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AUTHORS

Jake Burley, UMass Boston Applied Ethics Center
James Hughes, IEET & UMass Boston
Alec Stubbs, UMass Boston Applied Ethics Center
Nir Eisikovits, UMass Boston Applied Ethics Center

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Institute for Ethics and Emerging Technologies
info@ieet.org
56 Daleville School Rd
Willington CT 06279 USA

GRAPHIC DESIGN

Steven Umbrello, IEET



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ABOUT THE IEET & AEC

This white paper has been drafted by the Institute for Ethics and Emerging Technologies in cooperation with the Applied Ethics Center at UMass Boston

The Institute for Ethics and Emerging Technologies is a nonprofit think tank which promotes ideas about how technological progress can increase freedom, happiness, and human flourishing in democratic societies. We believe that technological progress can be a catalyst for positive human development so long as we ensure that technologies are safe and equitably distributed. We call this a “technoprogressive” orientation.

The Applied Ethics Center promotes research, teaching, and awareness of ethics in public life. Our current projects are concerned with the ethics of emerging technologies.



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The mental health crisis and loneliness epidemic have sparked a growing interest in leveraging artificial intelligence (AI) and chatbots as a potential solution. This report examines the benefits and risks of incorporating chatbots in mental health treatment. AI is used for mental health diagnosis and treatment decision-making and to train therapists on virtual patients. Chatbots are employed as always-available intermediaries with therapists, flagging symptoms for human intervention. But chatbots are also sold as stand-alone virtual therapists or as friends and lovers. There is evidence that these uses of AI and chatbots can provide better quality service, improve accessibility, and lower costs. The systems can reduce the stigma and shame of sharing their problems and leverage a mass of biometric and behavioral data to supplement self-reports. As the systems' intelligence rapidly improves, they will need to be rigorously tested for the accuracy and precision of their diagnoses and the quality of their interactions with patients. As chatbots become indistinguishable from humans and leverage their superhuman capacity to detect affect and draw on knowledge of a patient's life, patients will be drawn to attribute personality to and relationship with the chatbot. Consequently, it will be essential to study what the "therapeutic alliance" with an actual human counselor provides and the risks of patients attributing such a relationship to a one-sided or "parasocial" relationship.

Key Findings and Recommendations:

- **Experiments with AI and chatbots in mental health should continue.** AI and chatbots can enhance diagnostic accuracy and increase access to affordable treatment.
- **Implement robust privacy safeguards to protect sensitive data.** The accumulation of sensitive data poses significant privacy risks, particularly given commercial and political incentives for non-therapeutic uses.
- **Continuously monitor and evaluate algorithmic performance.** Clinical algorithms must be carefully monitored for diagnostic accuracy and to avoid over/under-diagnosis or the influence of algorithmic biases from inadequate training data.
- **Compare the benefits of patient relationships with chatbots to those with human counselors.** The most critical question is whether a parasocial relationship with a chatbot can be as beneficial as a relationship with human therapists or is best used as a complement to human therapy. Chatbot interactions must be closely monitored to ensure they do not negatively impact vulnerable patients or consumers.

Addressing these critical issues will allow us to harness AI and chatbots' potential in mental health treatment while minimizing risks.

MENTAL HEALTH CRISIS IN A LONELY WORLD

In the mid-1960s, Joseph Weizenbaum, a researcher at MIT, designed a simple chatbot to emulate Rogerian psychotherapy. ELIZA responded to all statements, “I hear you saying X. Can you tell me more about that?” Weizenbaum named the program ELIZA after the working-class character in George Bernard Shaw's play *Pygmalion*. Users often divulged personal and emotional thoughts, even though the program did not understand the content. The depth of emotional connection some participants felt with ELIZA was surprising, leading Weizenbaum to become deeply concerned. Today, as people form relationships with chatbots that communicate much more like humans, and firms explicitly market therapeutic and companionship chatbots to solve the “mental health crisis” and “loneliness epidemic,” Dr. Weizenbaum’s anxieties appear prescient.

Rates of depression and anxiety have increased sharply in the last decade, especially among teens and young adults [1], and have been exacerbated since the onset of the COVID-19 epidemic [2]. The rising needs for mental health counseling are often unmet due to stigma, cost, and shortages of mental health care providers, particularly in developing countries and rural areas [3]. One significant component of the mental health crisis is the decline of social connectedness [4], again exacerbated by the COVID-19 pandemic [5], which has become a priority for health agencies from the [World Health Organization](#) to the US Surgeon General [6]. The effect of loneliness on mortality is comparable to other well-established risk factors such as smoking, obesity, and physical inactivity [7]. One in ten people globally report being lonely and friendless [8]. The purported causes of the “loneliness epidemic” range from urbanization and screens displacing face-to-face interaction to the decline of marriage, extended families, and traditional community structures.

Technology is pointed to as a contributor to loneliness and mental health crises but is also seen as a potential solution. Chatbots - as friends, lovers, and therapists - are being explored as ways to relieve loneliness and promote mental well-being. Chatbots can offer inexpensive, consistent, non-judgmental, and effective therapeutic interventions at any hour. Even a faux relationship with a commercial chatbot companion can provide some sense of connection. Beyond chatbots however, artificial intelligence has a much broader impact on mental health services. AI is used for mental health diagnosis and treatment decision-making, applying machine learning to mountains of biometric and behavioral data to track symptoms and predict crises. Chatbot patients are being used to train counselors and grade their diagnostic accuracy. Chatbots are employed as always-available intermediaries with therapists, flagging symptoms for human intervention. This report addresses the risks and benefits of these different AI applications in mental health, from algorithms flagging signs of depression to virtual friends. We conclude by discussing the philosophical and empirical importance of human-to-human connections in life and the helping professions.

USE CASES FOR CHATBOTS IN MENTAL HEALTH

Below, we consider several critical use cases for LLMs and AI in mental health.

Chatbot Patients for Clinical Training and Evaluation

Training therapists is both expensive and time-consuming [9], partly due to the labor-intensive use of human observers to assess performance through fabricated scenarios or role-play [10], methods that can be error-prone and inconsistent [11]. Consequently, clinical psychology educators are experimenting with using AI and chatbots to simulate patient and counseling scenarios [12], as well as natural language processing (NLP) to evaluate therapist-client interactions [13]. Virtual patients can simulate various scenarios and conditions without the logistical and financial burdens associated with traditional role-play or live patient interactions [14]. Algorithms applied to the text, voice, and images of interactions can identify empathy and emotional content, evaluative tasks that have traditionally relied on expert human judgment [15]. Machine learning applied to psychotherapy transcript have identified first person pronoun use by the therapist as a marker of a “therapeutic alliance” [16]. For instance, researchers have trained AIs to evaluate cognitive behavioral therapy sessions along dimensions such as “Interpersonal Effectiveness” and “Collaboration” [17], resulting in applications. One of them is Lyssn, an AI-based platform that evaluates patient-clinician conversations. Such tools allow clinicians to receive immediate feedback after a therapy session, highlighting areas for improvement and reinforcing good practice.

AI Applied to Diagnosis and Treatment Decision-Making

Another significant use case for AI and LLMs in mental health care is diagnostic and treatment decision-making. Mental health diagnosis usually relies on questionnaires and patient self-reporting to detect symptoms. Automated diagnostic analysis of these questionnaires and patient dialogue has already proved competitive with gold standard human psychiatric diagnosis [18]. Automated analysis of patient tone, vocal patterns, and word choice further improves diagnostic accuracy [19]. A recent randomized trial of Eleos Health software [20], which transcribes therapy sessions, provides feedback to therapists on the use of evidence-based practices and integrates transcript analysis with routine, standardized questionnaires completed by patients, was found to reduce patients’ self-reported depression and anxiety significantly.

With machine learning tools, researchers have been able to integrate discourse analysis, demographic and behavioral data, routine health and psychological tests, blood and genomic markers, and imaging data to improve diagnosis of schizophrenia, Alzheimer's Disease, ADHD, depression, and other mental disorders [21]. For instance, clinicians can use machine learning to analyze the wealth of biometric and behavioral data that fitness wearables generate to predict the onset of mental health crises [22]. These data tools suggest new ways of categorizing illnesses and which patients will benefit from different therapies [23]. Diagnostic algorithms still require much improvement, however, such as more extensive and more diverse populations of patients for training data to reduce misdiagnosis and pernicious biases [24].

Chatbots as Therapists' Assistants

Beyond diagnostics, AI has the potential to supplement and augment therapists' day-to-day interactions with patients, for instance, by using chatbots for patient intake, appointment scheduling, and follow-up. As distinguished from applications of AI that offer training or decision support to therapists, chatbots that communicate directly with patients as an adjunct to human therapy pose new questions while still keeping the "human in the loop." A recent review of 65 papers on pre-ChatGPT "question answering systems," many used in mental health care, concluded they reduced patient symptoms of depression and anxiety.

Stade et al. suggest three stages for integrating chatbots into mental health services [26]: *Assistive LLMs*, *Collaborative LLMs*, and *Fully Autonomous LLMs*. *Assistive LLMs* are AI tools that can offload concrete, limited tasks, such as "TherapyMate" and "ClinicTracker," which facilitate scheduling, taking a medical history, answering billing questions, and following up with patients about treatment plans. "NotaBene AI" takes notes on therapy sessions and provides a summary. These tools reduce the burden of administrative tasks, freeing clinicians' time and reducing burnout [27] while improving the quality of the therapy.

Collaborative LLMs are imagined as partially autonomous tools completing more abstract tasks, such as scheduling an optimal time for an appointment or advising patients with some therapist supervision. As increasingly autonomous LLMs are developed, clinical applications can include chatbots following up with patient's compliance with treatment plans. For example, the chatbots Woebot and Wysa engage patients in regular, supportive conversations to encourage adherence to therapeutic exercises and medications. A study at UC San Diego Health, the first randomized prospective study of AI-drafted physician messaging to patients, found the chatbot freed clinicians of the burden of composing the messages, and improved communication quality and patient engagement [28].

Autonomous LLMs are imagined as fully autonomous technologies operating without human oversight, such as stand-alone therapist chatbots, which we will discuss next.

Autonomous Chatbots as Friends and Therapists



Shortly, developing a fully-automated psychotherapy system trained for expert communication (such as psychotherapy verbatim) is conceivable by building on foundational GPT technology. This dream system should integrate practical 'real world' inputs and friendly AI user and patient interfaces via clinically validated algorithms, voice comprehension/generation modules, and emotion discrimination algorithms based on facial expressions and physiological inputs from wearable devices [29].

We have more than a decade of experience with apps used on smartphones to manage stress, anxiety, and depression, and their use increased during COVID-19. Generally, they appear to benefit those motivated enough to use them. A meta-analysis of 176 randomized controlled trials of stand-alone smartphone apps intended to address anxiety and depression found significant benefits for social anxiety, obsessive-compulsive disorder, post-traumatic stress, and acrophobia. Effects were stronger when the app used chatbots or cognitive-behavioral therapy techniques [30].

Even before the release of the more powerful chatbots of the last two years, the US Food and Drug Administration approved the use of the chatbot Woebot in 2021 as a treatment for postpartum depression. Woebot adapts to its users' personalities and walks them through therapies and cognitive-behavioral exercises. The chatbot Tess provides similar support for people with anxiety and panic attacks.

Rudimentary forms of self-guided mental health AI are also implemented for Fitbit and Google wearables, which offer a stress management dashboard that incorporates both biometric data and self-reported mood. Wearables monitor heart rate, sleep patterns, and skin conductance to build real-time models of stress, anxiety, and depression. The Israeli watch BioBeat monitors the completion of well-being exercises, sleep, and exercise and reports a well-being summary to the patient's dashboard.

The new LLMs suggest that fully autonomous therapy chatbots are next. For instance, a team at Google Research has developed the Articulate Medical Intelligence Explorer (AMIE), a chatbot trained for diagnostic dialogue. The AMIE system takes histories, provides diagnoses, counsels patients, and manages therapies across multiple conditions. When actors pretending to be patients, using 149 case scenarios from Canada, the UK, and India, were counseled by the AMIE system and by thirty physicians, both the specialists and patient actors judged the system as more accurate than the physicians on almost all dimensions [31], including politeness, honesty, clarity, empathy, and commitment. In another study, when two hundred physician answers to patient queries on Reddit were compared to chatbot responses to the same queries, reviewers scored chatbot responses as superior in accuracy, depth, and empathy [32].

Autonomous counseling chatbots raise unique concerns regarding their ability to replicate the nuanced interactions, psychological insights, and ethical sensitivities inherent in the therapist-patient relationship. Many therapists believe a “therapeutic alliance,” a bond of mutual trust, respect, and agreement on therapy goals and tasks, is essential for progress. Many assume that LLMs will struggle to achieve the depth of human empathy and insight, understanding unspoken cues, and the capacity for genuine rapport-building. In later sections, we explore whether chatbots can create an effective “therapeutic alliance” with patients.

REGULATING AI IN MENTAL HEALTH

As a matter of public policy, the evidence so far suggests that regulators should welcome the integration of AI and chatbots into mental health care. AI can make mental health coverage accessible in many parts of the world with a shortage of providers [33]. AI can provide more rapid and accurate diagnoses and better pharmacological and behavioral prescriptions, than the average human clinician. Regarding cost, AI can streamline human therapy, and chatbots can substitute for very expensive clinicians in some and perhaps all capacities. AI therapists are always available and generally non-judgmental, allowing patients to overcome shame and stigma and share intimate facts when they are ready. Chatbots can speak different languages, adapt to different cultural norms, and even adopt personalities more compatible with the patient, unlike most therapists. AI can also be competent in diagnosing and treating a much more comprehensive range of conditions than possible for human therapists.

The principal regulatory concern is whether AI mental health applications are being trained and tested to ensure these benefits. Policymakers are struggling with the rapid proliferation of AI and chatbots in mental health, and most applications have not yet been required to undergo regulatory scrutiny. The 2023 EU AI Act, for instance, prohibits the use of artificial intelligence to “manipulate” or “persuade” but exempts “AI systems intended to be used for approved therapeutic purposes based on specific informed consent” [34]. The US Food and Drug Administration has approved the prescription of Wysa and Woebot, chatbots designed to walk patients through cognitive-behavioral exercises for depression and anxiety, and postpartum depression, respectively. But there are tens of thousands of apps and chatbots available that claim mental health benefits but escape regulatory scrutiny by avoiding claims to be medical therapies. Should a smartphone app intended to elevate mood with daily affirmations have to undergo a clinical trial to demonstrate its efficacy?

Regarding the use cases discussed above, the risks of AI applications can be roughly divided into those patients don’t talk to and those they do. The risks of AI for monitoring patients or diagnosing illness are more familiar, such as correcting algorithmic bias and ensuring data security. Chatbots that patients turn to as therapists and friends pose more profound questions about the relative importance of a human-to-human connection with a therapist in mental health care, which we discuss at the end of this paper.

Ensuring Diagnostic Accuracy and Precision

As with all statistical modeling, machine learning for diagnosing disease or predicting mental health crises can be overly broad, precise, or wrong. As opposed to modeling conditions like cancer, which is either present or not, mental health conditions are often more a matter of degree. Since we are all a little anxious or depressed, sometimes, both clinicians and AIs need to be calibrated to not over or under-diagnose, which is as much a cultural and policy decision as it is a scientific one. Diagnostic accuracy also requires extensive and diverse training data to reduce algorithmic biases. The more culturally specific terms, categories, and beliefs included, the better the model will be.

Sample Sizes & Training Data

The use of conversational agents and AI in psychotherapy and mental health services is still preliminary. Indeed, many studies on the efficacy of these technologies are experimental or proofs of concept rather than randomized control trials. As such, while early data on the efficacy of chatbots in mental health settings is promising, it should be noted that the sample sizes in these studies are relatively small. Many studies have fewer than 100 participants and few have more than 500 participants [35]. Further research with larger and more diverse sample sizes is needed to arrive at a clearer picture of the efficacy of conversational agents in mental health settings.

Limitations surrounding training data also raise concerns for current and future mental health chatbots. Typically, conversational agents use existing LLMs as a foundation and are fine-tuned for mental health tasks using sentiment analysis datasets, transcripts from psychotherapy sessions, and/or user conversations. Lyssn, a conversation agent designed to evaluate therapists, was trained using a dataset from Alexander Street Press which includes over 2,000 transcripts from psychotherapy sessions [36]. Other conversational agents, like Woebot, leverage sentiment analysis databases from sources like Twitter and Reddit to detect emotional content in conversation with users [37]. Detailed information about how specific conversational agents are trained and what data sets are leveraged in their training is often difficult to obtain, however. Furthermore, the Alexander Street Press database is one of only a handful of databases that includes actual transcripts of psychotherapy sessions. As we consider the development and deployment of future mental health conversational agents, more robust and domain-specific training data will be needed alongside transparency regarding the content of training data sets.

Data Security and Privacy

Ongoing research from the Mozilla Foundation finds that the majority of mental health apps do not adequately protect patient privacy. Of 27 popular mental health apps reviewed in 2023 only two met Mozilla's privacy and security standards, PTSD Coach, a free self-help app created by the US Department of Veteran Affairs, and Wysa. Of 578 mental health apps reviewed in 2022, 44% shared user data with third parties [38].

The 2023 controversy around the handling of patients' data by the online therapy company BetterHelp illustrates the need for regulatory intervention. A class action lawsuit filed in California accused BetterHelp of sharing sensitive patient data with third parties for advertising purposes, including Facebook, Snapchat, and Pinterest, without obtaining proper consent from its users. The lawsuit alleged that BetterHelp used tracking technologies to collect and share data about patients' mental health statuses, IP addresses, and other personal information. The Federal Trade Commission quickly forbid the data sharing and fined the firm \$8 million [39]. The BetterHelp controversy underscores the need for stricter regulations, clearer consent processes, and greater transparency from companies handling sensitive information, particularly regarding online mental health services.

CAN WE HAVE A “THERAPEUTIC ALLIANCE” WITH AIs?

The therapeutic alliance, considered central to the efficacy of psychotherapy, refers to the collaborative, trust-based relationship between a therapist and their client. Traditionally, it consists of three main elements: consensus on goals, collaboration on tasks and methods, and the affective bond between the therapist and the patient [40]. The quality of a therapeutic alliance is a robust predictor of positive clinical outcomes across diverse types of therapy and client populations [41]. By fostering a collaborative and supportive environment, the alliance empowers clients to engage more openly and actively in the therapeutic process, facilitating deeper personal insights, adherence to therapeutic interventions, and overall psychological growth. Nurturing this alliance is often crucial for effective therapy and long-term client well-being.

Can a human patient establish a legitimate therapeutic alliance with a chatbot or AI system? Is the perception of a therapeutic alliance on the part of patients sufficient for such a relationship, or is there something still missing that only human therapists can provide, such as genuine reciprocal social recognition based on shared lived experiences? Current chatbots are philosophical zombies (we assume), lacking interiority, subjectivity, autonomy, and the capacity for reciprocal social recognition. However, there are indications that chatbots can impart, at minimum, a sense of a therapeutic alliance in patients. In a study evaluating the therapeutic alliance with the mental health chatbot Wysa, Beatty et al. found participants' ratings of the therapeutic alliance were comparable to ratings from earlier studies aimed at traditional face-to-face psychotherapy [42]. Similarly, Darcy et al. found that Woebot elicited short-term therapeutic alliance scores comparable to a wide range of traditional CBT modalities [43]. In another recent review of mental health chatbots users said things like, “He checks in on me more than my friends and family do,” and, “This app has treated me more like a person than my family has ever done” [44]. Just as users felt a deep emotional connection with ELIZA fifty years ago, patients have the impression of a therapeutic alliance when using today's chatbots.

Skeptics may insist that patients are mistaken in feeling a therapeutic alliance with chatbots because the relationship is supposed to be, by definition, relational, requiring an affective bond between therapists and patients, while chatbots lack emotions. This argument is fundamentally Aristotelian: just like we can be wrong about feeling happy (for example, by equating happiness with continuous bodily pleasure); just like happiness can objectively mean something that a person either does or does not attain, so too a person can be wrong about having a significant therapeutic relationship. Recent studies lend some support to this “humanistic” interpretation of the therapeutic alliance. For instance, in a recent study by Meng and Dia, participants chatting with both chatbot and human partners – despite both using nearly the same predefined script [45] – reported higher levels of perceived supportiveness when chatting with human counterparts [46].

Although both chatbot and human partners reduced stress and worry among participants, the authors suggest that, “[T]he same emotional support messages coming from human partners may be perceived as more sensitive and genuine, and thus, human partners were considered as more helpful sources of support to reduce stress and worry” [47]. The suggestion here is that even if chatbots can provide meaningful therapeutic support to patients, we need to investigate what differences exist between human-to-human and human-to-AI emotional connectivity so as not to diminish the quality of care.

Similarly, a therapist’s ability to navigate the messy feelings patients project on them in psychotherapy - transference and counter-transference - assumes a genuine agent with interiority and psychological features. Counter-transference occurs when therapists project their feelings and biases onto the client, which, when consciously recognized and managed, can provide valuable insights into the client's behavior and the therapeutic relationship. Given the levels of emotion recognition AI is capable of, however, chatbots may be as or more capable of recognizing that users are treating the chatbot therapist like their mother or another person of significance to them, and adapt accordingly [48].

Additionally, some researchers have suggested that the embodied character of human-to-human therapy is fundamentally distinct from that which is accessible to chatbots and patients using chatbots. For example, in human-to-human therapeutic contexts, therapists can access non-verbal cues of patients and patients have opportunities for meaningful assertiveness through interruptions in the conversation [49]. Insofar as chatbots are unable to respond in real time to non-verbal patient cues and allow for patient interruptions, the quality of the therapeutic alliance may be diminished. If non-verbal and embodied communication are necessary for building the therapeutic alliance (both on the side of the patient as well as the therapist), then chatbots will be limited so long as they lack embodiment themselves and lack access to real-time information about their embodied patients.

There is, unfortunately, limited but emerging research with respect to non-verbal factors in developing a therapeutic alliance. Some early evidence suggests a negative correlation between developing a therapeutic alliance and bodily orientation of the therapist in question, such as “asymmetrical arm posture, crossed legs, and body orientation away from the patient” [50]. What this suggests is that further exploration of the non-verbal, empathic elements of the therapeutic alliance need to be investigated in order to determine the adequacy of chatbot therapists and whether or not embodiment is truly a help or a hindrance to patient outcomes.

Boundaries between therapists and patients may also be considered an essentially relational aspect of psychotherapy. Maintaining clear boundaries ensures that the therapeutic relationship remains professional and ethically sound for both the patient and the clinician. These boundaries help define the roles and expectations in therapy, preventing conflicts and focusing on the patient’s needs and therapeutic goals. Furthermore, from the clinician’s perspective, establishing clear boundaries is essential for maintaining professional integrity and emotional resilience. However, there can be no genuine negotiation of needs with a chatbot that lacks emotions and interiority, and failure to account for the importance of boundaries in psychotherapy might lead to chatbots that inadvertently encourage unhealthy dependency or otherwise fail to deliver a high level of care.

Boundary enforcement can be a key part of patient growth, modeling behavior for patients who struggle to create and recognize boundaries outside of the therapy setting. High quality chatbot therapy should model boundaries to serve the mental health needs of the patient (e.g., not being available 24/7, avoiding inappropriate conversations, etc.). Though such interventions are not, in any part, the result of the chatbot's emotional needs or an expression of its deeply held moral values, chatbots might at least attempt to mimic elements of reciprocal social relationships for the sake of patients.

Patients feeling a therapeutic alliance with chatbots raises a larger question: is it psychologically healthy to believe one has a reciprocal relationship when the other party is incapable of relationships? The question may apply to some human relationships as well, but let's consider the case of humans who have a "parasocial relationship" with someone who will never know them, such as a celebrity. The concept of parasocial relationships was first introduced in the 1950s in research on fans of news reporters and soap opera actors [51]. In the last decade, however, social media has enabled increasingly sophisticated ways for artists, influencers, content creators, and celebrities to engage with their fans and enhance the illusion of a personal connection. One study estimated that half of all Americans have engaged in parasocial relationships [52]. This trend is now converging with the chatbot phenomena, as celebrities train chatbots to mimic themselves, and dozens of celebrity voices and likenesses have been licensed for use on platforms like WhatsApp, Messenger, and Instagram.

Parasocial relationships have a bad reputation, focusing on stalking, flame wars between fandoms, or the spiral of fan obsession and social isolation [53]. Stephen King's novel *Misery*, about a fan imprisoning the author she is obsessed with, made the phrase "I'm your biggest fan" a chilling warning. About 3-5% of fans are estimated to have had a pathological parasocial relationship, co-morbid with social isolation and poor mental health. But there is also a decade of research suggesting that, for most fans, parasocial relationships [54] provide more benefits than risks [55]. An imagined relationship with a celebrity (or with a chatbot) seems to provide some of the same psychological benefits as two-way friendships, such as facilitating coping, personal development, and identity formation. K-pop fans study Korean to translate lyrics, and fantasy fans write fanfiction. Fans can find inspiration in the upbeat affirmations of self-acceptance and empowerment, e.g., Swifties, Lady Gaga's Little Monsters, or the BTS ARMY. Parasocial relationships with chatbot therapists or companions will probably come with similar risks and benefits.

When we partake in chatbot therapy we are likely anthropomorphizing algorithms that are already in the uncanny valley between human and machine, becoming more aware of our emotions, remembering more about our lives, and sometimes providing more insightful advice than our friends and therapists. These therapists and companions can have distinctive faces and voices, and express simulated emotions with vocal inflections and facial expressions, which helps users perceive them as more likable, trustworthy, and human-like [56]. The question is whether AI therapists and companions can match or exceed the trustworthiness and empathic concern of human-to-human relationships. Given heavy workloads of therapists, it may well be the case that AI therapists succeed where the human need for rest (both mental and physical) fails.

However, what still is required is an investigation into whether there is a meaningful distinction between the mere *perception of concern* on behalf of an AI therapist and the *actual concern* of a human therapist. Stated differently, the question is whether having a relationship that can prove meaningful over time - be it a friendship or a therapeutic relationship - depends on the capacity of one's relational partner to actually care about us. That capacity to care does not always have to be realized and it is certainly not always realized to the same extent (flesh and blood friends and therapists have their bad days). But does that capacity have to be present as a *possibility* for these relationships to work over time? It's important to note that while some research suggests that the appearance of caring might provide many of the benefits of actual caring, these results have not yet been tested over time, because the technology is too new.

Parsing the ethical morass of commercial companionship AIs, and whether they harm or help mental health and the loneliness crisis, is beyond the scope of this paper. But many of the same considerations of the risks and benefits of relationships with chatbot therapists also apply to chatbot companions and the emerging field of "artificial sociality" [57].

RECOMMENDATIONS

01

EXPERIMENTATION

Experiments with AI and chatbots in mental health should continue. AI and chatbots can enhance diagnostic accuracy and increase access to affordable treatment.

02

PRIVACY

Implement robust privacy safeguards to protect sensitive data. The accumulation of sensitive data poses significant privacy risks, particularly given commercial and political incentives for non-therapeutic uses.

03

CONTINUOUS MONITORING

Continuously monitor and evaluate algorithmic performance. Clinical algorithms must be carefully monitored for diagnostic accuracy and to avoid over/under-diagnosis or the influence of algorithmic biases from inadequate training data.

04

HUMAN/AI-PATIENT RELATIONSHIP

Compare the benefits of patient relationships with chatbots to those with human counselors. The most critical question is whether a parasocial relationship with a chatbot can be as beneficial as a relationship with human therapists or is best used as a complement to human therapy. Chatbot interactions must be closely monitored to ensure they do not negatively impact vulnerable patients or consumers.

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CONTACT

IEET
56 Daleville School Rd
Willington CT 06279
USA

info@ieet.org
+1-617-287-5420