

1. Pendahuluan

Nutritional status for toddlers is a crucial thing to consider by parents nowadays. Toddlers are recommended to have balanced and proper nutrition to increase their health status so that they will not experience any problems with their life growth and progress. One of the useful ways to track toddlers' life growth and progress is by monitoring their nutritional status [15]. Good nutrition might increase toddlers' endurance and intelligence. Otherwise, bad nutrition might cause a lack of vitamin A, protein, and sodium. Negative nutrition outcomes for toddlers are caused by parents' lack of knowledge of food selections and healthcare-seeking. Anthropometric measurement for nutritional status is a process of measuring the status with several parameters that becomes anthropometries' general measurement index, such as gender, age, weight, and height. Anthropometric index is the combination of parameters, the most common index used is the weight for age (WFA), height by age (HFA), and weight by height (WFH) [13]. In most developing countries, only a few parents know about their child's nutritional and nutrition-related knowledge. A lot of parents still do not have this knowledge and may cause nescience about the nutritional status [8]. There are three kinds of anthropometric measurement; measuring its z-score, percentile value, and percentage value according to the median. However, a data distribution index is needed to measure it. Meanwhile, parents do not have the data itself. Based on the problem condition, a machine learning system that is able to determine toddlers' nutritional status can be created so that parents are able to discover their status.

Research about nutritional status classification has been done before using the K-NN method resulting in the highest accuracy obtained was 85.25%. Other researchers also study nutritional status classification using the Fuzzy Inference System and Naive Bayes, with the highest accuracy obtained being 80.78% and 61.5%, respectively. By comparing their accuracy result, room for improvement may still exist. In [2], it is shown that RBF can result in much better accuracy (99.45%) than KNN (47%) in classifying various emotional sounds. The Radial Basis Function (RBF) algorithm is suitable for classifying toddlers' nutritional status since it is a type of neural network so that RBF can predict the result by testing with the available data [11]. RBF is a kind of neural network with the optimum and highest rate of the performance of approximation [7]. RBF is the chosen technology to classify toddlers' nutritional status since RBF has advantages such as having only one hidden layer with a simple structure so that easy to implement and fast learning speed yields high accuracy. Hence, RBF is expected to give the classification result with high accuracy.

In this paper, we use RBF as the classification approach model for classifying toddlers' nutritional status based on the three measurements of anthropometric indexes: WFA, HFA, and WFH. Using a neural network algorithm with RBF approaches may help society, especially parents who lack knowledge and understanding about determining the nutrition status of their toddlers, by giving them the classification result. However, the classification is limited to the conditions of toddlers from Puskesmas Sempur in Bogor, Indonesia.