

ABSTRAK

Masalah gizi pada balita masih menjadi isu penting di Indonesia, terutama di wilayah dengan keterbatasan akses layanan kesehatan. Penelitian ini bertujuan membangun sistem klasifikasi status gizi balita menggunakan metode *K-Nearest Neighbor* (KNN) berbasis data antropometri, yaitu umur, berat badan, dan tinggi badan. Proses normalisasi dilakukan agar semua variabel berada dalam skala yang sama, sehingga algoritma KNN dapat menghitung jarak antar data secara lebih akurat menggunakan *Euclidean Distance*. Sistem diuji dengan data sebanyak 1.325 balita dari Kecamatan Kabuh, Kabupaten Jombang. Dari 265 data uji, sebanyak 205 data berhasil diklasifikasikan dengan benar, menghasilkan akurasi klasifikasi sebesar 77% . Nilai k optimal yang digunakan adalah $k=3$, yang dipilih berdasarkan pengujian terhadap beberapa skenario nilai k . Hasil menunjukkan bahwa metode KNN cukup efektif dalam mengenali pola status gizi balita dan dapat dijadikan alat bantu dalam penilaian awal di fasilitas kesehatan seperti posyandu dan puskesmas. Selain itu, pendekatan ini mampu meningkatkan efisiensi waktu klasifikasi serta meminimalkan kesalahan subjektif dalam penilaian status gizi secara manual. Penelitian ini dapat menjadi dasar bagi pengembangan sistem pendukung keputusan berbasis data kesehatan anak di masa mendatang.

Kata kunci: *K-Nearest Neighbor*, klasifikasi gizi, balita, dan antropometri.

ABSTRACT

Nutritional problems in toddlers remain a significant issue in Indonesia, especially in areas with limited access to healthcare services. This research aims to build a classification system for the nutritional status of toddlers using the K-Nearest Neighbor (KNN) method based on anthropometric data, namely age, weight, and height. A normalization process was carried out to ensure all variables were on the same scale, allowing the KNN algorithm to calculate distances between data more accurately using Euclidean Distance. The system was tested with data from 1,325 toddlers from the Kabuh District, Jombang Regency. Out of 265 test data, 205 data were correctly classified, resulting in a classification accuracy of 77%. The optimal k value used was $k=3$, which was selected based on testing several k-value scenarios. The results indicate that the KNN method is quite effective in recognizing patterns of nutritional status in toddlers and can be used as an auxiliary tool for initial assessments in health facilities such as posyandu (integrated health posts) and puskesmas (community health centers). Furthermore, this approach can improve the efficiency of classification time and minimize subjective errors in manual nutritional status assessments. This research can serve as a foundation for the future development of decision support systems based on child health data.

Keywords: K-Nearest Neighbor, nutritional classification, toddlers, and anthropometry.