Classification of Ischemic Stroke Disease Using C4.5 Algorithm at Citra Husada Jember Hospital

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ABSTRACT

Ischemic stroke is a condition where brain dysfunction occurs due to damage to brain tissue. In the report on the top 10 inpatient diseases at Citra Husada Hospital from 2021 to 2023, there has been an increase in cases. Additionally, in the report on the top 10 causes of death at Citra Husada Hospital, ischemic stroke ranks first. This study aims to classify ischemic stroke based on risk factors using the C4.5 algorithm at Citra Husada Hospital, Jember. This research is quantitative in nature and was processed using the C4.5 algorithm method with the help of RapidMiner tools. The sample was taken using simple random sampling technique, with a total of 366 medical record documents. The results of the study show that the variables identified as risk factors for ischemic stroke include being female (55.74%), being over 55 years old (63.93%), smoking history (36.61%), hypertension history (96.17%), diabetes mellitus history (44.81%), heart disease history (21.86%), cholesterol history (83.60%), and obesity (8.74%). The most influential variable in this study is hypertension history. The confusion matrix results show the highest levels of accuracy, precision, and recall in the 90:10 split, with an accuracy of 97.22%, precision of 94.73%, and recall of 100%.

Keywords : C4.5 Algorithm, Confusion Matrix, Ischemic Stroke