

## ABSTRAK

Puskesmas Banda Baro berperan penting dalam pelayanan kesehatan masyarakat, terutama dalam penanganan Infeksi Saluran Pernapasan Akut (ISPA), namun proses identifikasi tingkat keparahan pasien masih memerlukan peningkatan agar lebih cepat, konsisten, dan akurat. Penelitian ini bertujuan mengklasifikasikan tingkat keparahan ISPA menggunakan algoritma *K-Nearest Neighbor* (KNN) dan *Modified K-Nearest Neighbor* (MKNN) berdasarkan sembilan kriteria, yaitu jenis kelamin, usia, demam, batuk, sesak napas, hidung tersumbat, sakit kepala, nyeri tenggorokan, serta mual atau muntah. Dataset yang digunakan terdiri dari data pasien ISPA dengan 240 data *training* dan 60 data *testing*. Hasil pengujian menunjukkan bahwa KNN memperoleh *Accuracy* 91,67%, *Precision* 93,75%, *Recall* 90,91%, dan *F1-Score* 92,31%. Sementara itu, MKNN menunjukkan performa lebih baik dengan *Accuracy* 93,33%, *Precision* 96,88%, *Recall* 90,91%, dan *F1-Score* 93,80%. Peningkatan performa MKNN dipengaruhi oleh penerapan validitas data dan *weight voting* yang mampu meningkatkan kualitas pemilihan tetangga terdekat serta mengurangi kesalahan klasifikasi. Hasil penelitian menunjukkan bahwa MKNN lebih optimal dibandingkan KNN dalam mengklasifikasikan tingkat keparahan ISPA. Dengan demikian, penerapan metode klasifikasi berbasis data mining ini dapat menjadi solusi strategis untuk mendukung pengambilan keputusan medis yang lebih objektif dan efisien dalam meningkatkan akurasi klasifikasi penyakit ISPA.

Kata Kunci: ISPA, *K-Nearest Neighbor*, *Modified K-Nearest Neighbor*.

## **ABSTRACT**

*The Banda Baro Community Health Center plays a vital role in public health services, particularly in the management of Acute Respiratory Infections (ARIs); however, the process of identifying the severity of patients' conditions still needs improvement to make it faster, more consistent, and more accurate. This study aims to classify the severity of ARI using the K-Nearest Neighbor (KNN) and Modified K-Nearest Neighbor (MKNN) algorithms based on nine criteria: gender, age, fever, cough, shortness of breath, nasal congestion, headache, sore throat, and nausea or vomiting. The dataset used consists of ARI patient data with 240 training data points and 60 testing data points. The test results show that KNN achieved an Accuracy of 91.67%, Precision of 93.75%, Recall of 90.91%, and an F1-Score of 92.31%. Meanwhile, MKNN demonstrated better performance with an Accuracy of 93.33%, Precision of 96.88%, Recall of 90.91%, and an F1-Score of 93.80%. The improved performance of MKNN was influenced by the application of data validity checks and weight voting, which enhanced the quality of nearest neighbor selection and reduced classification errors. The research results indicate that MKNN is more optimal than KNN in classifying the severity of ARI. Thus, the application of this data mining-based classification method can serve as a strategic solution to support more objective, effective, and efficient medical decision-making in improving the quality of healthcare services.*

*Keywords: ISPA, K-Nearest Neighbor, Modified K-Nearest Neighbor.*