



## Cardiovascular Diseases Risk in People with Mental Illnesses

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**Abstract:** Cardiovascular diseases (CVD), including coronary heart disease, stroke, and peripheral arterial disease, are major global health concerns. Mental health disorders, such as depression, anxiety, and Post-traumatic stress disorder (PTSD), are associated with an increased risk of CVD, and conversely, CVD events may trigger mental health issues. This study examines the relationship between these two health domains, focusing on shared risk factors. A predictive system using machine learning was developed to assess CVD risk in individuals with mental illnesses, utilizing Random Forest due to its ability to handle large datasets with complex interactions between variables. Additional models were explored for comparison. The system aims to improve risk assessment but does not provide medical consultancy services. Logistic regression and chi-square tests validated the associations between mental health and CVD risks, with visualizations clarifying these relationships.

**Keywords:** Cardiovascular diseases, Mental health, Machine learning, Random Forest, Predictive model.