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ROLE OF ARTIFICIAL INTELLIGENCE IN MENTAL HEALTH COUNSELLING SERVICES

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Abstract

The integration of artificial intelligence (AI) into mental health counselling services is transforming the landscape of psychological care, offering innovative solutions to longstanding challenges such as accessibility, scalability, and individualized treatment. AI technologies are increasingly being utilized for early detection and diagnosis of mental health conditions through the analysis of behavioural data, language patterns, and social media activity. Additionally, AI-driven tools such as chatbot-based virtual therapists provide immediate, around-the-clock support rooted in evidence-based therapeutic approaches like cognitive-behavioural therapy (CBT). These tools can supplement traditional therapy by serving as supportive instruments rather than replacements for human counsellors, particularly in handling routine check-ins, screening, and continuous monitoring of clients' emotional states. Furthermore, AI can help expand access to care in underserved communities, where mental health professionals are scarce, by offering mobile and web-based platforms that bridge geographic and socioeconomic barriers. However, for these benefits to be fully realized, strong ethical frameworks must be established to ensure data privacy, informed consent, and responsible use of sensitive mental health information. It is also essential to address algorithmic bias by training AI systems on diverse and inclusive datasets to ensure fairness and cultural sensitivity in service delivery. Despite these advancements, concerns remain regarding the potential reduction of human empathy in therapy and the limitations of AI in handling complex emotional and psychological conditions. Therefore, continuous collaboration between mental health professionals and technology developers is necessary to ensure that AI tools are clinically effective, ethically sound, and aligned with established therapeutic practices. Human oversight remains crucial to maintain quality care and to guide the responsible integration of AI into counselling services. This paper critically examines the current applications, benefits, and limitations of AI in mental health counselling, and explores the future implications of integrating AI with traditional therapeutic models to support comprehensive, equitable, and ethical mental health care delivery.

Keywords: Artificial Intelligence, Mental Health, Counselling Services

Introduction

Mental health disorders represent one of the most pressing public health challenges of the 21st century. According to the World Health Organization (WHO, 2021), over 970 million people worldwide were living with a mental health disorder in 2019, including depression, anxiety,

bipolar disorder, and schizophrenia. The burden of these conditions has only intensified due to global crises such as the COVID-19 pandemic, economic instability, and climate-related stressors. Despite this growing need, access to mental health care remains severely limited in many parts of the world. The global shortage of trained mental health professionals, combined with widespread stigma and systemic inequities, continues to leave millions without the support they require. In low- and middle-income countries, it is estimated that up to 85% of people with mental disorders do not receive adequate treatment (WHO, 2021).

In response to this escalating crisis, the field of mental health care is undergoing a technological transformation. Among the most promising developments is the integration of artificial intelligence (AI) into counselling and therapeutic services (Luxton, 2016). AI refers to the simulation of human intelligence by machines, especially computer systems capable of learning, reasoning, and self-correction. Through applications such as machine learning, natural language processing (NLP), and speech and image recognition, AI systems can process and interpret vast quantities of data with remarkable speed and accuracy.

The relevance of AI in mental health stems from its potential to improve the quality, reach, and efficiency of mental health services. AI tools can analyze behavioural data and identify early signs of psychological distress, personalize treatment approaches based on individual patterns, provide consistent support through chatbot-based virtual therapists, and assist clinicians in making informed diagnostic and therapeutic decisions. These capabilities are particularly important in addressing the shortage of human resources in mental health care, where traditional therapeutic models struggle to scale with growing demand (Luxton, 2016). For instance, AI-enabled applications can serve as first points of contact for individuals hesitant to engage in face-to-face therapy due to stigma, privacy concerns, or lack of local providers.

Moreover, AI systems are being designed to function as both standalone tools and integrated support systems within broader care networks. Digital mental health platforms, augmented by AI algorithms, can offer 24/7 services, track emotional trends over time, and flag high-risk behaviours, thereby enabling more proactive and preventative approaches to care (Topol, 2019). Some programs utilize sentiment analysis in social media posts to detect suicidal ideation or depressive symptoms, while others employ predictive analytics to anticipate relapse in patients with chronic mental illnesses.

However, as with any disruptive technology, the integration of AI into mental health care raises critical questions that cannot be overlooked. Ethical concerns such as user privacy, data security, algorithmic bias, and the potential for depersonalized care are central to the discourse.

The therapeutic relationship, which traditionally hinges on empathy, trust, and human connection, may be challenged by the increasing presence of automated systems (Trokzed, et al, 2018). There is also concern about the over reliance on AI tools and the possibility that they might be used as substitutes, rather than supplements, to human clinicians. Additionally, the development and

training of AI systems require large, diverse datasets to avoid perpetuating social and racial biases—datasets that are often unavailable or non-representative.

Another major challenge is regulatory oversight. Mental health care is a highly sensitive domain, and the implementation of AI must be governed by rigorous ethical and legal standards to ensure safety, equity, and transparency (Topol, 2019). Questions around accountability in AI-assisted diagnosis or treatment, informed consent for data use, and the rights of users interacting with AI systems remain under debate. These challenges highlight the need for a multidisciplinary approach involving clinicians, technologists, ethicists, and policymakers to create AI tools that are both effective and ethically sound.

Despite these limitations, AI remains a powerful ally in the pursuit of more inclusive, efficient, and personalized mental health care. When designed and implemented responsibly, AI technologies can relieve overburdened systems, improve patient outcomes, and expand access to marginalized and remote populations. For instance, AI chatbots and mobile apps are already being used successfully in regions with scarce clinical resources, offering psychoeducation, crisis intervention, and emotional support (Fitzpatrick, et al, 2017). Moreover, AI has the potential to transform the way clinicians work by reducing administrative burdens, enhancing diagnostic precision, and providing decision support tools that integrate patient history, symptom tracking, and current evidence-based practices.

This paper explores the multifaceted role of AI in enhancing mental health counselling services. It begins by examining key applications of AI, including early detection, personalized treatment, and chatbot-based therapy. It then evaluates the benefits of these technologies in terms of scalability, consistency, and accessibility (Naslund et al, 2017). Following this, the paper addresses the ethical and practical challenges associated with AI in mental health care and considers how these concerns can be mitigated through responsible development and oversight. Also, the discussion turns toward the future of AI in mental health, outlining potential advancements, collaborative frameworks, and the importance of preserving human-centered care in an increasingly digital world.

Conceptual Clarifications

Concept of Artificial Intelligence (AI)

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are designed to perform tasks that typically require human cognition. These tasks include learning from experience, understanding natural language, recognizing patterns, solving problems, and making decisions. AI systems operate through algorithms and large datasets that allow them to

process information, identify relationships, and generate predictions or actions based on learned patterns (Russell & Norvig, 2021). In essence, AI enables machines to mimic aspects of human thinking, although they do not possess consciousness or emotions.

In modern computing, AI is a broad field that incorporates several advanced technologies. One major component is **Machine Learning (ML)**, which allows systems to learn from data and improve their performance over time without being explicitly programmed. Another key area is **Natural Language Processing (NLP)**, which enables machines to understand, interpret, and generate human language in a meaningful way. This technology is widely used in chatbots, virtual assistants, and text analysis tools. Additionally, **Deep Learning**, a subset of machine learning, uses neural networks modeled after the human brain to process complex data such as images, speech, and large-scale text inputs. These interconnected technologies form the foundation of most modern AI applications.

AI systems can be classified based on their capabilities and levels of intelligence. The most common classification includes **Narrow AI** and **General AI**. Narrow AI, also known as weak AI, is designed to perform a specific task or a limited set of functions. Examples include virtual assistants like Siri and Alexa, recommendation systems used by streaming platforms, and chatbots that provide automated customer or mental health support. These systems are highly efficient within their defined scope but cannot operate beyond their programmed functions. On the other hand, **General AI** refers to a theoretical form of AI that would possess human-like cognitive abilities across a wide range of tasks, including reasoning, learning, and problem-solving in unfamiliar situations. Unlike Narrow AI, General AI does not yet exist and remains a long-term goal of AI research.

The development of AI has significantly transformed various sectors, particularly healthcare. In medical settings, AI is used to support diagnosis by analyzing medical images, predicting disease risks, and identifying early warning signs of health conditions. It also plays an important role in treatment planning by assisting healthcare professionals in selecting appropriate interventions based on patient data. Furthermore, AI is widely used in patient monitoring systems, where wearable devices and mobile applications track vital signs such as heart rate, sleep patterns, and physical activity levels. This continuous monitoring allows for early detection of health issues and more personalized care.

Overall, Artificial Intelligence represents a powerful technological advancement that enhances human capabilities by improving efficiency, accuracy, and decision-making across different fields. Its growing role in healthcare and mental health services highlights its potential to support professionals in delivering better, faster, and more accessible care, while also raising important considerations regarding ethics, privacy, and responsible use.

AI in Mental Health

Artificial Intelligence (AI) in mental health refers to the application of intelligent computational systems to identify, analyse, and support individuals experiencing psychological

and emotional disorders such as depression, anxiety, stress, bipolar disorder, and post-traumatic distress. These AI systems are designed to assist mental health professionals by processing large

amounts of behavioural and emotional data to detect patterns that may indicate mental health challenges. By using advanced algorithms, AI can interpret complex human behaviours and provide insights that may not always be easily observable through traditional clinical methods (Shatte, Hutchinson & Teague, 2019).

AI in mental health operates by drawing data from multiple digital sources, including speech patterns, written text, facial expressions, wearable health devices, and social media interactions. These data sources are analysed using machine learning and natural language processing techniques to identify emotional states, mood changes, and behavioural trends. For example, subtle changes in language use or tone in text messages may indicate early signs of depression or anxiety. Similarly, wearable devices can track physiological indicators such as sleep patterns, heart rate variability, and physical activity levels, which are often linked to mental well-being.

One of the major applications of AI in mental health is the **early detection of depression and other mood disorders through social media analysis**. AI algorithms can scan user-generated content to detect negative emotional expressions, repetitive sad language, or withdrawal from social interaction, which may signal psychological distress. Another important application is **predictive modelling of suicide risk**, where AI systems analyse behavioural and linguistic patterns to identify individuals at high risk and alert healthcare providers for timely intervention.

In addition, AI is increasingly used for **emotion recognition through voice and facial expression analysis**. These systems can detect subtle emotional cues such as sadness, anger, or anxiety by examining speech tone, facial micro-expressions, and eye movement patterns. This technology is particularly useful in teletherapy and remote counselling sessions where physical observation is limited. Furthermore, **mental health chatbots and virtual assistants** provide immediate psychological support to users by engaging them in therapeutic conversations, guided self-help exercises, and cognitive behavioural therapy (CBT)-based interventions.

Research has shown that AI has significant potential to improve mental health care delivery by enhancing early intervention, increasing accessibility, and reducing the workload on mental health professionals. In underserved and rural regions where access to psychologists and psychiatrists is limited, AI-powered tools can serve as an initial point of contact for individuals seeking help. These systems can provide continuous monitoring and support, ensuring that individuals receive timely assistance before their conditions worsen (Torous et al., 2020).

Overall, AI in mental health represents a transformative innovation that complements traditional mental health services by improving detection, expanding access, and supporting early treatment. However, its effectiveness depends on ethical implementation, accurate data interpretation, and continuous collaboration between mental health professionals and technology developers.

AI in Counselling Services

Artificial Intelligence (AI) in counselling services refers to the use of automated and

intelligent digital systems to assist, enhance, or complement the work of human therapists in delivering psychological and emotional support to individuals. Rather than replacing professional counsellors, AI is designed to function as a supportive tool that improves the efficiency, accessibility, and continuity of mental health care. These systems include AI-powered chatbots, virtual therapists, and clinical decision-support systems that help both clients and mental health professionals in different aspects of counselling practice.

AI-driven counselling tools are built using technologies such as natural language processing (NLP), machine learning, and cognitive behavioural frameworks to simulate human-like conversations and provide structured psychological interventions. One of the most widely used examples is **Woebot**, a chatbot designed based on Cognitive Behavioural Therapy (CBT) principles. Woebot engages users in therapeutic conversations, helping them identify negative thinking patterns and guiding them through emotional regulation techniques. Another example is **Wysa**, an AI-powered mental health assistant that supports users in managing anxiety, stress, and depression through guided conversations, mindfulness exercises, and CBT-based activities.

In counselling services, AI contributes in several important ways. One of its major roles is **providing 24/7 emotional support**, allowing individuals to access mental health assistance at any time without waiting for scheduled therapy sessions. This is especially important in crisis situations or moments of emotional distress when immediate support is needed. AI systems also offer **structured CBT exercises**, helping users work through negative thoughts, develop coping strategies, and build healthier emotional responses in a step-by-step manner.

Additionally, AI tools are used for **monitoring client progress over time**. By analysing user interactions, mood logs, and behavioural patterns, these systems can track emotional changes and provide feedback on improvement or deterioration in mental health conditions. This continuous monitoring helps both clients and therapists understand treatment effectiveness and adjust interventions when necessary. Another important contribution of AI is its role in **assisting counsellors in clinical decision-making**. AI systems can analyse large volumes of client data to identify risk factors, suggest possible treatment approaches, and highlight cases that require urgent attention, thereby improving clinical efficiency and accuracy.

Despite these benefits, it is important to emphasize that AI is not designed to replace human therapists. Human counsellors provide essential qualities such as empathy, ethical judgment, emotional understanding, and complex clinical reasoning that AI systems cannot fully replicate. Therefore, AI is best understood as a supportive tool that enhances, rather than replaces, traditional counselling services. This perspective is supported by research which highlights that AI-based therapeutic tools are most effective when integrated with human oversight and professional mental health care (Fitzpatrick, Darcy & Vierhile, 2017).

Overall, AI in counselling services represents a significant advancement in mental health care delivery by improving accessibility, consistency, and efficiency while still maintaining the central

role of human therapists in the counselling process.

Related Theory

Cognitive Behavioural Theory (CBT)

Cognitive Behavioural Theory (CBT) is one of the most influential psychological frameworks in modern mental health practice and forms the theoretical foundation for many Artificial Intelligence (AI)-based mental health tools. Developed by Aaron Beck, CBT is based on the idea that human emotions and behaviours are strongly influenced by thoughts and cognitive interpretations of events rather than the events themselves (Beck, 2011). When individuals develop negative or distorted thinking patterns—such as overgeneralization, catastrophizing, or self-blame—these thoughts can contribute to emotional distress and mental health disorders such as depression and anxiety.

CBT aims to help individuals identify, challenge, and replace these negative thought patterns with more balanced and realistic thinking. It also encourages behavioural change by promoting healthier coping strategies and positive actions that improve emotional well-being. Because of its structured and practical approach, CBT is highly suitable for integration into digital mental health systems.

AI-powered counselling tools adopt CBT principles by replicating key therapeutic techniques in automated formats. For instance, these systems are programmed to **identify negative thought patterns through conversation analysis**, where natural language processing is used to detect emotionally charged or distorted language in user inputs. Based on this analysis, the AI can provide guided responses that help users reflect on their thoughts and emotions. Additionally, AI systems offer **cognitive restructuring exercises**, which encourage users to reframe negative thoughts into more rational and constructive alternatives. Another important application is **behavioural activation tasks**, where users are guided to engage in positive activities such as exercise, social interaction, or mindfulness practices to improve mood and reduce depressive symptoms.

Through these mechanisms, CBT provides the theoretical backbone that enables AI systems to deliver structured, evidence-based psychological support in a scalable and accessible way.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is a widely used framework for understanding how individuals come to accept and use new technologies. According to this model, two main factors determine user acceptance: **perceived usefulness** and **perceived ease of use**. Perceived usefulness refers to the degree to which a person believes that using a system will enhance their performance or well-being, while perceived ease of use refers to

how effortless the system is to use. In the context of Artificial Intelligence in mental health counselling services, TAM is particularly important in explaining user engagement with AI-based

tools such as chatbots, virtual therapists, and mental health apps. Individuals are more likely to adopt these technologies if they believe that the tools are effective in improving their mental health and are easy to interact with without requiring technical expertise. For example, if a mental health chatbot provides meaningful emotional support and is simple to navigate, users are more likely to continue using it consistently. However, if the system is perceived as complicated, impersonal, or unhelpful, users may discontinue its use regardless of its clinical value. Therefore, TAM helps researchers and developers understand the behavioural factors that influence the adoption and long-term use of AI in counselling services. Overall, both CBT and TAM provide essential theoretical foundations for understanding how Artificial Intelligence operates within mental health counselling and why users engage with these technologies in different ways.

Role of Artificial Intelligence in Mental Health Counselling Services

AI plays several significant roles in modern counselling services:

1. AI systems analyze behavioural patterns, language use, and digital footprints to detect early signs of mental health disorders such as depression and anxiety (Shatte et al., 2019).
2. Wearable devices and mobile apps track sleep, mood, and activity levels, allowing counsellors to monitor patient progress in real time.
3. AI-driven chatbots provide immediate psychological support using evidence-based approaches like CBT. They help users manage stress, anxiety, and emotional distress at any time of day.
4. AI platforms bridge gaps in mental health services, especially in rural and underserved areas where professional counsellors are limited (Torous et al., 2020).
5. AI assists counsellors by analyzing patient data and suggesting treatment options, improving accuracy and efficiency in clinical decision-making.
6. AI reduces the burden on mental health professionals by automating routine tasks such as screening and follow-up assessments.

Suggestions

To improve the effectiveness and ethical use of AI in mental health counselling services, the following recommendations are proposed:

1. AI should complement, not replace human therapists to preserve empathy and human connection in counselling.
2. Strict data privacy and security frameworks must be implemented to protect sensitive patient information.
3. AI systems should be trained on diverse datasets to reduce cultural and algorithmic bias.

4. Continuous collaboration between psychologists and AI developers is essential for clinically effective systems.

5. Government regulation and ethical guidelines should be strengthened to monitor AI use in mental health services.
6. Public awareness programs should be introduced to increase trust and acceptance of AI-based counselling tools.

Conclusion

Artificial Intelligence is transforming mental health counselling services by improving accessibility, efficiency, and early intervention capabilities. AI-powered systems such as chatbots, predictive models, and monitoring tools offer innovative ways to support individuals experiencing mental health challenges. However, despite its benefits, AI cannot replace human empathy, ethical judgment, and professional therapeutic relationships. Therefore, the future of mental health care lies in a hybrid model, where AI supports counsellors rather than replacing them. With proper regulation, ethical safeguards, and collaboration between technology experts and mental health professionals, AI can significantly enhance the quality and reach of mental health counselling services worldwide.

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