

ABSTRACT

Malnutrition among children under five years of age (toddlers) remains a global challenge that impacts the quality of human resources. One factor contributing to this condition is the suboptimal practice of complementary feeding. In Indonesia, there are disparities in the nutritional status and consumption patterns of children between provinces, as reflected in differences in Minimum Dietary Diversity (MDD), feeding practices, and nutritional status indicators. This study uses data from 2024 sourced from the Indonesian Nutrition Status Survey (SSGI) publication with 35 provinces in Indonesia as the unit of analysis. This study aims to group provinces based on feeding patterns and nutritional status of infants aged 0–23 months and to identify the characteristics of each cluster by comparing the K-Harmonic Means (KHM) method and K-Harmonic Means combined with Particle Swarm Optimization (PSOKHM). Clustering quality was evaluated using the Silhouette Coefficient. The results showed that KHM and PSOKHM produced the same Silhouette Coefficient value of 0.528 with an optimal number of clusters of three and a parameter value of two. Cluster profiling showed that cluster 1 was characterized by low consumption diversity and the highest severe wasting rate, reflecting regions where malnutrition problems were still dominant. Cluster 2 shows relatively better consumption conditions with more controlled nutritional problems. Cluster 3 has a tendency toward increased risk of overnutrition with the highest overweight rates and lowest rates of severe wasting. PSOKHM shows more consistent stability of results against parameter variations compared to KHM.

Keywords: *Complimentary Feeding, Cluster, K-Harmonic Means, Particle Swarm Optimization, Silhouette Coefficient.*