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Overcoming the Potential Drawbacks of Artificial Intelligence in Psychotherapy: Literature Updates

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Abstract

Artificial Intelligence (AI) has progressively impacted healthcare around the world. The increasing need for readily available mental health services, coupled with the swift advancement of novel technologies, prompts conversations over the viability of psychotherapy approaches using engagements with AI. Despite the positive impacts, there are recognizable drawbacks associated with the application of AI in psychotherapy. Establishing a therapeutic alliance is difficult for non-human entities. Psychotherapy is a task too complex for limited artificial intelligence. AI appears capable of handling jobs that are clearly defined and relatively straightforward. Besides, AI malfunctions, data confidentiality, informed consent, and risk of bias are potential concerns. We present a literature update of possible solutions to overcome these concerns.

Keywords

Artificial, Drawbacks, Intelligence, Overcoming, Psychotherapy

1. Introduction

The increasing prevalence of mental illnesses continues to remain, arguably the most concerning challenge of global health [1]. There is an urgent need to address these problems. Since the introduction of artificial intelligence (AI), it has positively impacted many aspects of healthcare delivery [2]. Currently, it proffers assistance during psychotherapy to people with mental illness [2]. As applications of AI expand, literature on the frequency of mental health and AI publications has grown over the past few years [3].

Users must be aware of any technology's risks and limits. Any psychiatrist who practices can discuss the biopsychosocial paradigm that underlies all mental health difficulties, given that mental disorders are complex and diverse in origin. Psychiatric illnesses are difficult to diagnose objectively with numerical data [4].

Also, reflecting on both past and present trends, it is evident that AI significantly influences psychotherapy. AI is expected to bridge the supply-demand gap and help manage the rising prevalence of mental health issues [3]. The use of AI in treating mental distress is transforming clinical psychiatry, questioning established beliefs, and raising ethical concerns about its effects on psychotherapy, patients, and therapists [5] [6]. In applying AI in mental health chatbots, they are designed to simulate interaction with a human in real-time, like one-on-one human conversation.

These advancements in AI bring us to this era of the most significant revolution in healthcare [7]. As AI applications progress, we must not fail to recognize and address their limitations. Currently, clinicians appreciate the need for advanced knowledge not only in applying new technologies but also in the limitations [8]. A knowledge of overcoming limitations of nascent technology like AI is imperative in recent clinical practice.

This paper reviews the literature on the potential drawbacks of AI in psychotherapy and proffers solutions.

2. Methods

We conducted an electronic search of PubMed, Google, and Google Scholar for peer-reviewed, English-language articles published up until March 2024. Preliminary keyword searches included combinations of "Artificial intelligence", "drawbacks", "overcoming", and "psychotherapy".

3. Results

Of 95 identified articles on AI. We selected 10 articles that discussed the applications of AI in psychotherapy. The focus was on the benefits, drawbacks and possible solutions of the drawbacks.

3.1. Benefits of AI on Psychotherapy

AI-based therapy has been shown to improve accessibility to mental health services. It breaks barriers like geographic limitations, scheduling conflicts, or the

stigma of seeking help. Hence, individuals facing such barriers can access care [9]. It has continued to expand digitization of healthcare, facilitating more access to mental health professionals [9].

AI-based therapy addresses the increasing demand for numerical strength of mental health professionals [10]. Like any technology, the traditional concept is a machine doing the duty of a human being. While reliable, traditional diagnostic methods in psychiatry, like clinical interviews and patient questionnaires, are being done by psychiatrists, these can be time-consuming. AI-based therapy offers precise and streamlined data collection. It offers additional advantages of cost-effective solutions by decreasing the financial resources allocated to mental health services [11].

AI-powered interventions, such as chatbots or avatars, offer convenient therapy options that primarily benefit those in poor resource locales. These interventions extend mental health care to individuals in remote or rural regions with limited on-site services. Additionally, AI applications can fill gaps for individuals in higher-income countries who lack insurance coverage for therapy or prefer private, low-threshold interventions [12]. These AI tools could serve as supplementary support or an initial step towards seeking traditional clinical interventions in the future [12].

3.2. Drawbacks of AI on Psychotherapy

Ethics: Incorporating AI chatbots and apps into psychotherapy affects ethical issues like autonomy, beneficence, non-maleficence, and justice and profoundly alters the trust and relational dynamics between patients and therapists [7]. AI chatbots and apps might appeal to only some of the patients. Furthermore, they are not currently regulated by professional boards [13].

Malfunction: AI applications in psychotherapy raise concerns regarding malfunction within therapeutic interactions. This includes the possibility of chatbots and avatars experiencing technical issues [14]. Also, given the persistent concerns surrounding "technology addiction" associated with video games and social media, patients and providers might encounter issues relating to unhealthy usage in the future [15].

Data and Confidentiality Issues: AI systems in psychiatry often require extensive data for training and validation, which is typically sensitive. Ensuring the privacy and confidentiality of this data is crucial, as any breaches could have severe consequences for patients [16]. Additionally, concerns about data security and breaches arise, along with worries about health information privacy in healthcare. There is also the risk of potential tracking and misuse by third parties.

Informed Consent: Integrating AI in patient care prompts inquiries into informed consent. Patients require a comprehensive understanding of the utilization of AI in their treatment, including awareness of potential risks, benefits, and alternatives [17]. This poses a significant challenge due to the intricate nature of AI systems and the complexity involved in explaining their functionality in a

manner that patients can fully grasp [18].

Risk of Bias: AI systems have the potential to exhibit bias, reflecting biases present in the data used during training. This can result in unfair treatment or outcomes for specific patients. The applications of AI systems to health care have shown the developers that the systems they are building do not always reflect their values [19]. Engineers have discovered that AI algorithms deployed in different contexts often produce decisions biased against specific demographics such as genders, races, ages, and ethnicities despite not being intended to do so [19].

Simple task: AI appears capable of handling clearly defined and relatively straightforward jobs. Meanwhile, psychotherapy is a complex task that requires time, concentration, and adequate cooperation.

3.3. Proffered Solutions

Patients require a comprehensive understanding of how AI can be utilized in their treatment, including awareness of potential risks, benefits, and alternatives. Patients must also be informed about who is responsible for decisions made with AI assistance. AI-based therapy should provide a well-validated supplement to clinical care while still being under the supervision of the relevant clinical expert [20]. This way, the therapeutic alliance must have been achieved.

The development of chatbots and apps requires ethical evaluation based on conformity with our *prima facie* ethical principles [21]. In addition to complying with existing law, the individuals and cooperate bodies responsible for designing and deploying these AI-based technologies must meet specifications on non-maleficence, beneficence, autonomy, justice, and explicability [21]. Professional boards should be involved in regulating chatbots and apps.

In terms of safety and malfunction, there is a need to debate whether AI devices, such as virtual agents and freely available mental health apps, should undergo similar rigorous risk assessment and regulatory oversight as other medical devices before being approved for clinical use [22].

Data breaches demand concerted efforts for protection while applying AI-based psychotherapy. While data collection continues to expand, especially with applications integrating video data, specific privacy protections will be essential to safeguard individuals' sensitive information beyond the consenting patient [7].

The risk of bias can be reduced after the data is gathered. Before creating the model, pre-processing techniques are used on the data to transform characteristics and labels to eliminate fundamental disparities across groups. To guarantee equitable treatment for every sample, model in-processing strategies are employed to alter the algorithm's training procedure. Post-processing adjusts the AI model's results to guarantee that judgments are correct and comparable throughout groups [23].

4. Conclusions

AI is a rapidly developing technological revolution, and we need to respond

quickly to its opportunities and risks. While AI aims to enhance clinical care with well-validated technology, supervision, and oversight by individuals with the requisite medical knowledge deliver evidence-based, equitable care.

Even though AI appears capable of handling clearly defined and relatively straightforward jobs, we wait for the introduction of artificial general intelligence (AGI). AGI can apply its intelligence to a virtually unrestricted range of tasks and environments, including new ones [24].

Conflicts of Interest

The authors affirm that they do not have any financial affiliations presently or within the preceding three years with any organizations that could potentially influence the submitted work. They further assert that no other associations or engagements might give rise to perceived influences on the submitted work. The authors confirm the absence of any conflicts of interest. All authors provide their consent for the publication of this manuscript.

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