

ABSTRACT

Hypertension is a chronic disease with a high prevalence rate and serves as a major risk factor for cardiovascular diseases globally. Accurate classification of hypertension status is crucial to support medical diagnosis and prevent fatal complications. The goal of this study is to classify hypertension status using the Random Forest algorithm based on patients' clinical data parameters. The dataset was obtained from the Kaggle public repository and underwent preprocessing and feature selection using Pearson Correlation. The modeling phase employed an 80:20 split ratio for training and testing data, respectively. The evaluation results showed that the Random Forest algorithm achieved excellent performance in classifying hypertension status, with an accuracy of 99%. Furthermore, the Feature Importance analysis revealed that chest pain type (cp), maximum heart rate (thalach), and the number of major vessels (ca) were the most influential variables contributing to the classification results. This research was conducted to serve as a reference for the development of medical decision support systems, facilitating a more automated, accurate, and efficient screening and clinical classification process for hypertension.

Keyword: *Hypertension, Random Forest, Classification, Pearson Correlation, Machine Learning*