

One thing that is really frustrating in the field of psychiatry is that two people who have the same problem can react very differently to the same treatment. For example, one person might do well on a certain medication, but another person does not do well on it at all. One person might get a lot of help from something called CBT. Another person needs to try something else. The field of psychiatry is getting some help from Artificial Intelligence, which is looking at patterns in groups of patient data to figure out which treatment is most likely to work for which type of patient, and it is getting better at doing this. This is what people call precision psychiatry — it's like the idea of personalized medicine but it is used for mental health. Companies like Spring Health in the US are already using this approach to help people through workplace wellness programs. [5]

5. ADVANTAGES

The biggest advantage is that it helps people reach support. Mental health support in India and in developing countries is mainly found in cities and only for those who can pay for it. A mental health app is free to download and works on a smartphone. That is not a perfect solution, but it is better than nothing. And for people living in rural areas or small towns with no psychiatrist nearby it can be the only choice they have.

The stigma issue is a big deal. Many people who need help do not seek it because they are afraid of being judged by their doctor, their family or society in general. When you talk to an app you do not have to worry about that. You are not telling anyone about your problems. Nothing gets written down in a file. This makes it easier for people to open. It really matters that people feel safe when they talk about their feelings. Wysa's own data shows that people tend to be more open with the AI in the beginning than they would be with a new human therapist. After using the app for a while and thinking through some of their thoughts, people are often more ready to talk to a professional. [3] [9]

Consistency is something that's also important. A therapist, no matter how good they are, can have an off day. They might be tired or in a bad mood and that can affect how the session goes. They might even have some biases that they're not aware of. A computer system will always give a consistent kind of response every single time. When you are doing something like a guided CBT exercise it is helpful to have that consistency. The best part is an app can check in with you every day, which is a lot better than just talking to a therapist for one hour once a week. This way the app gets a better idea of how you are doing because it is talking to you every day, not just once a week.

6. CHALLENGES AND LIMITATIONS

6.1 Privacy

When you use a health app and you tell it that you have been thinking about self-harm, or you talk about something bad that happened to you, that becomes information that is saved. This information gets stored on a computer server. So, who can look at it? Can it be sold to someone? Could an insurance company use this information one day? Most mental health apps have rules about privacy. These rules are written in a way that is hard to understand, and it is not clear if they are really being followed. India has laws to protect people's information. These laws are new and have not been used much yet. Until we have fair rules about mental health information, people who use these apps are taking a risk.

6.2 No Real Emotional Understanding

The truth about Artificial Intelligence in health is tough to hear: the app does not really get what you are going through. It looks for patterns in what you write and comes up with a response that is supposed to sound like it cares. There is no real

feeling behind it. When you are dealing with something like grief or a bad traumatic experience or a moment when everything is falling apart, not having another person who really understands can feel empty very fast. A big part of what makes therapy work is the connection between the therapist and the person getting help. Artificial Intelligence just cannot do that.

6.3 Risk of Wrong or Harmful Responses

AI systems can make mistakes. In most cases these mistakes do not cause serious problems. For example, a wrong movie suggestion or a bad autocorrect can be annoying but they are not serious. However, in health a mistake can make things worse. If a chatbot misunderstands a crisis as something not important it can cause real harm. It can also accidentally make someone think negative thoughts more often. Mental health apps have a system to detect crises. These systems look for certain words and then connect the person to emergency services. These systems are not perfect and sometimes they fail. The rules for treating these tools like medical devices are still being created. The people creating these tools need to be careful. They must make sure that their tools do not make things worse for people who are already struggling.

6.4 Bias and Unequal Access

Most artificial intelligence mental health tools were trained on English language data from Western countries. This is a problem when someone from a different cultural background uses these tools. They do not work well for people who communicate in a different language. India has a lot of cultural and linguistic diversity. This makes the problem of AI mental health tools even more important in India. There is also a difference in how people access the internet. Many people in India are getting smartphones fast. A lot of people still do not have a good internet connection, or they cannot afford a smartphone that can run modern apps.^[6]

7. SURVEY RESULTS AND ANALYSIS

7.1 Awareness — 70%

Most of the 50 students surveyed — seventy percent to be exact — said they know about AI tools that help with mental health support. This seems like a high number at first, but we need to think about who these students are. They are final year engineering and computer students who use the internet a lot and probably know more about new technology than other people their age. If we asked the same question to students in a rural area or to students who do not study technology, the number would probably be much lower. So, while it is good to see that seventy percent of these students know about these tools, we should not think that this is true for everyone.

7.2 Actual Usage — 50%

Half of the people who answered the survey said they had used some kind of health app. The difference between people who know about health apps and people who use them is interesting. Seventy percent of people know about these apps. Only fifty percent use them. This shows that just because people know about health apps does not mean they trust them enough to use them. Some students wrote comments saying they did not think the mental health apps would really work. Other students said their problems were not bad enough to use a health app. This is something to think about. People think they need to be really struggling before they can use a mental health app. Mental health apps are trying to change this way of thinking so people can get help before things get bad.

7.3 Willingness to Use AI — 60%

Sixty percent of people said they would be willing to use an Artificial Intelligence chatbot as a first step when dealing with emotional stress. Most of them said yes but they also had some doubts. This is important to think about. It shows that young people are open to using Artificial Intelligence chatbots, but they are not totally sure about it. They want to learn more before they fully trust these tools. Trusting technology without thinking about it is rarely a good idea and when it comes to mental health it could even be bad for you. Artificial Intelligence chatbots can be helpful but people should be careful when using them for emotional stress.

7.4 Privacy Concerns — 40%

Forty percent of people said they are worried about their privacy. But this number is probably not entirely accurate. It is likely that people are more concerned than they let on. Research has shown that people tend to say they are less worried

about things in surveys than they really are. A lot of students said they were not worried about their privacy but then they also said they would not want their information to be shared with other people. This shows that there is a difference between what people say and what they really think. For people who are making these apps this is something to think about carefully. If you do not make it clear how you are handling people's information, people will either not use your app, or they will use it but they will not really trust it. This is not good especially since these apps are supposed to be helping people with their wellbeing.

7.5 Human vs. AI Preference — 30% chose human

Thirty percent of people said they would rather talk to a human therapist than an AI chatbot when they could choose between the two for free. The other seventy percent either liked the AI chatbot or did not really care which one they used. This is because people are used to technology, they know it is hard to see a human therapist, and they might feel uncomfortable talking to someone else about their personal problems. This does not mean that AI chatbots are better than therapists. It just means that a lot of people are willing to try a digital tool first when they are feeling stressed. This is useful information for people who are making health services for young people.

8. FUTURE SCOPE

The next few years will probably bring new kinds of AI systems. These systems will be able to understand not just what we type but how we sound, what our faces look like and even data from our fitness trackers. For example, imagine an AI system that can hear that you sound a bit down, see that your smartwatch says you have not slept well, and notice that your messages are short and not as frequent as usual. This system will get a much better picture of how you're feeling than just one piece of information.

Another area of progress will be language. Now most AI tools work well in English but not in other languages like Marathi, Hindi, Tamil or Bengali. What if AI tools could understand and work well in these languages — not just because they were translated but because they were trained on data from India. This would make a real difference for people in India who want to use these tools. Some work is already being done on this but it's still not as good as the English language tools.

On the professional side, AI could become a useful training tool for new therapists and counsellors. Analysing transcripts of therapy sessions and giving structured feedback on technique is something AI can do reasonably well — and in a country where mental health training programmes are stretched thin, that kind of automated supervision support could genuinely help build capacity faster.

We really need some rules in place. Right now, anyone can make an app, say it is for mental health and put it on an app store. That is not okay. We need to have some rules about what these mental health apps can promise, what kind of safety features they must include and how they must keep user information safe. Mental health apps need to follow these rules so we can trust them and use them without worrying.

9. CONCLUSIONS

Mental health is a serious problem. The number of people who need help and the number of people who can give help are very far apart. It is hard to see how they can meet in the middle without some kind of technology helping. Artificial intelligence is not a perfect solution to this problem. It has some flaws; it can be risky and sometimes it can even make things worse if it is not designed in a very careful way. At the same time mental health and artificial intelligence is something that we cannot just ignore. Mental health needs a lot of attention and artificial intelligence can be a part of the solution.

The research and survey data both show the same thing: young people know about AI mental health tools and are open to them. They do not just blindly accept them. They worry about privacy and about whether an app can really help with emotional wellbeing. These worries are valid and should be taken seriously by anyone creating these tools.

The best future for us is not one where computers replace therapists. It is one where computers handle tasks, they're good at — being available all the time, being consistent, handling a lot of information, and helping spot warning signs. Human therapists can then focus on things they're good at — building relationships with patients, making decisions based on their experience, and providing a human presence that computers cannot match. To achieve this future, we need to make rules for AI tools, train them with more varied and local information, protect people's privacy and keep checking what works and what does not. This paper is a small part of that discussion.

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