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The Relationship of Non-Food Consumption Expenditures, Early Marriage, Proper Sanitation and Active Posyandu on Stunting in Indonesia 2017-2021

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Abstract

Stunting describes chronic malnutrition status during growth and development since early life. In the National Medium Term Development Plan (RPJMN) 2020 - 2024, the Indonesian government set a target for the prevalence of stunting in children under five to only 14% in 2024 (Presidential Decree Number 18 of 2020 concerning RPJMN 2020 - 2024). Efforts were made to see the relationship that causes stunting, non-food consumption expenditure, early marriage, proper sanitation and active posyandu. This research is a type of descriptive research with a quantitative approach using logistic regression with data obtained through the Central Statistics Agency (BPS) for 2017-2021. The Wald test results show that the Non-Food Consumption Expenditure variable receives H0, meaning that there is a negative and significant influence between non-food consumption expenditure on stunting. The variables of early marriage, proper sanitation and active posyandu reject H0, which means that in this study there is a positive and significant influence on stunting. The results of the omnibus test (F) show that the calculated f value is greater than the f table (4.951 > 2.43) with a significance level of (0.000 < 0.05), so H0 is rejected, and Ha is accepted. So, it can be concluded that non-food consumption expenditure, early marriage, proper sanitation and active posyandu simultaneously influence the stunting rate.

Keywords | *Stunting, non-food consumption expenditure, early marriage, proper sanitation and avtive posyandu.*

INTRODUCTION

In the National Medium Term Development Plan (RPJMN) 2020 - 2024, the Indonesian government set a target for the prevalence of stunting in children under five to only 14% in 2024 (Presidential Decree Number 18 of 2020 concerning RPJMN 2020 - 2024). So, the Indonesian government has established a policy of priority targets, priority interventions and priority locations as outlined in the National Strategy for Accelerating Stunting Prevention (Secretariat of the Vice President & Coordinating Ministry for Human Development and Culture, 2019). Stunting describes chronic malnutrition status during growth and development since early life. According to the Decree of the Minister of Health of the Republic of Indonesia Number 1995/MENKES/SK/XII/2010 concerning Anthropometric Standards for Assessment of Children's Nutritional Status, short and very short are nutritional statuses based on the body length index according to age (TB/U) which is the equivalent of the term stunted (short) and severely stunted (very short).

Based on the WHO conceptual framework on Childhood Stunting: Context, Causes and Consequences, stunting is caused by interactions between several factors, including household conditions, environmental, socio-economic and cultural factors. Family factors are the main cause of stunting. There are factors related to food security, especially food that is nutritious and has good nutrition for babies and toddlers, then the social environment

related to how to provide food for babies and toddlers, then access to health services for prevention and treatment and environmental health which includes availability of clean water and good environmental sanitation. Interventions on these four factors are expected to prevent nutritional problems, both undernutrition and excess nutrition (Stewart et al., 2013).

Based on the opinion of (Fatimah, Nurhidayah and Rakhmawati, 2008), socio-economic status can be seen from family income and expenses. A family's low economic status can influence family patterns, both for food and non-food consumption. The family's socio-economic status will influence the quality of food consumption. This is related to the family's purchasing power. Families with low economic status have limited ability to meet food needs, which will affect food consumption.

Household expenditure includes expenditure on food, one of the indicators in determining household food security. The proportion of food expenditure is also an indicator that can provide an overview of community welfare. This research is in line with research (Diniyyah & Nindya, 2017) which states that food expenditure is related to the level of energy and protein intake. The greater the expenditure on food, the smaller the risk of lacking energy and protein intake. This is because low spending is positively correlated with the quantity of food spending. The lower quantity of food spending causes the fulfillment of nutritional needs, especially energy and protein, to be smaller.

Meiler and Meineres (1997) said in Farida Milias Tuty's thesis (2009:13) that they were pioneers in studying family expenditure. Engel's research produced four results which are hereinafter referred to as Engel's laws. The four findings formed are as follows: (1) As income increases, the proportion of expenditure allocated to food consumption will decrease. (2) The proportion of apparel spending is fixed and is not influenced by income level. (3) The proportion of housing expenditure is fairly constant and is not influenced by the amount of income. (4) As income increases, the proportion of expenditure allocated to education, health, recreation, luxury products, and savings will also increase.

Even distribution of income and expenditure is caused by good human resources so that if stunting is still high it is likely caused by low socio-economic levels. Socioeconomic includes early marriage which has an impact on early marriage from a socio-economic perspective, namely early marriage can cause an increase in the death rate due to giving birth at a young age, low quality of human resources due to school disruption, poverty, and an increase in the birth rate which has an impact on population growth. fast. This will of course influence the government's achievement in realizing the development targets stated in the 2015 Millennium Development Goals (MDGs) (Sinta, 2009).

METHOD

Research techniques refer to the systematic and scientific approach used to conduct research. Research techniques serve as a systematic approach to collecting and analyzing data. (Ary, Jacobs, & Razavieh, 2009; Kohari, 2013). This research uses a descriptive research design with quantitative methodology, because it uses numerical data for analysis and presentation. Quantitative Methods are systematic approaches used to make managerial and economic decisions (Haizer & Render, 2004). It is a scientific and artistic discipline that

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involves collecting, analyzing and interpreting data to obtain information to draw conclusions and make decisions (Solimun, Armanu & Fernandes, 2018).

The regression equation was created using the natural logarithm (Ln) model because of the differences in units and magnitudes of the independent variables, this was done to bring the data scale closer (Ghozali, 2005). In this regard, the logistic regression in this study is as follows:

$$ln\frac{P_i}{1-P_i} = Z_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i}$$

Information :
P = Probability that the average stunting rate is below or above the national average
X1 = Non-Food Consumption Expenditure (rupiah/month)
X2 = Early marriage (percent)
X3 = Proper Sanitation (percent)
X4 = Active Posyandu (percent)
β0 = Intercept or constant
β1–β4 = Regression coefficient

Model Feasibility Test (Goodness of Fit Test)

The feasibility test of the regression model was assessed using Hosmer and Lemeshow's measurement as measured by the chi square value. This model is to test the null hypothesis that whether the empirical data fits the model (there is no difference between the model and the data so the model can be said to be fit) (Ghozali, 2018: 333). The hypothesis is as follows:

1. If the probability value (P-Value) ≤ 0.05 (significance value) then H0 is rejected, meaning there is a significant difference between the model and the observed value. So the Goodness of Fit Test cannot predict the observed value.
2. If the probability value (P-Value) ≥ 0.05 (significance value) then H0 is accepted, meaning the model matches the observation value. So the Goodness of Fit Test can predict the observed value.

Assessing the Overall Model (Overall Model Fit)

Testing the Feasibility of the Regression Model (Goodness of Fit Test) The feasibility test of the regression model was assessed using Hosmer and Lemeshow's as measured by the chi square value. This model is to test the null hypothesis that whether the empirical data fits the model (there is no difference between the model and the data so the model can be said to be fit) (Ghozali, 2018). The hypothesis is as follows:
H_0: The hypothesized model fits the data.
H_1: The hypothesized model does not fit the data.

Coefficient of Determination (Nagelkerke R Square)

This determination coefficient test was carried out with the aim of measuring the model's ability to explain how the influence of the independent variables together

(simultaneously) influences the dependent variable which can be indicated by the adjusted R - Squared value (Ghozali, 2016). The coefficient of determination shows the extent to which the contribution of the independent variable in the regression model is able to explain variations in the dependent variable. The coefficient of determination can be seen through the R-square (R2) value in the Model Summary table.

Partial t Test (Wald Test)

According to (Ghozali, 2018:99) the Wald test (t) basically shows how far the independent variable partially influences the dependent variable. To determine the value of the Wald test (t test), the significance level is 5%. The decision making criteria:

1. If t count < t table and p-value > 0.05 then H0 is accepted, meaning that one of the independent variables does not affect the dependent variable.
2. If t count > t table and p-value < 0.05 then H0 is rejected, meaning that one of the independent variables influences the dependent variable.

Simultaneous Test F (Omnibus Test of Model Coefficients)

Omnibus tests of model coefficients are simultaneous statistical tests (f test). In this research, we will test whether the independent variables simultaneously influence the dependent variable (Ghozali, 2018:98). The significance level is 5%, so the decision making criteria are as follows:

1. If f count > f table and (P-Value) < 0.05 then H0 is rejected and H1 is accepted, meaning that the independent variable simultaneously influences the dependent variable.
2. If f count < ftable and (P-Value) > 0.05 then H0 is accepted and H1 is rejected, meaning that the independent variable simultaneously does not influence the dependent variable

RESULTS AND DISCUSSION

Model Feasibility Test (Goodness of Fit Test)

Chi-square	Df	Sig
17,755	8	,023

The results of the Hosmer ana Lemeshow Test above showed that the results of the Hosmer and Lemeshow Goodness of Fit Test obtained a chi-square value of 17.755 with a significance level of 0.023. The test results show that the probability value (P-value) ≥ 0.05 (significant value), namely 0.023 ≥ 0.05, then H0 is rejected. This indicates that there is a significant difference between the model and the data so that the regression model in this study is feasible and able to predict the observation values (the Goodness of Fit Test can predict the observation values).

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Assessing the Overall Model (Overall Model Fit)

-2 Likelihood Block Number =0	*-2 Log Lokelihood Block=1*
190,218	203,366

The results the Overall Model Fit results showing that the initial -2Log likelihood value (block number = 0) before being included in the independent variable was 190.218. After the five independent variables were entered, the final -2Log likelihood value (block number = 1) decreased to 203.366. The difference between the initial -2Log likelihood and the final -2Log likelihood shows a decrease of 24,801. It can be concluded that the initial -2Log likelihood value (block number = 0) is greater than the final -2Log likelihood value (block number = 1), resulting in a decrease. This indicates that the hypothesized model is fit to the data, so that the addition of independent variables to the model shows that the regression model is getting better or in other words H_0 is accepted.

Coefficient of Determination (Nagelkerke R Square)

-2 Log Likehood	Cox & Snell R Square	Nagelkerke R Square
190,218	,210	,283

The results of the Model Summary above show that the coefficient of determination seen from the Nagelkerke R Square value is 0.283. This indicates that the ability of the independent variables, namely non-food consumption expenditure, early marriage, proper sanitation and posyandu, is active in explaining the dependent variable, namely stunting, at 29%. Meanwhile, the remainder is explained by other variables outside of this research model, namely 71%.

Partial t Test (Wald Test)

Variabel	t tabel	t hitung	Probabilitas	Kesimpulan
X1	1.97	0,113	0,482	Menerima H_0
X2	1.97	1,814	0,047	Menolak H_0
X3	1.97	2,759	0,017	Menolak H_0
X4	1.97	3,442	0,001	Menolak H_0

The Wald test can be seen that in the X1 variable the results of the Wald test (t) show that the calculated t value is smaller than the t table (0.113 < 1.97) and the probability value is greater than the significant level (0.482 > 0.05), so H_0 is accepted and Ha is rejected, which means that in this study there is a negative and significant influence between non-food consumption expenditure on stunting.

For the X2, X3 and X4, the results of the Wald (t) test show that the calculated t value is smaller than the t table so H0 is rejected, and Ha is accepted which means that in this research there is a positive and significant influence between X2, X3 and X4 and stunting.

Simultaneous Test F (Omnibus Test of Model Coefficients)

F table	F count	Df	Probability	Conclusion
2,43	4.951	4	0.000	Reject H0

Based on table 4.8, the results of the omnibus test (F) show that the calculated f value is greater than table f (4.951 > 2.43) with a significance level of (0.000 < 0.05), so H0 is rejected and Ha is accepted. So it can be concluded that non-food consumption expenditure, early marriage, proper sanitation and active posyandu simultaneously influence the stunting rate.

CLOSING

Conclusion

This research was conducted to analyze and describe the influence of non-food consumption expenditure, early marriage, proper sanitation and active posyandu on stunting in 2017-2021 in 34 Indonesian Provinces. The conclusions obtained are as follows:

1. Non-food consumption expenditure increases the probability of achieving below average stunting conditions.
2. Early marriage reduces the probability of stunting below average.
3. Decent sanitation increases the probability of stunting below average.
4. Posyandu actively reduces the probability of stunting below average.
5. Expenditures on non-food consumption, early marriage, proper sanitation and active health posyandu jointly influence stunting in Indonesia.

Suggestion

Based on the results of data processing and discussions that have been carried out, it is hoped that this can be used as material for consideration for further research and stakeholders. Food consumption expenditure must be used to meet the family's nutritional and nutritional needs.

It is hoped that the non-food consumption expenditure incurred can reduce the probability of stunting rates occurring. By improving health facilities and getting information related to things that can reduce the probability of stunting. Socialization is related to educational assistance for ages 7-18 years so that the school dropout rate is reduced. The government must carry out even distribution of data in response to education programs so that many less fortunate people do not receive these programs.

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