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Editorial

Artificial Intelligence: A Beacon in Adolescent Mental Health Care

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E D I T O R I A L

In an increasing mental health crisis, the prevalence of disorders among adolescents stands at a concerning 7.3%, with urban areas witnessing a slightly higher incidence. Anxiety disorders affect 3.6% of this significant demographic segment according to a national mental health survey.[1] Tragically, India grapples with the highest youth suicide rates globally, making suicide a leading cause of death among young individuals.[2] The reasons for such distressing statistics are multifaceted and complex, encompassing domestic violence, teenage pregnancy, child abuse, bullying, peer pressure, substance abuse, and the socio-economic divide. Compounded by stigma, lower literacy rates, and an oftentimes glaring absence of familial support, these adolescents are left in a vulnerable position, where even the available mental health services and school-based interventions fail to meet their needs.[1]

Against this grim backdrop, Artificial Intelligence (AI) emerges not just as an innovative technology but as a beacon of hope. AI, with its capability to replicate complex tasks traditionally performed by humans – such as reasoning, decision-making, and problem-solving – is progressively complementing and even augmenting the work of professionals. Its branches, including machine learning, deep learning, natural language processing, and reinforcement learning, are pioneering new pathways to understand and address adolescent mental health issues.[4]

The challenge of early detection of mental disorders is exacerbated by a stark shortage of professional human resources.[5] The intricacies involved in diagnosing mental disorders among adolescents are daunting, given the complex interplay of mental and physical health symptoms that often overlap. The reliance on self-reporting and external observations, in place of concrete laboratory tests, further complicates the diagnosis. Unfortunately, the skills necessary to detect these disorders are not commonly imparted to community health workers, which further widens the gap in care. Adding to this is the dearth of data and knowledge regarding interventions that are crucial during the transition from childhood to adulthood. This paucity of information limits the availability of specialised services for adolescents, underscoring a dire need for

interventions that are not only friendly and accessible to the youth but also proactive in promoting mental well-being and managing the nuances of their conditions.[6,7]

Herein lies the transformative potential of AI in mental health. Wearable devices and mobile applications, imbued with AI capabilities, are redefining care paradigms by providing innovative means to diagnose and manage mental health conditions. These tools, through the continuous monitoring of physiological and behavioural data, present a real-time window into the mental state of the wearer, offering unparalleled insights and support. For instance, AI-driven analysis of data from wearable devices holds promise for the diagnosis of conditions such as Autism Spectrum Disorders (ASD) and Attention-Deficit/ Hyperactivity Disorder (ADHD).[8,9] Machine learning algorithms adeptly parse through patterns in physiological signals, such as heart rate variability and skin conductance, pinpointing markers indicative of specific mental health conditions.[10,11]

The marriage of AI with wearable technology heralds the advent of personalised healthcare, a paradigm where treatment plans are intricately tailored to the individual. This approach capitalises on AI's analytical prowess to significantly enhance the efficacy of mental health interventions. With AI, treatment becomes a personalised journey, attuned to the nuances of each adolescent's condition, leading to more effective and resonant care.[7,8]

In the realm of information dissemination, ChatGPT, a language model developed by OpenAI, is making strides by providing evidence-based mental health information. Health professionals can leverage ChatGPT to tap into a vast repository of information regarding evidence-based treatments, assessment tools, and community-level best practices. For adolescents, a group that is not only comfortable with but also adept at utilising technology, ChatGPT offers a discreet and stigma-free channel to access mental health information.

During a consultative workshop, adolescents acknowledged several benefits of AI, citing its potential to aid in identifying criminal behaviour among peers, reducing the cost and time associated with certain processes, and aiding in academic support.[12] However, alongside these advantages, they also voiced their concerns. They fear potential infringements on data privacy, data leaks, the risk of exposure to scams, and a rise in unemployment. Furthermore, they worry that AI might exacerbate existing inequalities by disproportionately benefiting the already affluent, and they express concerns over the potential loss of human connection in an increasingly automated world.[13,14]

As AI cements its role in the health systems catering to adolescent care, the robustness and effectiveness of its applications will hinge on the quality of the adolescent data fed into these systems. Now more than ever, it is incumbent upon all stakeholders in adolescent health – policymakers, healthcare providers, educators, and technologists – to coalesce and generate comprehensive evidence on all major issues and concerns. Such a concerted effort is essential to ensure that AI can assist in early detection, precise diagnosis, effective management, and efficient prevention of mental health disorders among adolescents.

Conflict of Interest: None

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