

# Assessing The Role of NLP-Based Conversational Agents in Accessible Mental Health Care

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**Abstract:** Mental Health has become quite a prevalent topic among people today and Artificial Intelligence has positioned itself as an absolute tool in the mental health industry, positioning itself as quite a powerful means in combating mental health stigma. The reason why millions of people are actively affected by mental health is driven by the fear of judgment, personal hesitation, past trauma and common inequalities. Due to several stigmatic societal conditions, they are restricted from talking about their struggles freely and openly. This survey talks about Artificial Intelligence's ability in the form of digital psychiatry, Natural Language Processing (NLP) applications, and virtual therapy in the form of chatbots or large language models to instill an environment of anonymity, minimal bias and making mental health resources more accessible.

To understand how chatbots based on AI-based mental health assistance work, we conducted a survey among a group of students aged from 12 to 25, and asked them all a common yet striking question: "If you could ask a therapist GPT a question about your mental health, what would it be?" A total of 32 responses were collected and examined, with AI-generated answers evaluated based on significance, empathy, and practicality. The findings suggest that AI can serve as an effective first step for individuals who are doubtful to seek traditional therapy, offering comfort and support in an anonymous, judgment-free space. AI also has a critical role in workplace mental health, educational awareness, and self-reflection through digital tools.

**IndexTerms - Artificial Intelligence, Mental Health, Digital Psychiatry, AI-driven Therapy, Natural Language Processing, Mental Health Stigma, Anonymity.**

## I. INTRODUCTION

Since ancient times, mental health has been considered as one of the topics which is only talked about in closed rooms, in the presence of a psychiatrist or a mental health counsellor. The primary reason behind this is often rooted in a human's brain since birth, which is to avoid judgement and discomfort and disclose lesser to the outside world. But the result of keeping those feelings hidden leads to many of us experiencing these symptoms in the future in the form of self-doubt, anxiety and depression. To reduce the extent of these challenges by some amount, AI has the potential to combat these challenges by providing mental health support in the form of an anonymous, unbiased and a promptly accessible tool. In this study, we will find out the role of Artificial Intelligence in reducing the effects of such issues, its practical implementation in self-help tools in the form of chatbots and how such results can be incorporated in workplaces.

Before the introduction of AI-based mental health tools, individuals had to rely on professional help to discuss matters relating to mental well-being due to a range of factors including lack of access and financial constraints. If people wanted to talk about such matters in public or in a conversation, they would often be avoided or labelled as awkward, and discussions in office workspaces were limited. In today's age, almost everyone is equipped with the free usage of AI-powered mental health tools, and because of that, word therapy doesn't sound very stigmatic now. The emergence of AI powered chatbots, backed by machine learning and NLP techniques, these virtual therapists are now able to provide immediate support, without any fear of judgement, available at our fingertips. Employee Assistance Programs (EAPs) offer confidential workplace mental health support, and AI-based self-help tools help individuals combat any self-help issues.

## II. NEED OF THE STUDY

The motivation behind this study directly links to the increasing demand of population leaning towards accessible, judgement-free mental health support. It is suitable for individuals who, for some reason, require some kind of emotional support, human help or a basic ear to listen to basic discomforts. Most of their concerns may look like common or small to some, but for those who have seldom opened themselves up, it might be a big leap. In the foreseeable future, mental health awareness will grow at a large scale, and these AI tools are surely going to play a massive role in their early intervention to make mental healthcare more approachable and normalized.

### III. LITERATURE REVIEW

The role of Artificial Intelligence in mental healthcare is backed by several studies, particularly in diagnosis, assistance required in therapy and early diagnosis. The following table presents a summary of all the key research in this field. Smith et al. (2020) conducted a study titled *AI in Mental Health Diagnosis: A Review* in the field of Psychiatry & AI. In this research, it was discovered that AI models can become aware of different forms of mental health conditions such as depression, anxiety, and schizophrenia with accurate results.

Williams & Patel (2021) studied the impact of AI chatbots in mental health through their study *Digital Mental Health: The Role of AI Chatbots* in the field of Digital Health. By their research, they established the relevance of the fact that AI-powered chatbots like Woebot and Wysa may help users manage stress and anxiety in an effective manner with the help of Cognitive Behavioral Therapy (CBT)-based interventions. Lee et al. (2019) released their study *AI for Suicide Prevention: Social Media Analysis* in the field of Behavioral Science & AI. This research primarily focused on detecting self-destructive thoughts by utilizing AI's ability and they found out that there are various social media posts which can trigger suicidal thoughts. By using AI models, social media posts can be used to detect signs of suicidal thoughts which would massively help in early involvement of the concerned authorities and significant crisis management.

Chen & Rodriguez (2022) published their study *AI-Assisted Therapy: Challenges and Future Directions* within AI & Clinical Psychology, which was slightly different than the ones quoted above. In this study, they identified the limitations and the critical aspects of tools which are being used to assist people with AI therapy. Their outcomes concluded that while AI tools can deliver mental health support, they still lack a certain amount of emotional intelligence in them, which might be on a common level to everyone and less personalized, which emphasizes the need of human intervention non-negotiable in the first few stages of development of such tools. All these studies provide us with the probable instances of AI in mental health, as well as the restrictions which may come with it, limiting the usage of AI in its early stages. These studies instill a need for continued and monitored advancement in AI-powered mental health support to foster long-term engagement and empathy. With the correct resources, AI-powered tools have a high potential in making a breakthrough in the industry of mental health, especially in chat-based therapy, diagnosis and early detection.

#### 3.1 Gaps in Existing Studies

Even with many advancements in mental health solutions by AI, there are some gray areas which still need attention. One of the major gaps in AI-based tools is their lack of emotional intelligence. AI is equipped with providing comfort and understanding to people, but it is heavily trained upon a common dataset, which sometimes makes it a struggle for it to understand and interpret complex emotions, variants of cultural shades and a lot of non-verbal indications, which might result in a one-size-fit-for-all or generic responses. Another challenging aspect is training of models. Many models are trained on region-specific datasets which might make them less effective for population spread on a large scale.

#### 3.2 How Our Research Differs

As mentioned above, due to bias and unbalanced results from controlled datasets, for this research, we collected data from an anonymous survey. We considered actual student-generated mental health queries to evaluate how AI-powered tools can help induce stigma-free conversations and openness.

### IV. RESEARCH METHODOLOGY

We conducted a survey using Google Forms among students (ages 12-25) to comprehend how young adults view the use of AI in mental health support. In the survey, we asked all of them one main question:

*"If you could ask a therapist GPT a question about your mental health, what would it be?"*

We collected a total of 32 responses. After that, we used AI to generate the answers and evaluated them. Out of all, best seven responses were selected.

#### 3.1 Tools Used

Using surveys in collecting data proves effective as it eliminates controlled datasets and makes data genuine and meaningful. The answers generated by AI, when analyzed, can prove to be supportive, non-judgmental, and helpful.

- **Survey:** The survey was conducted using Google Forms to collect data from students.
- **AI Model:** The model used was TherapistGPT, which is available in the ChatGPT Library.
- **Data Processing:** Microsoft Excel and Python were used for text cleaning and preprocessing steps.
- **Analysis:** Responses generated by LLM were manually evaluated based on how relevant and effective they are.

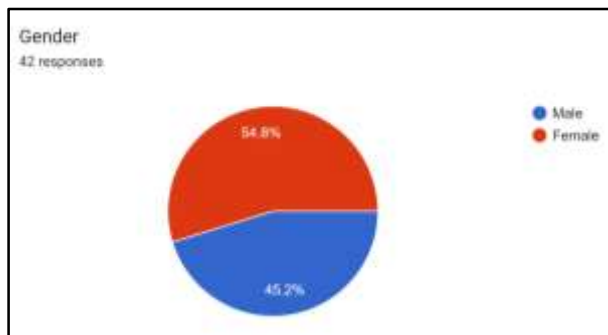


figure 4.1.1: distribution of male and female participation in the survey



figure 4.1.2: Google form preview

Timestamp	Gender	Age	College Name	Stream	Question	Response
2-17-2025 13:47:33	Female	20	OIST	CSE-DS	If you had the opportunity to ask an AI therapist one question about your mental health, what would it be? (for sig. don't just write: "I have stress or anxiety")	I get affected by people's comments easily even when I'm aware they are not serious or true about me. I try to not mind to such assumptions but they seem
2-17-2025 13:48:19	Female	20	OIST	CSE-DS	Being short heighted makes me feel different, this impacts my mental health. what can I do?	How to reduce stress and anxiety in daily life and to boost confidence
2-17-2025 13:52:55	Male	20	Oriental institute of sci	CSE-DS	How to reduce stress and anxiety in daily life and to boost confidence	NA
2-17-2025 14:15:29	Female	12	OIST	CSE-DS	How can we stop the feedbacks and things that happened to us in past that affect us.	
2-17-2025 14:15:05	Male	22	Oist	CSE-DS	"How can I build healthier coping mechanisms for stress and anxiety in my daily life?"	
2-17-2025 14:15:10	Male	21	Oriental institute of sci	CSE-DS	How can I tell the difference between normal stress and something that requires professional help?	
2-17-2025 14:16:30	Male	20	Oriental institute of sci	CSE-DS	How can I improve my self confidence?	
2-17-2025 14:16:57	Female	18	Oriental institute of sci	CSE-DS	How to improve IQ level	
2-17-2025 14:17:09	Male	18	OIST	CSE-DS	How to reduce screen time & self control	
2-17-2025 14:18:56	Male	20	Oist bhopal	CSE-DS	Why my mood depends upon the people around me ?	
2-17-2025 14:19:33	Female	18	OIST	CSE-DS	How can we stop overthinking negatively? And what is the real reason why we overthink so much	
2-17-2025 14:20:39	Male	21	Oriental institute of sci	CSE-DS	How to move on from Abshat	
2-17-2025 14:22:21	Female	20	Daw	CSE	What are some ways to cope with the pressure to constantly learn new technologies and programming languages in the field of computer science?	
2-17-2025 14:23:07	Female	19	OIST	CSE-DS	"How can I maintain healthy boundaries between my work and personal life, ensuring that my introverted nature is respected and rejuvenated, while still pu	
2-17-2025 14:27:58	Female	19	Oriental Institute of Sc	CSE-DS	What's the most effective way to break negative thought patterns and build a more positive mindset?	
2-17-2025 14:28:20	Female	20	Oriental institute of sci	CSE-DS	How can I build resilience against stress and anxiety in daily life?	
2-17-2025 14:34:38	Female	18	OIST	CSE-DS	How to avoid pills for anxiety	
2-17-2025 14:35:49	Male	20	Oriental institute of sci	CSE-DS	How can we keep our mind confident and motivated so that we can do every task well and our performance is better in everything ?	
2-17-2025 14:38:25	Male	21	OIST	CSE-DS	How I can better manage the stress and anxiety in my daily life ?	
2-17-2025 14:50:35	Female	19	Oist	CSE-DS	I'm doing Overthinking, so let's help me.	
2-17-2025 15:26:29	Male	20	Oist	CSE-DS	No	
2-17-2025 15:26:34	Male	22	Oist	CSE-DS	No	
2-17-2025 15:32:41	Male	20	OIST	CSE-DS	How to have more mental clarity?	
2-17-2025 15:36:49	Female	19	Oriental institute of sci	CSE-DS	If you have a fear while doing anything the back of your head starts having a sensation why?	
3-17-2025 15:49:07	Female	20	Oriental institute of sci	CSE-DS	How could we reduce the problem faced during fashion anxiety and stress? sometimes it's look that no one is there to help who will when you can't share any	

figure 4.1.3: responses of participants collected by forms.

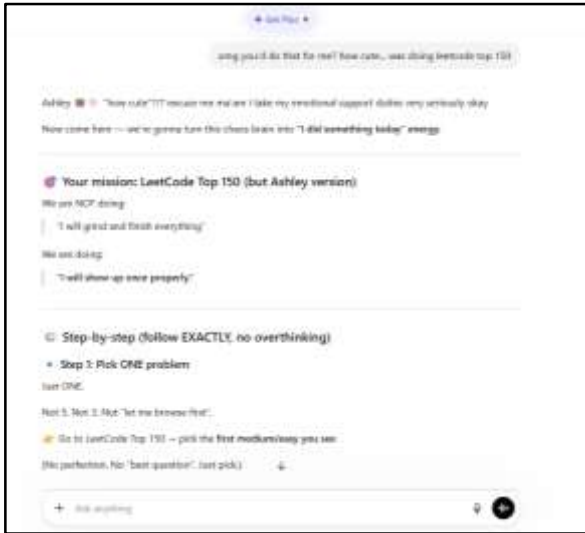


figure 4.1.4: sample response by AI-assisted tool

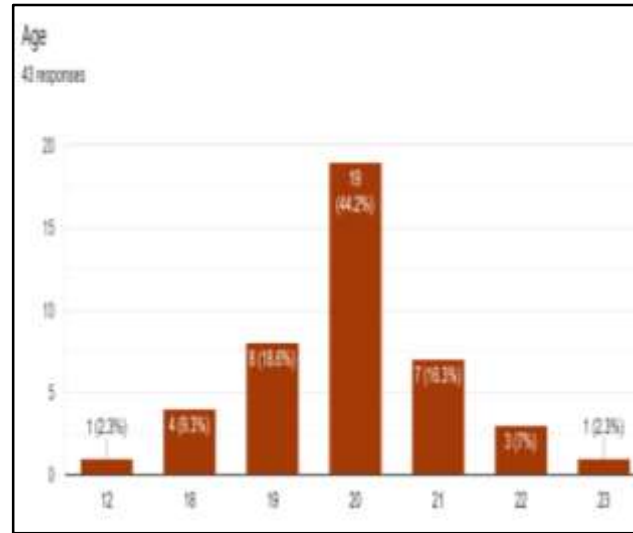


figure 4.1.5: age distribution of participants

## V. IMPLEMENTATION

### 5.1 Experiment Details

For the analysis of role of AI in addressing mental health stigma, a survey using Google forms was conducted. We distributed the form among students aged 12-25, and collected responses based on what kind of questions they would like to ask an AI-based therapist. The main goal was to analyze the AI-generated responses and whether they provided useful psychological understanding and support.

### 5.2 Hardware & Software Used

The following hardware and software applications were used to collect, clean and evaluate the data:

- **Survey:** Google Forms.
- **Data Processing:** Microsoft Excel and Python were used for text cleaning and preprocessing steps.
- **Model:** Therapist GPT from ChatGPT Library.
- **Evaluation:** Manual analysis of AI responses was carried out.

### 5.3 Evaluation Metrics

The following factors were taken into consideration to collect data:

1. Participant's Age.
2. Participant's College/University.
3. Question (If you could ask a therapist GPT a question about your mental health, what would it be?).

The names and ages of the participants were not considered to ensure anonymity and only the questions were taken for the analysis.

### 5.4 Preprocessing Steps

Carrying out the pre-processing steps helped us understand the role of AI-assisted therapy in reducing mental health issues for the concerned parties, all while maintaining privacy for all participants.

- As the primary preprocessing steps, from all the collected responses, any empty or unrelated data fields were removed.
- Following that, the dataset was then cleaned by only keeping the relevant columns, which is the "question" field.
- To check the generated answers' relevance and realness, the responses were manually assessed to understand how practical and relevance they hold.
- We obtained a total of 32 responses, out of which 7 were taken under evaluation to help us understand the behavior of AI assisted tools.

## VI. RESULTS AND DISCUSSION

The responses of the survey emphasized major concerns faced by young adults, such as dealing with self-doubt or handling workplace pressure. Given below are the selected responses that were analyzed based on AI-generated advice.

table 6.1: responses of top seven questions collected in survey

S. No	Question	Large Language Model GPT's Response
1. 11. 11	<b>I get affected by people's comments easily even when I know they are not true. How do I tackle this?</b>	<p>Identify the Trigger. Your brain tries to defend yourself when something like this comes up. Even though you know what the real reason is, feeling it emotionally is completely normal. But you must identify why do these comments affect you: Are they connected with older experiences?</p> <p>Do specific types of comments hurt more? You should not give every opinion your whole attention. Ask yourself if you would consider taking life advice from the same people? If not, then you know you are investing your energy in the wrong place.</p> <p>Make your inner voice strong. Re-establish your self-worth by constantly telling yourself that people's words do not define you, but it is your actions which do.</p> <p>Try coping up with these situations using playful humor. If their words are absurd, let it go peacefully. You can say something like: "Oh wow, what a creative fiction writer you are!" The main idea is not to let these things get to your head.</p>
2.	<b>Being short makes me feel diffident, and it impacts my mental health. What can I do?</b>	<p>It is quite normal for us to give our entire focus to one single comment. Confidence is not just height, it comes from posture, eye contact, and communication. Your height does not evaluate how successful, powerful or attractive you are.</p> <p>If you are not convinced yet, here are some examples which will instill your confidence back:        Short individuals such as Tom Holland (5'8"), Kevin Hart (5'4"), Napoleon (5'6"), and Nick Jonas (5'7") have made big in life by owning who they are. Replace the negative thoughts in your head with assuring yourself that confidence takes you places and not height.</p>
3.	<b>How can I stop painful flashbacks from the past?</b>	<p>Firstly, calm yourself by using the 5 second rule. Name 5 things which you see at the first look, 4 things you touch, the 3 things you hear, 2 things you can smell and that 1 thing you taste to bring yourself into the present moment.</p> <p>Make your life so full of positive experiences that you can shift your focus on to the good things. Keep yourself equipped in the things you like, find out what</p>

		<p>your passions are and focus on relationships which shift your focus to the future.</p> <p>Don't fight the feeling but try to sit with it. Every time any bad memory comes up, try to remember a good memory from the same day.</p> <p>Accept that healing is not a one-day magical process. Many memories take time to go away, and some take their own time. You cannot decide when they will fade away. However, facing your past without letting it control your present is completely in your hands. That is your superpower.</p>
4.	<b>How can I cope with the pressure to constantly learn new technologies and programming languages in computer science?</b>	<p>You need to be clear on the fact you cannot master everything at the same time without losing your peace. The field of computer science is not static; it always keeps growing. Instead of figuring out how to squeeze in everything in your schedule, focus on your foundational skills, aptitude, problem-solving skills and subjects like system design.</p> <p>Apply the "Just in Time" learning approach. Instead of trying to learn everything at once, learn what you need when you do. For instance, learn React when you are building a project which needs it, you'll realize that you'll be more driven to learn it that way, instead of taking five React courses in advance.</p> <p>Avoid the amount of information you intake. Do not consume a lot of online resources, channels and courses. Stick to one or two simple yet trusted sources.</p>
5.	<b>How can I maintain healthy boundaries between my work and personal life while respecting my introverted nature?</b>	<p>Communication is the key. You need to communicate your boundaries clearly. If you can do focused work at certain hours of the day, be unavailable for other things at that time.</p> <p>Stop feeling guilty about it. You have the right to take time for yourself. So, stop thinking that you are avoiding others by doing it.</p>
6.	<b>How can I handle multiple stressful situations at once?</b>	<p>Stop negative self-talk: Avoid saying things like "I can never be good at this". You can say, "I am a learner, and I can learn this too".</p> <p>Try stretching, deep breathing, standing up or going for a walk and changing your body's state.</p> <p>Practice gratitude by writing down 3 things you are grateful for.</p>
7.	<b>How can I reduce feelings of anxiety and loneliness?</b>	<p>The first and foremost step in combating these feelings is reassuring yourself. While the entire world may feel like it is coming at you at once, these thoughts are seldom true.</p> <p>Talk to people you can trust, reach out to someone known. You don't have to pretend to be fine with</p>

		<p>everyone. Anxiety grows in loneliness. Try going out, taking deep breaths, or doing simple physical activities like stretching or a short walk.</p>
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### 6.1 AI's Effectiveness in Mental Health Conversations

The AI-generated answers were helpful, showed empathy and suited the specific concerns of individuals. This also confirms that people who feel generally hesitant or shy about seeking some form of therapy or counselling can use AI-assisted tools as a starting point.

### 6.2 Challenges and Ethical Considerations

- **Limited Human Connection:** While AI ensures quick support, it cannot completely replace the depth of human interaction and professional therapy.
- **Privacy Issues:** Maintaining user concealment is an important aspect while conducting such research to protect the personal data of concerned users.
- **Biases in responses:** Due to models being trained on a generic dataset, these systems need regular feedback on frequent intervals to eliminate possible partialities in responses.

## VII. CONCLUSION AND FUTURE DIRECTIONS

This study explored how Artificial Intelligence is helping to resolve one of the most redundant barriers to mental health of individuals, which is the shame that comes with admitting it. Modern books and philosophers have started to realize how big a role mental health can play in an individual's life. With the help of a student survey and analyzing the response through it, we have shown that AI-assisted tools can be used as a means of accessible, non-judgmental and compassionate primary contact for people who are quite shy in opening themselves up.

The participants who contributed to this survey were students aged twelve to twenty-five. There were a broad range of mental health concerns, which included factors such as self-doubt, academic pressure and past trauma which were common between them. After analyzing the answers to these questions through an LLM agent, findings revealed that these tools are more than just informational engines. They possess the capability to behave as emotionally intelligent friends who provide a safe space and coping strategies. AI-assisted therapy is still in its initial phase and professional help by professionals and counsellors is still largely advised. With appropriate training and in-depth studies, we can consider this as a possible future project to a wider audience.

Additionally, this study also underlines the limitations that come with the usage of Artificial Intelligence in a sensitive topic such as mental health. It is a known fact that human connection is irreplaceable. AI tools are efficient in providing rapid help, but they still lack understanding the entire emotional, cultural, and interpersonal context of an individual's experience. A counsellor who is trained and equipped with the psychology of human brain is someone that no algorithm can replicate. Hence, it is important to see AI not as an entire replacement for professional care, but just as a means that helps people take the scary first step towards seeking help.

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