RADemics

Artificial Intelligence in Psychological Screening and Diagnostics: A Literature-Based Framework for Campus Application

Shahnazuddin, Manicka Senthamarai N
, SIDDHARTHA ACADEMY OF HIGHER EDUCATION (DEEMED TO BE UNIVERSITY), VELALAR COLLEGE OF ENGINEERING AND TECHNOLOGY

Artificial Intelligence in Psychological Screening and Diagnostics: A Literature-Based Framework for Campus Application

[1]Shahnazuddin, Assistant Professor, Department of School of management, Siddhartha Academy of Higher Education (Deemed to be University) Vijayawada, Andhra Pradesh, India. Shahnaz.uddin3@gmail.com

[2]Manicka Senthamarai N, Assistant Professor / Computer Science and Engineering, Velalar College of Engineering and Technology, Thindal, Erode, Tamilnadu, India. manickasenthamarai@gmail.com

Abstract

The increasing prevalence of mental health issues among university students has highlighted the need for innovative, scalable solutions in psychological screening and diagnostics. Artificial Intelligence (AI) offers a transformative approach by leveraging advanced technologies such as machine learning, natural language processing, and data integration to enhance mental health assessments on campuses. This chapter provides a comprehensive framework for applying AI in campus-based psychological screening, exploring the potential of AI-driven systems to improve diagnostic accuracy, early detection, and personalized interventions. Key applications, such as automated surveys, real-time mood monitoring, and predictive analytics, are examined in the context of student well-being. The integration of AI with existing mental health services promises to streamline diagnostics, reduce stigma, and offer more proactive care. However, the chapter also addresses critical challenges, including data privacy concerns, algorithmic biases, and the need for transparent, ethical AI systems. Ensuring informed consent and maintaining student autonomy are emphasized as fundamental ethical considerations in AI-based mental health interventions. The chapter concludes by discussing future directions in AI research for mental health, including the development of explainable AI models and the need for longitudinal studies to validate the efficacy of AI-driven tools. This framework provides valuable insights for integrating AI technologies into university mental health programs, fostering an evidence-based, ethical approach to student mental health care.

Keywords: Artificial Intelligence, Mental Health Diagnostics, Campus Applications, Machine Learning, Data Privacy, Ethical AI.

Introduction

Mental health issues among university students have become an increasingly prominent concern in recent years. Reports of stress, anxiety, depression, and other psychological disorders have surged, making it crucial for higher education institutions to implement effective strategies for identifying and managing mental health challenges [1]. Traditional methods of psychological screening, such as in-person assessments and self-report questionnaires, while effective, often

struggle with limitations in scalability, accessibility, and timely intervention [2]. With large student populations, universities face significant challenges in providing personalized, proactive mental health care [3]. The growing use of Artificial Intelligence (AI) in mental health care offers promising solutions to these challenges [4]. By leveraging AI-driven tools for psychological screening, universities can enhance diagnostic accuracy, streamline the assessment process, and provide more individualized care for students, leading to better mental health outcomes [5].

AI technologies, particularly machine learning, natural language processing, and deep learning, have demonstrated their potential in revolutionizing mental health diagnostics [6]. These tools can analyze large and complex datasets, including behavioral data, textual responses, physiological signals, and social media content, to identify patterns indicative of psychological distress [7]. Machine learning algorithms, for instance, can be trained on vast datasets to detect early signs of conditions such as depression, anxiety, and stress, often before they become clinically apparent [8]. Natural language processing can be used to analyze students' written or spoken language, identifying emotional cues and signs of distress in real-time [9]. Additionally, AI can automate the administration of surveys and diagnostic questionnaires, making them more accessible and reducing the time burden on both students and clinicians [10]. This technology empowers universities to provide continuous monitoring and support, allowing mental health professionals to intervene early and offer targeted treatments [11].