Ethical Consideration and Sociological Challenges in the Integration of Artificial Intelligence in Mental Health Services

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Abstract

This article explores the transformative potential of artificial intelligence (AI) in the field of mental health, with a particular focus on ethical considerations and social challenges. As AI tools become increasingly sophisticated, their ability to support mental health interventions presents both opportunities and challenges. We discuss the importance of a human-centered approach to AI development and the need for comprehensive ethical guidelines to ensure patient safety and well-being. In addition, this paper explores key social trends such as the evolving dynamics of modern[*] families, aging population, migration and considers how AI can be integrated into these contexts to improve mental health care.

Keywords:

Artificial Intelligence, Mental Health, Human-Centered Approach, Ethics, Modern Family Dynamics, Aging Populations, Migration

1   Introduction

1.1   Artificial intelligence in mental health services

Research on the application of AI in mental health care has shown some positive effects on the treatment of mental health problems [1], including early detection [2,3], providing feedback and personalized treatment plans [4], and developing of novel diagnose tools [2].

AI in mental health services is implemented through models like chatbots, digital platforms, and avatar therapy, enhancing accessibility and treatment options. Chatbots provide therapy via natural language processing [5], while digital platforms support online mostly cognitive behavioral therapeutic interventions [6]. Avatar therapy uses AI to help patients manage conditions like dementia, autism spectrum disorder, and schizophrenia [7].

1.2   The Prospect of artificial intelligence in mental health services

The future orientation underlines the importance of digital health in overcoming challenges such as limited access to services, especially in underserved regions, and outlines measures to ensure equitable access to digital health solutions across the European region [8]. The use of AI in mental health services raises questions about the role of non-human interventions, transparency in the use of algorithms and the long-term impact on the understanding of illness and the human condition [9]. There are also concerns about potential bias, gaps in ethical and legal frameworks, and the possibility of misuse [10,11].

However, there are at least two potentially positive effects of the use of AI in healthcare: Accessibility and personalization of services.

AI offers new mechanisms to reach those who might not otherwise be served. AI-supported tools can improve the early detection and diagnosis of mental disorders [12]. AI chatbots have shown promise in increasing referrals to mental health services, especially for minority groups who are blocked from accessing traditional care [13]. These technologies can provide initial assessments, psychoeducation and even treatment, expanding access to mental health support [12]. AI-driven virtual assistants

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and wearable devices enable continuous monitoring and personalized care, which could improve patient outcomes [11,14].

The integration of artificial intelligence into mental health services represents a promising avenue for the development of personalized treatment plans through the sophisticated analysis of large datasets, enabling the identification of optimal therapeutic strategies tailored to specific client profiles [15,16]. This data-driven methodology enables the dynamic adaptation of therapy to the evolving needs of the client.

2 Overcoming Sociological Challenges through the Integration of Artificial Intelligence in Mental Health Services

2.1 Modern Family Dynamics

Modern family trends show that family structures and attitudes have changed significantly in recent decades [17]. There is a growing acceptance of different family forms, including unmarried cohabitation, same-sex relationships and joint custody arrangements [18]. These changes reflect an expansion of developmental idealism and increasing support for individual freedom in family choice [17].

On the other hand, there is a growing need for mental health services for families [19]. As the most vulnerable members of the family - the children - are usually also at risk, quick and effective action in family mental health is of great importance. Many families are struggling with various psychological problems. Together with the changing family structure, this means a great burden for every family member. In addition, access to psychologists, psychiatrics and therapists is limited, leading to an acute shortage of mental health professionals worldwide.

The accessibility of services is probably the strongest argument for the integration of AI in healthcare [12]. AI-powered conversational agents can improve the accessibility of mental health services by being available online at all times and in underserved areas, being scalable, reliable, fatigue-free, and providing consistent support, being culturally sensitive to adapt, and helping with education and symptom management.

2.2 Aging Populations

AI offers promising solutions for supporting an aging population, particularly in addressing cognitive decline and mental health challenges. AI applications can monitor vital signs, health indicators, and cognition, as well as provide support for daily activities [20]. With an increasing number of elderly individuals, AI can support mental health care by providing companionship through intelligent animal-like robots (e.g., Paro, Harp seal) and assisting in monitoring and managing conditions like dementia [21,22]. AI can also help in tracking cognitive health and providing timely interventions to maintain mental well-being in older adults. These technologies have the potential to enhance independent living and quality of life for older adults and their families.

2.3 Migration

Migrants often face mental health challenges due to displacement, cultural adjustment and language barriers. AI can help migrants access mental health services by providing culturally and linguistically relevant resources and support. Chatbots and AI-driven platforms can bridge gaps in care by providing immediate help and continuity of care across different regions [23].

Recent research highlights the increasing role of digitalization and artificial intelligence (AI) in migration and mobility systems, especially in the context of the COVID-19 pandemic [24]. While these technologies offer opportunities for improving human rights and supporting international development, they also bring challenges that require careful consideration of design, development and implementation aspects. The integration of AI into migration processes requires a focus on human rights at all stages that goes beyond technical feasibility and companies' claims of inclusivity [24].

3 Ethical Consideration in the Integration of Artificial Intelligence in Mental Health Services

One of the main caveats to the use of AI in mental health is the introduction of new ethical standards to ensure user safety. The approach to integrating AI into services should therefore be human-centered [25]. Any innovation should

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therefore focus on people in their most vulnerable position. It is important to assess all risks with sufficient accuracy and avoid misuse of AI as much as possible. The most important areas for ethical consideration when integrating AI into mental health services should be privacy, bias, transparency, security.

Data privacy and security are critical in digital healthcare and require robust measures to protect sensitive information and prevent unauthorized access. Protecting privacy rights and ensuring informed consent are critical to maintaining trust and ethical standards in the use of personal health data [11]. Combining multiple data streams increases the risk of unauthorized use, which exacerbates privacy issues. Ensuring informed consent and maintaining transparency, especially in emergency operations, are critical to addressing these ethical concerns and protecting the rights of participants [26].

The use of AI in mental health treatment raises ethical concerns about bias, particularly among marginalized populations who are already discriminated against and lack access to mental health care. It is uncertain whether AI-assisted psychotherapy can effectively address cultural differences and close treatment gaps in diverse populations [27]. In addition, populations that are traditionally marginalized in fields such as psychology and psychiatry are most vulnerable to algorithmic biases in AI and machine learning [27,28]. These biases limit the ability of AI to provide culturally and linguistically appropriate mental health resources, exacerbating existing inequalities. The persistence of such biases in AI systems not only risks increasing health inequalities, but also exacerbates existing social inequalities and raises critical ethical considerations [9].

The future of artificial intelligence in clinical settings is affected by a significant ethical dilemma concerning the trade-off between the performance and interpretability of machine learning models [29]. The lack of transparency in AI models makes it difficult to detect and correct biases. This underscores the need for greater transparency to ensure ethical and fair clinical decision-making.

In summary, the integration of AI into mental health services requires the establishment of strict ethical standards to protect the safety and privacy of users. A human-centered approach is essential, with a focus on dealing with potential bias, especially among marginalized groups, the risks associated with data privacy and security, and the challenges posed by the lack of transparency of AI models.

4   Conclusion

We propose to define AI as a new ethical entity in the field of mental health [30]. AI represents a novel artifact that changes interactions, concepts, epistemic fields and normative requirements. This change requires a redefinition of the role of AI, which lies on a spectrum between a tool and an agent. This shift underscores the need for new ethical standards and guidelines that recognize the unique status of AI as a distinct and influential actor in the field of mental health.

The integration of AI into services can, on the one hand, provide more efficient and faster solutions to some of the sociological challenges of today's society, but on the other hand, requires a precise and correct definition of the limits within which these models can be used. These efforts aim to bridge the gap between technology and human-centered care and ensure that AI complements, rather than replaces, the therapeutic benefits of human interaction.

Literature

[1] Sandhya Bhatt. 2024. Digital Mental Health: Role of Artificial Intelligence in Psychotherapy. *Annals of Neurosciences*, 0,0, 1-11. doi:10.1177/09727531231221612

[2] Sijia Zhou, Jingping Zhao and Lulu Zhang. 2022. Application of Artificial Intelligence on Psychological Interventions and Diagnosis: An Overview. *Frontiers in Psychiatry*, 13(March), 1–7. https://doi.org/10.3389/fpsyt.2022.811665

[3] Klaudia Kister, Jakub Laskowski, Agata Makarewicz and Jakub Tarkowski. 2023. Application of artificial intelligence tools in diagnosis and treatmentof mental disorders. *Current Problems of Psychiatry*, 24, 1–18. https://doi.org/10.12923/2353-8627/2023-0001

[4] Rachel L. Horn and John R. Weisz. 2020. Can Artificial Intelligence Improve Psychotherapy Research and Practice? *Administration and Policy in Mental Health and Mental Health Services Research*, 47, 5, 852–855. https://doi.org/10.1007/s10488-020-01056-9

[5] Kerstin Denecke, Alaa Abd-alrazaq and Mowafa Househ. 2021. Artificial Intelligence for Chatbots in Mental Health: Opportunities and Challenges. In: Househ, M., Borycki, E., Kushniruk, A. (eds) *Multiple Perspectives on Artificial Intelligence in Healthcare*. 115–128. https://doi.org/10.1007/978-3-030-67303-1_10

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[6] Elias Aboujaoude, Lina Gega, Michelle B. Parish and Donald M. Hilty. 2020. Editorial: Digital Interventions in Mental Health: Current Status and Future Directions. *Front. Psychiatry* 11, 111. doi: 10.3389/fpsyt.2020.00111

[7] Kay T. Pham, Amir Nabizadeh & Salih Selek. 2022. Artificial Intelligence and Chatbots in Psychiatry. *Psychiatric Quarterly*, 93, 1, 249–253. https://doi.org/10.1007/s11126-022-09973-8

[8] WHO. 2022. Regional digital health action plan for the WHO European Region 2023–2030 (RC72). (July 2022). Retrieved August 20, 2024 from https://www.who.int/europe/publications/i/item/EUR-RC72-5

[9] Amelia Fiske, Peter Henningsen and Alena Buyx. 2019. Your Robot Therapist Will See You Now: Ethical Implications of Embodied Artificial Intelligence in Psychiatry, Psychology, and Psychotherapy. *Journal of Medical Internet Research*, 21, 5, e13216. https://doi.org/10.2196/13216

[10] Elizabeth C. Stade, Shannon Wiltsey Stirman, Lyle Ungar, Cody L. Boland,H. Andrew Schwartz, David B. Yaden, Joao Sedoc, Robert J. DeRubeis, Robb Willer and Johannes C. Eichstaedt. 2024. Large Language Models Could Change the Future of Behavioral Healthcare: A Proposal for Responsible Development and Evaluation. *Mental Health Res* 3, 12. https://doi.org/10.1038/s44184-024-00056-z

[11] David B. Olawade, Ojima Z. Wada, Aderonke Odetayo, Aanuoluwapo Clement David-olawade, Fiyinfoluwa Asaolu and Judith Eberhardt. 2024. Enhancing mental health with Artificial Intelligence: Current trends and future prospects. *Journal of Medicine, Surgery, and Public Health*, 3, 100099. https://doi.org/10.1016/j.glmedi.2024.100099

[12] Koki Shimada. 2023. The Role of Artificial Intelligence in Mental Health: A Review. *Science Insights* 43, 5, 1119-1127. doi:10.15354/si.23.re820

[13] Max Rollwage, Johanna Habicht, Keno Juechems, Ben Carrington, Sruthi Viswanathan, Mona Stylianou, Tobias U. Hauser and Ross Harper. 2023. Using Conversational AI to Facilitate Mental Health Assessments and Improve Clinical Efficiency Within Psychotherapy Services: Real-World Observational Study. *JMIR AI*, 2, e44358. https://doi.org/10.2196/44358

[14] David D. Luxton. 2020. Ethical implications of conversational agents in global public health. *Bulletin of the World Health Organization*, 98, 4, 285–287. https://doi.org/10.2471/BLT.19.237636

[15] Leonard.Bickman. 2020. Improving Mental Health Services: A 50-Year Journey from Randomized Experiments to Artificial Intelligence and Precision Mental Health. *Adm Policy Ment Health*, 47, 795–843. https://doi.org/10.1007/s10488-020-01065-8

[16] Silvan Hornstein, Valerie Forman-Hoffman, Albert Nazander, Kristian Ranta and Kevin Hilbert. 2021. Predicting therapy outcome in a digital mental health intervention for depression and anxiety: A machine learning approach. *DIGITAL HEALTH*, 7, 1-11. doi:10.1177/20552076211060659

[17] Josef Ehmer. 2021. A historical perspective on family change in Europe. In Norbert F. Schneider and Michaela Kreyenfeld (eds). *Research Handbook on the Sociology of the Family,* 143–161. https://doi.org/10.4337/9781788975544.00018

[18] Keera Allendorf, Linda Young-Demarco and Arland Thornton. 2023. Developmental Idealism and a Half-Century of Family Attitude Trends in the United States. *Sociology of Development*, 9, 1, 1–32. https://doi.org/10.1525/sod.2022.0003

[19] WHO. 2022. World mental health report: transforming mental health for all. (June 2022) Retrieved August 20, 2024 from https://www.who.int/publications/i/item/9789240049338.

[20] Sara J.Czaja and Marco Ceruso. 2022. The Promise of Artificial Intelligence in Supporting an Aging Population. *Journal of Cognitive Engineering and Decision Making*, 16, 4, 182–193. https://doi.org/10.1177/15553434221129914

[21] Maria R. Lima. 2024. Home Integration of Conversational Robots to Enhance Ageing and Dementia Care. *ACM/IEEE International Conference on Human-Robot Interaction*, 115–117. https://doi.org/10.1145/3610978.3638378

[22] Wendy Moyle. 2019. The promise of technology in the future of dementia care. *Nature Reviews Neurology*, 15, 6, 353–359. https://doi.org/10.1038/s41582-019-0188-y

[23] Zahra Abtahi, Miriam Potocky, Zarin Eizadyar, Shanna L. Burke, Nicole M. Fava. 2022. Digital Interventions for the Mental Health and Well-Being of International Migrants: A Systematic Review. *Research on Social Work Practice*, 33, 5, 518-529. Doi:10.1177/10497315221118854

[24] Marie McAuliffe, Jenna Blower and Ana Beduschi. 2021. Digitalization and artificial intelligence in migration and mobility: Transnational implications of the covid-19 pandemic. *Societies*, 11, 4, 135. https://doi.org/10.3390/soc11040135

[25] Luke Balcombe and Diego de Leo. 2022. Human-Computer Interaction in Digital Mental Health. *Informatics*, 9,1, 14. https://doi.org/10.3390/informatics9010014

[26] Nicholas C. Jacobson and Matthew D. Nemesure. 2021. Using Artificial Intelligence to Predict Change in Depression and Anxiety Symptoms in a Digital Intervention: Evidence from a Transdiagnostic Randomized Controlled Trial. *Psychiatry Research*, 295, 113618. https://doi.org/10.1016/J.PSYCHRES.2020.113618

[27] Bennett Knox, Pierce Christoffersen, Kalista Leggitt, Zeia Woodruff and Matthew H. Haber. 2023. Justice, Vulnerable Populations, and the Use of Conversational AI in Psychotherapy. *American Journal of Bioethics*, 23, 5, 48–50. https://doi.org/10.1080/15265161.2023.2191040

[28] Zoha Khawaja and Jean C. Bélisle-Pipon. 2023. Your robot therapist is not your therapist: understanding the role of AI-powered mental health chatbots. *Frontiers in Digital Health*, 5, 1278186. doi: 10.3389/fdgth.2023.1278186

[29] Danilo Bzdok and Andreas Meyer-Lindenberg,. 2018. Machine Learning for Precision Psychiatry: Opportunities and Challenges. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 3, 3, 223–230. https://doi.org/10.1016/J.BPSC.2017.11.007

[30] Jana Sedlakova and Manuel Trachsel. 2023. Conversational Artificial Intelligence in Psychotherapy: A New Therapeutic Tool or Agent? *American Journal of Bioethics*, 23, 5, 4–13. https://doi.org/10.1080/15265161.2022.2048739