

A Comprehensive Review on Mental Health Prediction Using Social Media Data

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Abstract:

Mental health affects how we think, feel, act, handle stress, relate to others, and make choices. Machine learning is increasingly used for early mental illness detection, particularly through social media data. This paper reviews machine learning models, algorithms, and applications for mental health prediction. Our methodology integrates sentiment analysis, multimodal data fusion, and AI-driven treatment. We emphasize multilingual models and cultural adaptation in mental health applications. Additionally, we explore AI-driven chatbots for real-time support and intervention. This review systematically evaluates existing approaches, identifies research gaps, and highlights the need for inclusive, robust, and multimodal frameworks. We discuss the advantages and challenges of using machine learning in mental health care and introduce novel concepts like real-time AI interventions, digital twins for mental health, and multilingual sentiment analysis. Finally, we outline future directions, focusing on multimodal analysis and chatbot-based mental health support.

Keywords:

AI-driven Mental Health Support, Mental Health Prediction, Multimodal Machine Learning, Social Media Analytics.