

A Literature Review of Exploring the Role of AI Chatbots in Psychotherapy: Applications, Advantages, Disadvantages, and AI-assisted Approaches

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Introduction

With the growing prevalence of mental health disorders, there is a need for more accessible and efficient treatment methods. In recent years, there has been an emerging interest in using artificial intelligence (AI) chatbot technology in mental health care. AI chatbots are computer programs that use natural language processing and machine learning algorithms to simulate human conversations. These technologies offer a potentially cost-effective and scalable way to provide support and self-care tools for individuals struggling with anxiety, depression, and other emotional problems. However, there are concerns about the potential limitations and risks of relying on AI chatbot tools for mental health care, particularly regarding human connection and the potential for bias in decision-making.

This literature review explores the current knowledge on using AI chatbots in mental health care, including their self-care features, potential benefits, limitations, and ethical considerations. Several studies have reviewed the use of mobile chatbot apps for anxiety and depression and their self-care features (Ahmed et al., 2021). These apps have gained popularity due to their low-cost, real-time, and efficient nature. The review highlights the potential benefits and limitations of mobile chatbot apps for anxiety and depression and underscores the importance of involving mental health professionals in their development and implementation. Moreover, recent studies have highlighted the potential benefits of incorporating AI chatbots in psychotherapy. For instance, a systematic review found that using artificial intelligence to enhance ongoing psychological interventions for emotional problems in real or close to real-time could improve the efficiency of psychotherapy and increase its effectiveness (Gual-montolio et al., 2022). While AI-assisted psychotherapy has the potential to improve access to mental health

care and increase the efficiency of service delivery, there are concerns about the risk associated with AI-assisted therapy, including a third-wheel effect (Triberti et al., 2020). They argue that introducing AI chatbots in psychotherapy may create a power dynamic between the chatbot, counselor, and client, potentially leading to a loss of counselors' credibility. Additionally, studies have shown that AI chatbots cannot replace human interactions in pursuing more inclusive mental healthcare (Brown & Halpern, 2021). The outstanding problem with AI chatbots is the absence or at least unclear transference (Holohan et al., 2021). Miner et al. (2019) also identified critical considerations for incorporating conversational AI in psychotherapy, including the importance of maintaining the therapeutic alliance, privacy and security concerns, and the need for ongoing assessment and evaluation. Finally, Hagstrom and Maranzan (2019) discussed the challenges of bridging the gap between technological advances and professional psychology training. They suggest that future training programs should include technology-specific courses to prepare mental health professionals for the integration of AI chatbots in psychotherapy.

Therefore, this literature review aims to review AI Chatbot Apps on the market, explore the advantages and disadvantages of implementing AI chatbots in psychotherapy, identify critical considerations for AI-assisted psychotherapy, and address the existing gaps in the literature. Given the mixed evidence on the effectiveness of AI chatbots in psychotherapy and the concerns raised by experts, it is essential to know counselors' attitudes toward using AI chatbots. Ultimately, this review aims to propose a quantitative study that investigates the impact of counselors' attitudes on AI-assisted psychotherapy outcomes.

Psychotherapy AI Chatbot Apps Reviews

Ahmed et al. (2021) provided a comprehensive review of the existing mobile chatbot apps for anxiety and depression, which highlighted the potential benefits and limitations of these

apps. The authors pointed out that out of 1000 apps initially searched, only 11 chatbots aimed to substitute human-human interaction with a clear therapeutic goal. In other words, the rest of the apps on the market lacked evidence-based sources, which affected their credibility and effectiveness. This highlights the need for further research on the efficacy of these apps, as well as the importance of involving mental health professionals in their development.

On the other hand, these evidence-based 11 apps were approved of high quality, based on the assessment of mHONcode principles, and were popular with many downloads. For these apps, the authors noted that most of the apps reviewed in their study used a cognitive-behavioral therapy (CBT) approach, a well-established therapeutic modality for treating anxiety and depression. Other apps also integrate other therapeutic approaches, such as mindfulness and positive psychology, which can help promote well-being and reduce stress. The author mentioned that these apps provided an accessible and convenient way for individuals to receive support and guidance for anxiety and depression. There was 24/7 availability and immediate support in times of distress. One key strength of the apps was that they offered a sense of anonymity and privacy for individuals who may feel uncomfortable seeking help in traditional settings. Another key strength of the apps reviewed by Ahmed et al. (2021) was their inclusion of self-care features. These features, such as journaling, mood tracking, and relaxation exercises, can help promote mental health and well-being.

Advantages and Disadvantages of Implementing AI Chatbots in Psychotherapy

In addition to the review of various apps on the market, Gual-montolio et al. (2022) discussed similar advantages of AI chatbots in assisting psychotherapy. They emphasized the real-time support benefits of incorporating AI chatbots in practice. Their systematic review suggests that AI has the potential to enhance ongoing psychological interventions by providing

patients with personalized automated feedback and guidance in real- or close to real-time. AI can potentially strengthen ongoing psychological interventions by providing rapid personalized feedback and improving patient response. In the past, AI has mainly been used to retrospectively evaluate large amounts of data after psychological interventions have concluded. However, AI could tailor psychotherapy to the patient's needs during the therapeutic process by identifying which psychological and ecological momentary interventions work best for specific patients in real-time or close to it.

Another advantage of AI chatbots is that they can provide a low-cost and scalable alternative to traditional therapy. As noted by Miner et al. (2019), conversational AI has the potential “to help address insufficient clinician availability” and bridge the tension in care delivery (p. 3). Compared to human clinicians, conversational AI is less limited by time and attention, which makes it an appealing alternative for delivering care. By being practical and acceptable to both patients and clinicians, conversational AI may help overcome existing challenges in mental health access, such as reaching rural populations and individuals who feel stigmatized by traditional talk therapy. If conversational AI can maintain a therapeutic alliance, it has the potential to expand the provision of psychotherapy beyond the limitations of human clinicians' time and attention. By delegating repetitive and time-consuming tasks to conversational AI, clinicians can utilize their awareness and expertise more efficiently. This can decrease burnout by reducing the amount of monotonous work, which can have a detrimental impact on job satisfaction. Moreover, computational psychotherapy analysis allows researchers and companies to identify patterns in patient symptomatology and therapist intervention, potentially improving psychotherapy quality by better understanding effective clinician practices. This is an improvement over self-reporting or time-consuming human audits.

Overall, the advantages of AI chatbots in psychotherapy are clear. However, it is crucial to consider the potential risks and limitations, as well as the potential impact on the therapeutic relationship between clients and counselors. For example, although conversational AI for mental health could potentially serve as an assistant to reduce the burn-out time of clinicians and improve the clinician-patient relationship, there are risks related to privacy, bias, coercion, liability, and data sharing that could harm patients in expected and unexpected ways (Miner et al. 2019).

In addition, there is a risk of over-reliance on technology, leading to a lack of human interaction and emotional support (Brown & Halpern, 2021). This may result in clients feeling isolated and disconnected from their therapist, leading to a lack of motivation and engagement in treatment. Moreover, AI chatbots may not be able to provide the same level of personalized care and empathy as human therapists, potentially hindering the therapeutic process (Brown & Halpern, 2021). Furthermore, there is a risk of a third-wheel effect in health decision-making involving artificial entities, where individuals may defer decision-making to the chatbot instead of their healthcare provider (Triberti et al., 2020).

Another significant limitation that should not be overlooked is the unclear or even lack of transference in using AI chatbots for psychotherapy (Holohan & Fiske, 2021). Transference refers to the unconscious process of projecting feelings and emotions onto the therapist based on past experiences. Without a human therapist present, clients may not be able to develop the same level of transference, which could impact the therapeutic relationship and outcomes.

Considerations for AI-assisted Psychotherapy

While there are advantages and disadvantages to incorporating AI chatbots in psychotherapy, it is essential to acknowledge that AI chatbots cannot replace human interaction

in mental healthcare (Brown & Halpern, 2021). Instead, it should be seen as a complementary tool that can enhance the work of mental health professionals, providing them with additional resources and support to serve their patients better. Therefore, the key to AI-assisted psychotherapy is to combine AI technology's power with mental health professionals' expertise. The following are vital considerations to ensure that AI-assisted psychotherapy is practical and ethical.

Despite highlighting the preliminary evidence supporting the use of AI in psychotherapy to provide rapid and personalized feedback and guidance to patients during ongoing psychological interventions, Gual-montolio et al. (2022) noted the need to conduct more methodologically robust studies that take into account the heterogeneity of sample sizes, measures used, and methodologies implemented. These studies should also focus on external validation and generalizability of the results, as well as clearly distinguish between the types of AI used (human-like AI and calculator AI) and their effectiveness. It is also essential to determine the optimal use of AI-based programs to rapidly and efficiently detect patient symptomatology changes and adapt treatments to their needs. Conducting these studies could help lay the foundation to integrate AI into psychotherapy.

While conversational AI has clear potential benefits for psychotherapy, such as reducing the societal burden of treating mental health and providing patients with a long-term relationship with the AI "clinician", there are also risks associated with its use. These risks include concerns around privacy, bias, coercion, liability, and data sharing, which could potentially harm patients in both expected and unexpected ways (Miner et al. 2019). Therefore, it is crucial to ensure that conversations delivered by AI are safe and effective for both patients and clinicians, regardless of whether they are conducted by a human or an AI agent.

In addition, it is crucial to consider workflow changes and other demands on clinician time and training before implementing AI-assisted psychotherapy (Miner et al. 2019). In addition to clinicians being familiar with various technologies such as telehealth, social media, and mobile health, they will also be expected to learn the process behind AI-assisted therapy; having this knowledge is important because it can help clinicians better adapt the tool to improve their patients' treatments. Without thoughtful design and training, it is unrealistic to expect medical professionals to intuit or work in harmony with new technology, just as we cannot expect technology companies to quickly understand healthcare.

Furthermore, Hagstrom and Maranzan (2019) highlighted the importance of bridging the gap between technological advances and professional psychology training. They discussed the need for psychologists to adapt to new technologies and incorporate them into their practice while also focusing on the core values of psychology, including empathy, compassion, and the therapeutic relationship. The study found that most academic and internship training programs did not provide training in technology for delivering mental health care. The directors of these programs overwhelmingly replied "no" when asked if students were trained in using technology to provide mental health care. This evidenced the need to bridge the gap between technological advances and professional psychology training so that future psychologists can adequately integrate technology into their practice.

Conclusion

The articles discussed that AI-assisted psychotherapy is a complementary tool that can enhance mental health professionals' work but cannot replace human interaction. Research shows preliminary evidence supporting AI-assisted psychotherapy's potential to provide rapid, personalized feedback during ongoing psychological interventions, reducing symptomatology

and improving engagement. However, there is a gap between technological advances and professional psychology training that needs to be bridged to ensure future psychologists are prepared to integrate technology into their practice. Before introducing any new technology into clinical care, it is crucial to engage clinicians in the process and design evaluation strategies that consider their skills, attitudes, and knowledge.

Therefore, it is necessary to first examine counselors' perspectives on integrating AI chatbots, as their opinions may influence the outcomes of AI-assisted psychotherapy. Counselors may have varying perspectives on the use of AI chatbots in psychotherapy. While some counselors may view AI chatbots as a valuable tool to reduce burnout and improve the clinician-patient relationship, others may have concerns about the quality of care, ethical implications, and impact on the therapeutic relationship. Therefore, it is crucial to investigate counselors' attitudes toward AI chatbots in psychotherapy and understand how to address any expectations or concerns they may have through a qualitative study. In addition, quantitative research on counselors' attitudes toward using AI chatbots impacting the outcomes of AI-assisted psychotherapy will help narrow the gap between technological advances and professional psychology training by informing the development of training programs that consider the perspectives and opinions of counselors.

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