

**ABSTRACT**

**Application of Clustering Methods Bootstrap  
K-Means On Nutritional Status of Children Undersfive  
in the Ajung Public Health Center, Jember**

Cluster analysis was a process for grouping a set of objects based on data that have similar certain characteristic. K-Means was a method of cluster analysis which begins by determining the number of clusters desired. Bootstrap was a sampling technique with replacement from the original sample. Bootstrap was used to estimate the parameters based on minimal data using a computer. This method was useful to maximize relative difference and variation in the clusters. Malnutrition was a major problem in Indonesia and is still a concern in children undersfive. Infants with malnutrition would have a higher mortality rate. The purpose of this study was to assess the accuracy of K-Means and Bootstrap K-Means method to clustering nutritional status of children undersfive which was crosstabulated with the nutritional status of children based on the WHO-2005 in the Ajung Public Health Center, Jember. The variable in this study was nutritional status based on WHO criteria 2005 as standard benchmarks, present age and weight. This was non-reactive research, using secondary data in Ajung Public Health Center, without any direct interaction with the subject. This study concluded that the total accuracy rate (TAR) and total error rate (TER) to determine nutritional status of K – Means method was TAR = 0.9 and, TER = 0.1; Bootstrap K-Means method (B = 25) TAR = 0,925 and TER = 0.075; Bootsstrap K-Means method (B = 50) TAR = 0.9417, TER = 0.0583; and Bootstrap K-Means Bootstrap (B = 75) TAR = 0.9583 and TER = 0.0417 after crosstabulated with nutritional status based on WHO-2005 (weight for age). In general, the K- Means method and Bootstrap K-Means method and crosstabulated with nutritional status based on WHO-2005 has shown very good accuracy to determine the nutritional status of children. The best method was Bootstrap K - Mean (B=75). K-Mean Bootstrap methods can be used as an alternative way to determine the nutritional status of children.

**Keywords:** Cluster Analysis with K-Means method, bootstrap, nutritional status