Artificial Intelligence for mental health support during COVID-19: Experiences of graduate counseling students

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Abstract

The purpose of this study was to examine how an AI chatbot could provide mental health support to counselors-in-training during the COVID-19 pandemic. The chatbot "Tess" was available to participants for two weeks. Participants responded to questions about their experience and the content of this qualitative data was analyzed. Themes emerged that focused on mental health during the pandemic, utility of the AI chatbot during the pandemic, and potential therapeutic use in general. Findings were mixed and suggest some skepticism among counseling students towards the use of an AI chatbot.

Aim & Scope: Emerging, Experimental and Current Topics Relevant to Technology in Counselor Education, Supervision and Practice

*Keywords***:** COVID-19 mental health; Artificial intelligence and counseling; Chatbot; Quarantine mental health

A wide body of research, including randomized-controlled trials (Klos et al., 2021; Fulmer et al, 2018; Fitzpatrick et al., 2017), quasi experiments (Inkster et al, 2018), a systemic review (Lattie et al., 2019) and a meta-analysis examining individual studies (Lim et al., 2021) suggest that Artificial Intelligence (AI) powered chatbots show efficacy in alleviating depressive and anxiety symptoms. Yet, not all participants perceive chatbots as helpful (Abd-Alrazaq et al., 2020). Most researchers strongly recommend more investigation into chatbot efficacy for mental health, an area of inquiry described as being in its infancy (Boucher et al., 2021). As a result of these recommendations for further research, we conducted a qualitative study using inductive content analysis of open-ended survey responses. We employed inductive content analysis because using AI chatbots for mental health support is a novel approach within the mental health counseling profession. Inductive content analysis provided in-depth understanding of participants experiences and perspectives through descriptive responses. Further, our qualitative approach allowed us to organically identify key themes related to the chatbot's utility and limitations based on the participants' lived experiences.

COVID-19: Prologue to the Current Study

Against the backdrop of a call for more AI chatbot research came the global pandemic caused by the SARS-CoV-2 virus. COVID-19 created mental health problems for some people and exacerbated preexisting conditions in others (Pfefferbaum & North, 2020). People experience disasters and public health emergencies in several ways, from summoning resilience and developing new strengths, to developing depressive and anxiety disorders. Overall, the adverse psychosocial consequences brought about by the pandemic stressed individuals and systems, sometimes to their breaking point (Boden et al., 2021; Gunasekeran et al., 2021). COVID-19 showed how the world is interconnected, the inadequacy of many health delivery systems, and provided an opportunity to improve and disseminate mental health services more effectively (Moreno et al., 2020). AI-powered chatbots may help meet the growing need for services in a manner that is scalable, affordable, and accessible (Joerin et al., 2020).

The Effects of Quarantine

A particularly distressing byproduct of COVID-19 was prolonged, at home quarantine. Quarantining in the information age proffers the opportunity to stay virtually connected with friends and family for those with internet access. Alternatively, there is also exposure to rumors and misinformation through social media, which can create fear, anxiety, and more stress (Kumar & Nayer, 2021). Feelings of isolation that result from a quarantine may bring about PTSD symptoms, confusion, anger, and have lasting psychological effects (Brooks et al., 2020). Indeed, the

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lasting effects may continue months after the confinement has ended, or longer, and may constitute "psychological damage" (de Lima et al., 2020). The outbreak of COVID-19 and the subsequent quarantine appears to effect subpopulations differently (Li et al., 2020). For instance, front line workers in Wuhan, China reported discrimination because of their close contact with infected patients. Studies conducted on how the pandemic has impacted college students around the globe indicate that students may be an especially vulnerable population to mental health issues from quarantine. Research in France, China, Albania, Argentina, and Bangladesh shows that students have experienced a range of symptoms, such as stress from financial uncertainty, fear of inadequate food supply, elevated levels of depression, housing problems, suicidal ideation, and anxiety, to name a few (Wathelet et al., 2020; Sun et al., 2021; Mechili et al., 2021; Steinmetz et al., 2021; Khan et al., 2020).

In sum, mental health may deteriorate during quarantine due to the vast sense of isolation and the lack of mental health support systems. The aim of the present study was to examine how an AI bot might attenuate some of the stressors associated with quarantine by providing structured mental health support during the COVID-19 pandemic. We followed the recommendations of past researchers who asserted that more research on AI efficacy is needed (Sun et al., 2021; Mechili et al., 2021; Steinmetz et al., 2021; Wathelet et al., 2020; Khan et al., 2020; Fulmer, 2019). We were interested in the meaning that participants assigned to using the bot and how their feelings about it may change over time, albeit a relatively short amount of time, which are characteristics that a phenomenological, qualitative research design affords. Our guiding research question was, *what are the lived experiences of students who used psychological artificial intelligence chatbots for mental health support during the COVID-19 pandemic*?

Method

A primary goal of the present study was to discern if an AI chatbot could be of value providing mental health support to a group of students in quarantine because of COVID-19. We found no studies that explored the efficacy of an AI bot in helping students regarding mental health during COVID-19 at the onset of our study. As stated earlier, we used inductive content analysis as our method because it is useful when studying phenomena with limited research backing (Elo & Kyngäs, 2008). This methodology also allows for thematic undercurrents to be coded more intentionally to allow for larger connections between themes, concepts, and various data categories (Kyngäs, 2020), enhancing the validity and trustworthiness of the research (Elo et al, 2014). This study (STU00212459) was reviewed and approved by Northwestern University's Institutional Review Board. All participants gave consent for their data to be used in the research.

Participants

A total of 22 individuals participated in this study. Purposive and snowball sampling was used, with an emphasis on racial and gender diversity variation, giving our sampling technique some of the strength of maximum variation sampling. A convenience sample of participants were initially recruited by verbally asking or via an email sent to matriculating master's level students in an online graduate program in clinical mental health counseling. Enlisted participants recruited other participants, mainly students from their cohort. The major inclusion criteria were students who previously expressed an interest either in AI or in helping professors with research projects. To ensure anonymity, participants' gender and exact age were not collected; however, their ages were collected in ranges. Most participants were between the ages of 20-29 (n = 12), followed by ages 30-39 (n = 7), and ages 40-49 (n = 3). Races represented were White, Black, or African American, Asian/Pacific Islander, Other, and Hispanic or Latino with (n= 12, 4, 3, 2, and 1 participants, respectively).

Materials and Instruments

This study used an AI chatbot, Tess, created by X2AI (X2AI, 2022). Note that since the study was carried out, Tess has been updated and rebranded to "Cass." Tess can be referred to, generally, as a chatbot and, more specifically, as an Embodied Conversational Agent (ECAs) which utilizes Artificial Intelligence to generate text responses to users, to adapt to conversation, and to create a sense of cognition. Tess's generated content focuses mainly on a combination of mental health coaching and principles of psychotherapy, created by a team of software engineers and mental health professionals. Tess uses the foundational principles of machine learning and artificial intelligence to provide individualized mental health support, offer coping suggestions, validate feelings, and extend encouragement. This type of AI chatbot can track user moods over time and it adjusts responses to changes in mood patterns. It is important to note that Tess, unlike some other ECAs, is a HIPPA compliant platform that meets confidentiality standards related to personal healthcare information and that Tess is used anonymously. Data within Tess is secure, and participants could delete their personal information in Tess at any time. Participants interacted

with Tess using their smartphones. They texted an assigned number provided by X2AI, were directed to enter a start code, and reminded that they could interact with Tess as often as they liked for the time duration.

Procedure

During the acquisition of informed consent, participants were informed of the method to activate the AI using a link provided in an email. Additionally, they were advised that they had the option to interact with Tess at their discretion for the subsequent two weeks. Two weeks is a standard timeframe for engagement with therapeutic chatbots, as evidenced in some noted studies, including that of Woebot (Fitzpatrick et al., 2017; Inkster et al., 2018). After two weeks, participants responded to questions using a post survey in Qualtrics regarding demographic information, previous experience with chatbots, impressions of the AI, emotions experienced amid the pandemic, and how the AI helped them cope with their emotions. In the present study, "data" refers to the typed information provided by participants in response to the administered questions. We did not collect or analyze participants' personal interactions with Tess.

Results

The data was analyzed using Inductive Content Analysis. This methodological approach was used because it is cited as an appropriate analytic technique for data acquired through a series of open-ended questions (Kyngäs et al., 2020, p. 13-21). The study questions were selected to elicit information related to participants' perceptions, experiences, or beliefs about specific phenomena; however, themes were created by following the steps of the analytic process, not by attempting to identify selected data excerpts aligning with a priori themes.

The data analyzed was acquired from participant responses to the following five questions, all of which were selected to help the researchers explore the topics of what mental-health struggles participants faced during COVID-19 (question 1), how Tess helped and could have helped them better during COVID-19 (questions 2 and 3), and their beliefs about using therapeutic chatbots (questions 4 and 5).

Question 1

What feelings, emotions, or mental-health related experiences have you faced during the global pandemic because of COVID-19 (novel coronavirus)? Also address those feelings and emotions that existed before the pandemic and have been intensified because of the conditions surrounding the coronavirus.

Questions 2 & 3

Using the AI as a mental health support agent during the COVID-19 pandemic, what value did you find in using the bot? Also, please address how the AI provided support for the feelings/emotions you described in the previous question.
Using the AI as a mental health support agent during the COVID-19 pandemic, what were some of the limitations of the AI and how could it help you better?

Questions 4 & 5

As a counselor-in-training, what are your views on using an AI bot like this one as a therapeutic tool with a general, or specific, client population?
If applicable, provide additional relevant information regarding your experience in the research project.

Data Analysis Process

The data analysis process consisted of three phases: preparation, organizing, and reporting (Elo & Kyngäs, 2008). The process of inductive content analysis requires researchers to first familiarize themselves with the data, in the *preparation phase,* by reading through the responses in their entirety. Before re-reading, a decision was made by the researchers to define the unit of measurement as no longer than the entirety of a participant's response to a single question, and as a short as a single word. After establishing the parameters of a unit of measurement, participant responses were re-read and the *organizing phase* occurred, whereby themes were identified through open coding. The open-coding process involved repeated readings of the entire data set and assignment of codes based on the researchers' identification of meaningful information within responses, relevant to research questions 1-5. Next, the codes were organized into initial themes and then further organized into final, mutually exclusive themes. Categories, which emerged as similar and non-similar codes, were grouped into higher-order headings (Burnard, 1991). Due diligence was practiced identifying the implicit meaning of words so that themes accurately reflected participants' expressions without missing the presence of a theme. A subset of the data, 5 participants (23%), was coded independently by two research team members during the initial coding phase, establishing substantial inter-rater reliability (Cohen's κ = .811), according to McHugh (2012). After establishing inter-rater reliability, one researcher continued the analytic process for the remaining data.

Themes

Five structured, open-ended study questions were posed to the 22 participants. Participants left a total of 110 responses. Five participants had prior experience with chatbots or AI. Participants reported their feelings towards AI chatbots before the study were neutral ($N = 12$), positive ($N = 5$), and negative ($N = 5$), but after the study these feelings were neutral ($N = 13$), positive ($N = 7$), and negative ($N = 2$). Qualitative analysis resulted in 3 hierarchical levels - 3 *superordinate* themes (Negative feelings, emotions, or mental-health related experiences faced during the pandemic; Utility of the AI as a therapeutic tool during the COVID-19 pandemic; and Viewpoints on the use of Tess as a therapeutic tool) which expanded into 8 *basic* themes which expanded further into 10 *subordinate* themes. We discuss each of the superordinate, basic, and subordinate themes in the following paragraphs.

Note that reported percentages in lower hierarchical themes do not add up to the reported percentage of higher hierarchical themes because participants could have provided data that fit into more than one theme. Also note that 100% of participants provided data which related to each superordinate category – as was expected considering that the content of the survey questions closely aligns with the superordinate themes. These were extracted across questions rather than coding each question independently.

Superordinate Theme 1: *Negative feelings, emotions, or mental-health related experiences faced during the pandemic.*
COVID-19 caused or exacerbated mental health issues for many people and the same holds true for participants in this study. Responses gathered reflected the findings of Inkster and the Digital Mental Health Data Insight Group (2020) that the COVID-19 pandemic correlated with higher rates of anxiety, depression, loneliness, and stress related to uncertainty. The survey responses of participants in our study demonstrated a lived experience of emotional difficulty during the pandemic. The emotional struggles in the lived experiences of our participants could be more closely examined as the basic themes of anxiety; alteration or uncertainty of life plans; depression; and isolation.

Basic Theme 1: *Anxiety* (68%)
For the graduate students in this study, anxiety was the most frequently cited mental-health related experience faced during - or exacerbated by - the pandemic. The structure of question 1 often elicited straightforward responses about mental health experiences such as "I

experienced an increase in anxiety symptoms..." and "Been feeling depression and anxiety as a result of COVID-19."

Basic Theme 2: *Alteration or uncertainty of life plans* (45%)
Negative feelings or emotions for participants were consistently related to the alteration of their daily lives and the uncertainty of their life plans. This theme illustrates how COVID-19, and its resulting unique changes to aspects of society, caused stress for a large portion of the participants. For some, the change was in a general sense - "At times I felt anxious because of the uncertainty of things." For others, it was specific issues brought on by the pandemic - "Financial stress prior then amplified during COVID. Job search stress (and feelings of being a failure, negative self-image due to being unemployed)- both also amplified during COVID", and "I've been experiencing additional stress due to not having access to childcare and still having a lot of responsibilities to take care of even during the pandemic."

Basic Theme 3: *Depression* (41%)
Like anxiety, depression was often cited straightforwardly as a mental-health related experience for participants. Examples include "…an increase of depression symptoms" and "Depressed mood, anxiety, both have been existing before the pandemic but aggregated [*sic*] by it."

Basic Theme 4: *Isolation* (18%)
A common topic of discussion in the media during the pandemic was how COVID-19 impacted social interaction from directives related to social isolation, quarantining, and changes in work routines and social activities (Lasry et al., 2020; Lin, Zhang, & Wang, 2021). The participants were not immune from the effects of isolation. Selected quotes include, "Prior to the pandemic, I struggled with anxiety and depression. COVID-19 has exacerbated my feelings of anxiety and sense of isolation.", and "Been feeling depression and anxiety symptoms as a result of COVID-19's uncertainty and isolation."

Superordinate Theme 2: *Utility of the AI as a therapeutic tool during the COVID-19 pandemic*
The data for this superordinate theme is derived primarily from questions 2 and 3 and shows that nearly all participants felt that Tess helped with their negative mental health experiences during COVID-19 (95%) but also that Tess could have supported them better if certain adjustments were made (91%). The lived experiences of our participants in using AI as a therapeutic tool could be more closely examined as the

basic themes of the value of using the AI and the limitations of using the AI.

Basic Theme 5: *Value of using the AI* (95%)
Overwhelmingly, participants found AI to be beneficial to them during the research project. Tess was able to support participants in four ways–most of which are features built in to the chatbot/AI with intent and mirror aspects of in-person therapeutic styles by being psychoeducational, providing a sense of connection, and encouraging disclosure. The supportive components of the participants lived experiences could be more narrowly described through four subordinate themes.

Subordinate Theme 1: *Provided useful information* (50%)
- "The bot readily offered tips for resilience during the pandemic'."
- "AI provided support with preparing to go to sleep'."
- "It helped me examine some of my unhealthy coping mechanism."

Subordinate Theme 2: *A kind connection* (32%)
- "...if there were no one to talk to at the moment, the bot was there to 'fill the silence."
- "It was also helpful to feel more connected to something.'"
- "Tess seemed supportive and kind and validated my feelings."

Subordinate Theme 3: *Always available* (23%)
- "the value I found in the bot is it is available 24/7."
- "Immediate assistance and availability from the bot."

Subordinate Theme 4: *Cathartic* (14%)
- "Being able to type out what I was actually feeling instead of just feeling it."
- "It was an outlet to express current emotions."

Basic Theme 6: *Limitations of using the AI* (95%)
While there were overwhelming benefits of AI for participants, there were also extensive concerns about the limitations of Tess. Current iterations of various therapeutic chatbots have common issues consistent with participants' noted limitations of Tess (Rosello, 2019; Vaidyam, 2019). These limitations include the chatbot's undesirable frequency of communication, lacking emotional capabilities, or trying to redirect conversation into a script or pattern within its

capabilities rather than adapting to the situation. Like the advantages of AI, the challenges appeared to impact most participants.
Subordinate Theme 5: *Undesirable timing or frequency of communication* (41%)
- "[Tess] would come back and ask me a question at random times of the day."
- "It also texted me late at night when I'm not on my phone."
- "…it stopped checking in. So I forgot about it."
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Subordinate Theme 6: *Unable to help with emotional or situation specific needs (inability to meet user where they are at)* (41%)
- "The AI did not really stay with the emotions but rather became solutions focused by offering those resources"
- "The bot could not provide emotional support."
- "the AI bot didn't discuss specific things with me- for instance I would have loved to learn tools for financial stress specifically, or self-talk specifically"

Subordinate Theme 7: *Inability to understanding user inputs* (36%)
- "Some of the responses were not relevant to what I had said."
- "Did not understand emojis/certain words."
- "It felt novel to use the chat bot at first, but due to the limitations in fully comprehending what I was sending the chat bot, it's utility began to diminish over time."

Subordinate Theme 8: *Felt scripted* (27%)
- "The bot was unable to go off script."
- "The bot was too prescriptive and linear -- it didn't seem to learn much."
- "It was very clear that it was operating off of a wrote script…"

Superordinate Theme 3: *Viewpoints on the use of Tess as a therapeutic tool*
As could be expected, participants had clear viewpoints about the use of Tess as a therapeutic tool. The data for this superordinate theme is derived primarily from questions 4 and 5. These findings are the first known of their kind which qualitatively assess a group of counselors-in-training's perceptions of therapeutic chatbots.

Basic Theme 7: Belief that Tess can be useful (86%)
Nearly all participants expressed beliefs that Tess can be useful as either a tool (akin to a resource book or information feedback system) generally –for 'average' psychotherapy clients to use during the course of treatment – or for specific psychotherapy client populations who would particularly benefit from its use.

Subordinate Theme 9: *In general, in the therapeutic process* (55%)
- "I think this could be helpful in tracking the client's feelings and experience throughout the week"
- "It would be helpful for general information and being able to send clients to resources fast."
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Subordinate Theme 10: *For specific population seeking mental health services* (32%)
- "I think it could be particularly useful with a population that requires a lot of attention or seek immediate responses to problems."
- "It might be helpful for people who … may not have reasonable or direct contact with mental health professionals."

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Basic Theme 8: *Expressed concern regarding use of the AI with therapy patients in need of emotional support* (18%)
Some participants expressed concerns about Tess's ability to appropriately respond to clients in distress or in need of emotional support. Two participants reasoned that they would not recommend it, saying "… I certainly would not recommend the use of an AI Chatbot for therapy for someone who was feeling vulnerable, or who just needed someone to listen to them…" and "I would not recommend the bot for a person who has not had therapy before and is hoping to gain deep insight or emotional breakthrough of some form." Another participant said that Tess could be "…very frustrating, almost damaging for someone in a state of crisis."

Discussion

The COVID-19 pandemic has had profound impacts on mental health, with increased rates of anxiety, depression, and loneliness (Inkster & Digital Mental Health Data Insight Group, 2020). With lockdowns, social isolation, and massive societal changes, many struggled to cope. In this qualitative study, we explored the potential of an AI chatbot, Tess, to provide mental health support to 22 counselors-in-training during the COVID-19 pandemic. As one might expect, most participants experienced a range of psychological distress during the pandemic. It should be noted that participants used Tess and reported on their experiences during the beginning stages of the pandemic, as at the time, few knew how long the pandemic and quarantine would last. Yet, our findings provided some critical insights into the participants' lived experiences of psychological distress that was triggered by the pandemic. For example, anxiety, the most frequently reported issue, was mentioned by 68% of participants. Our findings aligned with the metanalysis conducted by Chang et. al, (2021) where they determined that anxiety and depression impacted a large portion of college students. Specific examples for our participants included "an increase in anxiety symptoms" and feeling "depression and anxiety as a result of COVID-19." Overall, our findings align with extensive prior research showing surging anxiety and depression during the pandemic due to factors like isolation, uncertainty, and health/financial worries (Aknin et al., 2022; Brooks et al., 2020).

As we had suspected, the data also supported the chatbot's utility in alleviating these mental health burdens through psychoeducation and empathetic support. For instance, 50% of participants reported that the AI provided useful coping strategies and information, like "tips for resilience" and "tools for sleep." Surprisingly, 32% emphasized that the chatbot offered a caring connection, with one individual saying it helped "fill the silence." However, the caring connection wasn't realized by all participants. 41% felt the AI poorly responded to their emotions and 36% reported issues with understanding user inputs. As one participant explained, "The AI did not really stay with the emotions but rather became solutions focused." As artificial intelligence chatbots evolve to incorporate better emotional recognition and conversational abilities, they could quickly overcome these limitations.

Notably, while 86% of participants saw potential therapeutic benefits of chatbots for certain populations, some expressed skepticism that AI could replace human therapists, especially for those needing emotional support. For example, one trainee said they would not recommend Tess "for someone who is feeling vulnerable, or who just needed someone to listen to them." This shows some alignment with research suggesting that psychiatrists doubt that an AI would ever duplicate a clinician's ability to deliver empathetic care (Boucher et al., 2021). The findings emphasize that clinical and ethical issues around AI remain salient (Fulmer et al., 2021).

It is noteworthy that almost all participants found Tess helpful despite limitations. Like Rosello (2019) and Vaidyam (2019), they desired improvements in areas like emotional skills, adapting to user needs, and reducing scripted responses. This suggests even rudimentary chatbots can provide some utility if used judiciously. Participants specified appropriate populations like those needing extra support or without therapist access. For clients not requiring deep emotional connection, Tess may provide coping assistance. Future research should explore who benefits most. Chatbots like Tess could expand access to mental health support during global crises like COVID-19. However, emotional capabilities and understanding user needs must improve to realize their full potential.

Limitations

The study has some limitations. Although our sample size fits within the suggested parameters for a qualitative content analysis, insights gleaned from the responses of 22 participants has limited generalizability. We investigated the self-reported perceptions of a group of counselors-in-training, marking the first study to investigate how this population views a psychological AI in practice. Yet, perhaps other counselors, in training or in practice, would report different reactions. Maybe psychology, social work, or marriage and family therapy students would perceive the AI differently.

Future research could investigate these populations. Another factor that limits the generalizability of our findings is the lack of accounting for cultural factors. While people of different races and ethnicities were included in our study, we did not inquire about what cultural factors may have influenced their responses to our questions.

Implications

Negative effects of the pandemic noted by previous research (e.g., anxiety, depression, and isolation; Aknin et al., 2022) were also observed in the current study. This suggests that the effects of the pandemic could be somewhat universal. The experiences of negative effects were especially interesting since the current sample was online graduate students who spend relatively more time in a digital world and whose education was relatively unchanged. Despite these contextual factors, the negative effects and isolation continued to be a common experience. This could indicate that the impact of physical isolation was not fully abated by the digital connections in their graduate program. Although not fully eliminating the negative effects, the results of the current study support the idea that AI chatbots can add another element of connection and availability, even in times

when physical isolation occur (Dosocitsky & Bunge, 2021).

Our findings are consistent with similar research overall, but without comparison in a sense because no counselors-in-training had previously been studied to assess their viewpoints about using an AI. Some research indicates that psychology students are more apt to use AI if they perceive the AI as useful and easy to use (Gado et al., 2021). An area of as of yet unexplored research involves inquiry into how counselors, clinical and counseling psychologists, and other clinicians fare when using an AI for their own mental health support. The collective results of the current and future studies may carry implications for counselor self-care strategies.

Conclusion

Our study provided insight into the potential for AI chatbots to offer mental health support during global crises like the COVID-19 pandemic, and further, for potential mental health support beyond the pandemic. Our findings align with prior literature showing increased anxiety, depression, and isolation during COVID-19 lockdowns and quarantines. Nearly all participants reported Tess, an AI chatbot, helped alleviate these issues to an extent, by providing information, constant availability, connection, and emotional outlet. However, limitations were noted regarding Tess's emotional skills, conversational abilities, timing, and scripted responses. Despite limitations, most participants saw therapeutic potential for chatbots with certain populations, though some expressed reservations around replacing human therapists.

Our results suggest AI chatbots may effectively expand access to mental health support if used appropriately. Even basic chatbots seem capable of providing some utility. However, improved emotional and conversational capabilities would maximize benefits. Our study indicates that first-hand experience with chatbots may improve openness among student therapists versus speculation alone. Our findings emphasize the need to consider ethical issues and populations most suited to chatbot support. Overall, AI chatbots demonstrate promise as a beneficial tool for supporting mental health, particularly during global crises, ideally in conjunction with human practitioners. AI chatbots seem to be a useful instrument for helping to address anxiety, depression, and other mental health issues. Future researchers should explore optimal crisis response strategies combining human and AI support. Through continuous advancement, influenced by client

viewpoints and clinical understanding, AI chatbots
have the potential to effectively enhance the
accessibility of mental healthcare during critical
community needs.

Disclosure statement

Russell Fulmer is a member of the X2AI ethics committee. Note that since the study was carried out, Tess has been updated and rebranded to "Cass.

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