

## SUMMARY

### **Application of Hierarchical Linear Model Method in Survey Data (Case Study Effect of Fiber Food Consumption Patterns and Consumption Risk Food to Basal Mass Index)**

Sampling in large surveys is often done in stages. The sampling technique in this way will be more economical in terms of cost and time. Samples at the same level tend to have similar characteristics. The use of a single level of analysis approach will cause disaggregation and aggregation problems. Multilevel approach allows solving the problem, which can simultaneously see the effect on the individual and group level. One of the important methods in multilevel regression analysis is a hierarchical linear model.

Riskesdas 2007 data is the data collected in a two-stage sampling. Results Riskesdas 2007 describe health issues at the national level (variability between provinces), and at the provincial level (variability between districts).

Risky behaviors and unhealthy diet is one risk factor for cardiovascular disease. Unhealthy diets lead to overweight. One indicator to determine the incidence of overweight is a measure of BMI. Based on data Riskesdas 2007, the highest prevalence of heart disease was found in the province of Nanggroe Aceh Darussalam (NAD) that is 12.6%.

Riskesdas data 2007 needs further analysis with this approach is tiered according to data characteristics, namely the multilevel analysis approach. The purpose of this study is to analyze the use of multilevel regression methods, in this case, the Hierarchical Linear Model on Riskesdas 2007 data. This study analyzed the effect of fibrous foods and consumption of risks food for Body Mass Index as an indicator of risk factors for cardiovascular disease, to account for variability in individual and district level. This research is the non-reactive or unobtrusive study. This study uses secondary data Riskesdas 2007 Indonesia, courtesy of Health Research and Development Agency of the Ministry of Health Republic of Indonesia. The monthly per capita expenditure data is from SUSENAS 2007 that linked with data Riskesdas 2007. Population is member of the household population aged at least 10 years, in the province NAD in 2007.

The results of this study demonstrate the value of intraclass correlation (ICC) of 97.7%. This means that there is influence of the level-2 on the dependent variable. The results showed that the average expenditure per capita per month at level 2 family affect the body mass index. The indicator of model feasibility are -2LL, AIC and BIC. The results showed that the final model is not better than previous models.

Advice from research is that survey data with multistage sampling technique, it is necessary to consider the use of multilevel methods, in this case mainly the non-linear multilevel analysis. Because the scale of data Riskesdas most data categories. A method for further analysis of this rise is expected to generate more precise estimates.

## ABSTRACT

### **Application of Hierarchical Linear Model Method in Survey Data (Case Study Effect of Fiber Food Consumption Patterns and Consumption Risk Food to Basal Mass Index)**

The purpose of this study is to analyze the use of multilevel regression methods (Hierarchical Linear Model) on data Riskesdas 2007. Namely the influence of fiber foods and food consumption risks for Body Mass Index (BMI) in the Province of Nanggroe Aceh Darussalam (NAD.) This study is a non-reactive or unobtrusive study. The study uses secondary data Riskesdas 2007 courtesy of Health Research and Development Agency, health Ministry of the Republic of Indonesia. Variable monthly per capita expenditure from 2007 SUSENAS data linked with data Riskesdas 2007. Sample is a member of the household population aged at least 10 years in the province of Aceh in 2007. The results showed that the intraclass correlation (ICC) of 97.64%. The result show that the average expenditure per capita per month at the district level family influence body mass index by equation  $BMI = 1/(0,7526 - 7,871 \times 10^{-6}(Z))$ . Determine the feasibility of the model using indicator-2LL, AIC and BIC indicate that the model is not a fit model. Consider the weaknesses of this methods, thus the mathematical model is not fit for use in real conditions.

Keywords: hierarchical linear models, multilevel analysis, fiber foods, risk foods, body mass index