ABSTRACT

In an effort to improve the effectiveness of nutritional intervention planning in the working area of the Kuta Blang Community Health Center, this research develops a village zoning model based on toddler nutritional status using the K-Medoids algorithm. Primary data includes the distribution of toddler nutritional status (good nutrition, overnutrition, undernutrition, severe malnutrition, obesity) in 41 villages during the January–December 2023 period, which was then normalized and processed in a web-based system using the PHP programming language and a MySQL database. The clustering process produced five spatial zones: the Green Zone (2.44%, villages with optimal nutritional status), the Yellow Zone (12.20%, nutritional status within reasonable limits), the Orange Zone (70.73%, variations in nutritional status requiring further monitoring), the Red Zone (4.88%, the worst nutritional conditions), and the Purple Zone (9.76%, the most significant nutritional challenges). Field validation showed a high degree of conformity between the zoning results and the actual conditions on the ground. This zoning map allows for a more targeted allocation of resources and health personnel, with intervention priority on the Red/Purple Zones and prevention strategies in the Green/Yellow Zones. However, this analysis has not yet considered socio-economic and health service access variables, so data enrichment is recommended to improve the model's accuracy. The implementation of a GIS-based information system provides a dynamic visual interface and facilitates periodic monitoring and intervention evaluation.

Keywords*: Village Zoning, K-Medoids, Toddler Nutritional Status, Clustering, Kuta Blang Community Health Center.*