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MENTAL HEALTH PREDICTION USING MACHINE LEARNING

J. Vetrimanikumar^a, N. Naveena^b, I. Nikitha^c, S. Mohana Priya^d, S. Naga Priya^e

^a Assistant Professor, Department of ECE,

SSM Institute of Engineering & Technology, Dindigul, India.

^{b,c,d,e} UG Student, Department of ECE,

SSM Institute of Engineering & Technology, Dindigul, India.

Corresponding Author Name & Email id: J. Vetrimanikumar & jvetrimanikumar@gmail.com

Abstract

Mental health conditions can have significant negative impacts on wellbeing and healthcare systems. Despite their high prevalence worldwide, there is still insufficient recognition and accessible treatments. Mobile apps for mental health are beginning to incorporate artificial intelligence and there is a need for an overview of the state of the literature on these apps. The purpose of this scoping review is to provide an overview of the current research landscape and knowledge gaps regarding the use of artificial intelligence in mobile health apps for mental health. In parallel, there is now a developing evidence base that includes meta-analyses demonstrating reductions in symptoms of depression and anxiety, and reduction in suicidal ideation. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) and Population, Intervention, Comparator, Outcome, and Study types (PICOS) frameworks were used to structure the review and the search. PubMed was systematically searched for randomised controlled trials. 1,022 studies were identified in the initial search and 4 were included in the final review. The mobile apps investigated incorporated different artificial intelligence and machine learning techniques for a variety of purposes (risk prediction, classification, and personalisation) and aimed to address a wide range of mental health needs (depression, stress, and suicide risk). The studies' characteristics also varied in terms of methods, sample size, and study duration. Overall, the studies demonstrated the feasibility of using artificial intelligence to support mental health apps, but the early stages of the research and weaknesses in the study designs highlight the need for more research into artificial intelligence- and machine learning-enabled mental health apps and stronger evidence of their effectiveness. This research is essential and urgent, considering the easy availability of these apps to a large population.

Keywords: PICOS, PRISMA-SCR.



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Dr. D. SENTHIL KUMARAN, M.B.B.S., Ph.D., (NUS)
Principal
SSM Institute of Engineering and Technology
Kumathupatti Village, Sindalagundu (Po),
Palani Road, Dindigul - 624 002.