Social Media's Impact on University Students' Mental Health: An AI Prediction Model

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This study investigates the impact of social media use on university students' mental health using statistical analysis and AI-based predictive modeling. The research aims to identify social media usage behaviors, assess their relationship with well-being, and develop an AI model to predict mental health outcomes. By integrating validated psychological measures and machine learning techniques, this study provides insights into risk factors associated with social media use and their effect on students' psychological well-being. The study employs a cross-sectional survey design, collecting data from 350 university students through an online questionnaire assessing demographic characteristics, social media behaviors, and mental well-being. Established psychological instruments, including the Social Media Disorder Scale and the WHO-5 Well-Being Index, were used to measure key variables. AI-based models, including Decision Trees, Random Forest, XGBoost, and Support Vector Machine (SVM), were trained on the collected data to classify students at risk of poor mental health based on their social media behaviors. Findings indicate a significant negative correlation between social media use and mental well-being ($r = -0.23$). AI-based models effectively classified mental health risk, with Random Forest and SVM models demonstrating the highest accuracy (F1-score > 0.91). Key predictors of poor well-being included excessive social media use, neglecting responsibilities, and online conflicts, while protective factors included physical activity and emotional support. The study highlights the potential of AI-driven models to identify at-risk students based on their social media behaviors. These findings support the development of targeted mental health interventions for Uni's students.

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