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Uncertainty, attitudes, ethics and expectations in AI-assisted therapy

Aihunlang Chullet *

Department of Psychology, Kristu Jayanti University (deemed to be), India.

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Abstract

Studies on AI in mental healthcare represent a growing field. It has emerged as an innovative approach that appears to address the accessibility gaps that traditional therapy is limited by. There is little published information on Indian young adults' attitudes and acceptance patterns towards AI in therapy. This study aims to examine the relationship between intolerance of uncertainty and acceptance of AI-integrated therapy among young adults and to understand the ethical discourse surrounding the topic. A mixed-methods research design was used to explore the study's objectives. The sample of the study consisted of 300 Indian young adults aged 18-24 years old. The attitudes towards AI were measured using the General Attitude Towards Artificial Intelligence Scale (GAAIS), their intolerance for uncertainty was measured using the Intolerance of Uncertainty Scale (IUS-5), and a semi-structured interview was conducted to understand the ethics behind the topic of investigation. The study employed descriptive statistics and Spearman's rank correlation. The study concludes that 66.3% Indian young adults hold a generally positive attitude towards AI. Intolerance of Uncertainty is related to both the positive and negative subscale of the GAAIS.

Keywords: Artificial intelligence; Uncertainty; Therapy; AI-integrated therapy; Mixed-method research

1. Introduction

India faces a large gap when it comes to treatment accessibility, and AI chatbots can potentially bridge this gap by providing first-level support for young adults and those hesitant to seek therapy due to stigma and accessibility issues(Singh, 2019). This study was conducted to assess how accepting Indian young adults are of AI in therapy. The study aims to understand the relationship between intolerance of uncertainty and acceptance of AI-integrated therapy among young adults. The objectives of the study are:

- To determine the attitudes toward AI in therapy among young Adults.
- To determine the relationship between intolerance of uncertainty and attitudes toward AI-integrated therapy.
- To uncover the ethical concerns and expectations regarding AI in therapy.

2. Material and method

2.1. Research Design and Setting

The Research Design employed is a mixed-method approach, where the first two objectives were explored using quantitative methods and the last objective was explored using qualitative methods. The study was primarily conducted in Bengaluru, Karnataka, India.

* Corresponding author: Aihunlang Chullet

2.2. Participants

The sample for the population considered for the study were primarily young Indian adults between the ages of 18 and 24 years old. This age range is considered in this study, as individuals in this age range are more likely to interact with AI in their daily lives (Nadeem, 2025).

2.3. Sampling technique

The sampling technique used to collect data from the population was convenient Sampling. Convenient sampling is a non-probability sampling technique where participants are selected based on availability, accessibility, and their willingness to participate rather than random sampling. This was chosen based on the time constraints to complete the data collection.

2.4. Sample Size

A sample size of 300 young adults aged between 18-24 years were recruited for the study.

2.5. Tools for study

Intolerance for Uncertainty Scale – 5: A short-form version of the Intolerance of Uncertainty Scale (Bottesi et al., 2020).

The General Attitudes towards Artificial Intelligence Scale (GAAIS) – 20 items (Schepman & Rodway, 2020; Schepman & Rodway, 2023)

Semi-structured interview schedule

- Introductory questions
  - Can you describe what therapy means to you?
  - Can you describe what happens in a therapy session?
  - Is there going to be a change if AI is integrated into the process? If yes, kindly comment.
- Ethical considerations for AI in therapy
  - Do you think clients can remain in control of their therapy when AI systems are involved?
  - In what way can mental healthcare providers explain the role and limits of AI in their therapy process?
  - How should the safety and efficacy of AI tools be evaluated for use in therapy before it is implemented?
  - How should innovation in AI assisted therapy tools be balanced with the need to protect client's privacy?
  - How can we promote transparency in data sources and algorithms used in AI integrated therapy models.
  - What mechanism should be in place for people to bring their concerns for negative outcomes linked to AI-assisted therapy
  - What steps should be taken to promote equal access of AI based therapy tools?
  - What strategies should be in place to ensure that AI remains a supportive tool rather than a replacement?
- Expectations
  - What positive changes do you expect AI to bring to therapy and mental health services?
  - What negative changes do you expect AI to bring to therapy and mental health services?

2.6. Procedure

The participants were recruited using a convenience sampling technique and were asked to fill out a Google Form-based questionnaire after proper informed consent was given by the participants. An instruction was given on how to fill the questionnaire and the time taken was approximately 15 minutes for each participant. The participants were given an option to sit for a short interview (Approx 25-30 minutes) to express their opinions of concerns and expectations regarding the ethics and expectations of having AI integrated into therapy. 300 participants were recruited using convenient sampling and were asked to fill a google form where the participants were briefed about the research its objectives and were given the option to consent to participate in the research. The Google Form consisted of 25 items excluding the demographic details. This included 15 items from the General Attitude towards Artificial Intelligence Scale and five items from the Intolerance of Uncertainty-5 Scale. 15 interviews were conducted and transcribed.

2.7. Analysis

Statistical Analysis was carried out using Jamovi 2.6.44, and Thematic analysis was carried out to analyse the qualitative data.

3. Results:

Table 1 Descriptive statistics

Descriptive statistics							
	N	**Missing**	**Mean**	**Median**	**SD**	**Minimum**	**Maximum**
Negative subscale of GAAIS	300	0	2.65	2.63	0.608	1.00	5.00
Positive Subscale of GAAIS	300	0	3.20	3.17	0.563	1.00	4.67
Intolerance of Uncertainty	300	0	14.52	15.00	3.672	5	24

Table 2 The correlation between negative subscale of GAAIS and Intolerance for Uncertainty**.**

Variable	***n***	***M***	***SD***	**1**	**2**
Negative Subscale of GAAIS	300	2.65	0.608	-	
Intolerance of Uncertainty	300	14.5	3.67	-0.349***	-

Table 3 The correlation between the positive subscale of GAAIS and Intolerance for Uncertainty.

Variable	***n***	***M***	**SD**	**1**	**2**
Positive subscale of GAAIS	300	3.20	0.563	-	
Intolerance for Uncertainty.	300	14.5	3.67	0.238***	-

Table 4 Integrated results on Attitudes towards AI and Intolerance of uncertainty

Quantitative Result	**Qualitative Result**	**Example Quote**
The findings show a distinctive between general positive attitudes (Positive Scale) and forgiveness of its drawbacks (negative subscale). The majority of participants endorsed general positive views (66.3%), while fewer showed positive attitude towards AI's limitations (33.3%)	AI integration in therapy is generally accepted and viewed positively when it comes to manual work reduction and scoring assessments but the same acceptance is not seen with the limitations of AI regarding lack of empathy, privacy concerns.	"you know, therapist uses a bunch of psychological tests, right? So if the scoring is very tedious or the therapist can actually put the scores or give the, you know, a photo of the scores and then upload it into AI and the AI will calculate and give the therapist the scores." (P14) "AI is already something very programmed and no matter how much flexible they can make it also there is always a limitation to that. So, it can never, you know, interpret emotions the way humans do." (P2)
There is a moderate negative correlation between the two variables meaning that participants who have a less forgiving attitude towards the drawbacks of AI had high intolerance towards Uncertainty.	Participants express that AI lacks empathy, emotional capacity. AI perceived as emotionally limited may increase the discomfort with uncertainty.	"it is still a machine, it is still a technology which runs on data. It won't be able to exactly show you empathy." (P3) "If AI is introduced to this concept, I don't know, I can, like, only think of it, like, mimicking whatever emotions are, and I don't think AI doesn't have any emotions for it to actively connect with the person. " (P17)

There is a weak positive correlation between the two variables. Participants who hold more positive attitudes towards AI also tend to report higher Intolerance for uncertainty.	Participants describe AI as better at making goals, scoring assessments and facilitating openness. However, they also emphasised that it should be limited to a particular framework.	"And if we integrate AI and that also, you know, some, I feel like it's somewhere, you know, built like where the people can open up more than like a normal therapy setting if AI is integrated." (P1) "Yes about how the therapy is gonna go it won't be in our control but goals if you say if I talk specifically about goals in my like AI is much more the better as compared to humans" (P15) ""See if such an AI is being developed to assist the therapist for the therapeutic process in the client the major thing should be that that particular AI should be limited in what approaches they used the you know whatever approaches for example that if CBT is being used it should be coded in such a way that only and only that thing is only being used" (P15)

Table 5 Emerging themes and sub-themes on the discourse on AI in therapy

Discourse and Emerging themes	**Example Quote**
AI as a technical Support tool	"you know, therapist uses a bunch of psychological tests, right? So if the scoring is very tedious or the therapist can actually put the scores or give the, you know, a photo of the scores and then upload it into AI and the AI will calculate and give the therapist the scores." (P14) "So, as for the therapist to review in the next session, how their week might have gone, based on the biofeedbacks that AI gets from them, as in their sleep quality, their food intake or, like, their digestion, whatever, whatever they can, like, you know, scan, and also their energy levels and stuff like that. So, if such a biofeedback mechanism can also be, you know, done by AI, if they are integrating it, then that also helps the therapist as in a supportive way as well." (P2)
Limitations of AI in Emotional Reciprocity	"If AI is introduced to this concept, I don't know, I can, like, only think of it, like, mimicking whatever emotions are, and I don't think AI doesn't have any emotions for it to actively connect with the person. " (P17) "AI doesn't have emotions. It replies that, oh, do you feel sad? That's, that's disappointing.It might give answers like that, I mean, related to emotions, but then they will not be able to truly understand what a person is going through" (P11)
Perceived benefits and risks of AI in mental health care	"Okay, so first and foremost, it'll be much more accessible, because if we integrate AI into therapy, and obviously, you know, program it in a way that is actually helpful to people and also accountable for the whatever therapy that it is, like it is facilitating, then yeah, it will be more accessible for people." (P3) "So in the long run, I feel like the therapist will become more, you know, dependent on AI and then there will be a stagnancy in the therapist's skills that he has acquired all these years. " (P14)
Conditional Use of AI in therapy	"So again, I feel like there has to be limitation in the you know, whatever that AI is bringing, there has to be a specific limitation that the AI should do is capable of doing this, this work only. And it, you know, it should not be, you know, used to actually replace mental health professionals. So we need to make sure that there is balance in AI techniques that is being used in therapy and also the professionals. So, it needs to be hand in hand and the AI

	developers should ensure that, you know, it's not taking all the roles of the mental health professional. " (P14)
Ethical, Professional and resource related risks	"I feel like there will be a confidentiality issue when using AI. Because like I said, it is learning and it's a learning machine. And it will also collect data from us also." (P3) "But this is like, we are using more resources, like freshwater resources, and to create something, like create models that we absolutely do not need, because we already have people to do the job. "(P17) "first of all, the jobs of well-trained, like, psychologists will be disrupted and it will take the, and because in this job, it's the human connection, the therapeutic relationship is incredibly important, that human aspect will be eroded which will lead to a breakdown" (P5)
Digital preparedness and legal integration for AI in therapy	" Right now I do not think so there are any like proper laws for AI. So, they should kind of like, you know, integrate that with the mental health act as well" (P2) "I strongly suggest that they should be educated on how to use an AI because again in the world people really don't understand how therapy works and so they have to be a little bit educated and we should promote education on how AI can be useful but what are the limitations they are so just promoting on the understanding how therapy works." (P19) " " So I think there should be, you know, a proper board that should, you know, come up with guidelines on how this data should be used, and the concern that, you know, patients should feel, and all that. " (P10)
Culture and Human Oversight in AI-integrated therapy	"AI can be trained, you know, really well with the algorithm and stuff. And if it is actually based in India, then it should be, you know, uh, trained with the Indian cultures or Indian norms and the population and how is the working system in India or the family systems in uh, India, like everything that can influence an Indian, uh, in his or her life, a working setup and everything. So I think it needs to be, uh, you know, very culturally sensitive." (P14) “There should be a professional always monitoring anywhere the AI is being interacted with the client." (P11)
Regulated access and ethical safeguards	"First of all, I feel like it should be accessible to professionals at first, not any layman, because it can be misused as well. And it should be when it's like given to like the professionals, like psychotherapists or counsellors, they should be able to provide some kind of credibility that yes, they are a licensed therapist, or they have a degree like a proper legitimate degree, only then they can access the features of an AI" (P16) "if there are some keywords that the patient is saying, if the patient is saying that I'm not feeling really well, that I feel like I don't want to live anymore, then the AI probably should select that, like understand the statement and probably then give them another, like a contact to another therapist or something, someone who can actually help them." (P3)
AI driven visibility and awareness	"AI being there in our systems has made therapy a bit accessible, I mean, more accessible, actually. If you search upon something that is related to whatever you are going through, your symptom, you will definitely get it in all of your social media, it would pop up because of the algorithm, and that is AI work only. So, in that way, I think so, it is already becoming a lot more accessible right now." (P2)
Pricing and Cost	"I guess there should be fair market pricing and no matter what, it cannot be more expensive than even the cheapest human therapist." (P12)
Therapist-led Disclosure	"the therapist telling the client that we are going to use AI tools and these are gonna take your data and your, you know, whatever you're going to say, those content and use it. So like just to give them a heads up so that they can be mindful about whatever they are trying to say." (P18)

4. Discussion

The study identifies a statistically significant link between an individual’s ability to tolerate uncertainty and their attitude towards AI (Table 2, Table 3). There is a moderate negative correlation (-0.349) between the negative subscale of GAAIS and Intolerance of Uncertainty, meaning that participants who have a less forgiving attitude towards the

drawbacks of AI have a high intolerance towards Uncertainty. High levels of intolerance towards uncertainty are associated with greater threat generalisation for both positive and negative cues (Wu et al., 2024). This suggests that individuals with higher intolerance for uncertainty (IU) are more likely to perceive AI's limitations, such as lack of empathy, privacy risks as significant unpredictable threats making them less 'forgiving' of these drawbacks.

The study also found a weak positive correlation (0.238) between intolerance of uncertainty and the positive scale of GAAIS (Table 3). This suggests that participants who hold more positive attitudes towards AI also tend to report higher Intolerance for uncertainty. While this may seem counterintuitive, according to uncertainty reduction theory, individuals seek information to achieve perceived stability (Berger & Calabrese, 1975). For someone with high IU the structured nature of AI may offer a sense of predictability that human interaction lacks (Trunk et al., 2020; Liu, 2021). AI chatbots designed for mental healthcare are often programmed with activity scheduling or mood monitoring (Rathnayaka et al., 2022). According to the technology acceptance model a person who finds a lot of unknowns in traditional therapy, a highly structured, rule-based AI might be perceived as useful and an easy-to-use tool because it follows a predictable script (Marikyan et al., 2023).

AI has the potential to bridge the treatment gap for mental disorders in India. This study can help enhance practitioner efficiency by exploring the option of AI being integrated as a supportive tool, allowing clinicians to focus more on the therapeutic relationship. This study used convenient sampling, which is a non-probability sampling method; therefore, the findings should be interpreted with caution, as the results cannot be generalized. The study also employed self-reporting questionnaires, which are vulnerable to self-reporting bias and social desirability. Since the population studied is mainly young adults, the findings cannot be generalised to a population younger than 18 or older than 24, as attitudes towards AI may differ across age groups. Although interviews were conducted, not all 300 participants were interviewed. The qualitative findings only represent a subset of the participants, which may not capture the full range of perspectives.

5. Conclusion

The study identifies a statistically significant link between an individual's ability to tolerate uncertainty and their attitude towards AI (Table 2, Table 3). There is a moderate negative correlation (-0.349) between the negative subscale of GAAIS and Intolerance of Uncertainty and a weak positive correlation (0.238) between intolerance of uncertainty and the positive scale of GAAIS (Table 3). This study can help enhance practitioner efficiency by exploring the option of AI being integrated as a supportive tool and has the potential to bridge the treatment gap for mental disorders in India.

Compliance with ethical standards

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Disclosure of conflict of interest

The author declares no conflict of interests.

Statement of ethical approval

The study was conducted with the consent of the participants who filled an online consent form as shown below.

Statement of informed consent

"Informed consent was obtained from all individual participants included in the study."

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