

Application of LASSO Regression and Random Forest Methods to Find Dominant Symptoms in Dengue Hemorrhagic Fever Cases at Dr. H. Koesnadi Bondowoso Regional Hospital. Bakhtiyar Hadi Prakoso, S.Kom., M.Kom.
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ABSTRACT

Dengue Hemorrhagic Fever (DHF) is a disease that remains a health problem and has a fairly high number of cases at Dr. H. Koesnadi Bondowoso Regional General Hospital. Utilization of medical record data can be used to identify dominant symptoms related to DHF cases. This study aims to find dominant symptoms in DHF cases using the LASSO Regression and Random Forest methods. The study used a descriptive quantitative approach with secondary data from medical records of DHF and Typhoid Fever patients in 2024 at Dr. H. Koesnadi Bondowoso Regional General Hospital. Data were analyzed through preprocessing stages, variable selection using LASSO Regression, and identification of variable importance levels using Random Forest. The results showed that LASSO Regression successfully selected 11 relevant variables and eliminated hepatomegaly because it had a zero coefficient. The variables with the largest contribution to LASSO Regression were manifestations of shock, thrombocytopenia, and hematocrit. Meanwhile, Random Forest showed that hematocrit, thrombocytopenia, and leukopenia had the highest feature importance values. The integration of the two methods shows that hematocrit, thrombocytopenia, shock manifestations, and leukopenia are the dominant clinical factors in DHF cases. Therefore, the combination of LASSO Regression and Random Forest is effective in identifying dominant symptoms based on patient medical record data.

Keywords: *Dengue Hemorrhagic Fever, LASSO Regression, Random Forest, Dominant Symptoms, Medical Records*