

Agung Nugroho, 2019. **A Scheme for Model Standard Graphics of High and Body Mass Index in East Java with Birespon Nonparametric Regression Approach Based on Linear Local Estimator**. Thesis under the guidance of Dr. Nur Chamidah, M. Si. and Ir. Elly Ana, M. Si. S1-Statistics Study Program, Department of Mathematics, Faculty of Science and Technology, Airlangga University of Surabaya.

ABSTRACT

Kartu Menuju Sehat is a tool to control the growth of nutritional status in infants in Indonesia. The standards used in KMS are WHO 2005 standards obtained from a sample of 6 countries, namely Brazil, Ghana, India, Norway, Oman, and America. The difference in country samples used can lead to misinterpretations of nutritional status of children under five due to differences in the characteristics of toddlers in Indonesia, especially East Java, which have obesity and stunting rates above the standards set by WHO. The researcher designed a chart of toddler nutrition growth using the index BMI /A and H /A based on the condition of male and female toddlers in East Java Province to follow up on nutritional status problems in East Java. The design of the toddler growth standard chart was made using nonparametric regression modeling because the growth patterns of toddlers tend to change at each stage of the age of the toddler, so it would be more appropriate to be modeled with a local approach. Data on toddlers in this study were obtained from puskesmas or posyandu in 2016 - 2018 from 21 regencies / cities in East Java Province. The observation unit obtained as many as 59,170 data consisted of 30,490 male toddlers and 28,680 toddlers girls 0-60 months old. The observation unit used is a toddler who has met the screening of WHO. The conclusions of the results of the growth model of BMI and H of toddlers with a nonparametric birespon regression approach based on linear local estimators can explain the growth pattern of children under five in East Java Province very well ($R^2 = 99.9\%$). The standardized growth chart design in East Java has a lower standard than the WHO 2005 standard.

Keywords: Body Mass Indeks (BMI), Height (H), Nutrition Status Children of East Java, Local Linear Estimator.