
ANALYSIS OF THE RELATIONSHIP BETWEEN SELF-HELP HOUSING ASSISTANCE PROGRAMS AND THE REDUCTION OF STUNTING IN INDONESIA

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ABSTRACT

This study aims to analyze the relationship between government policy in the form of the Self-Help Housing Stimulant Assistance Program (BSPS/Self-Help Homes Program) and the reduction of stunting in Indonesia. By utilizing data on the prevalence of stunting in districts/cities in Indonesia in 2016-2021 and data on districts/cities receiving self-help housing assistance in 2016-2021, this study uses the panel data regression method to show the correlation between the BSPS program and the reduction in stunting at the district/city level in Indonesia. Based on the regression results, it can be concluded that the 2016-2021 BSPS Program as an independent variable shows a negative and significant relationship with a decrease in stunting in 514 districts/cities in Indonesia. The percentage of women giving birth in health facilities, proper sanitation, poor population, the ability to read and write in women aged > 15 years, and district/city GDP per capita significantly reduces stunting in Indonesia. On the other hand, toddlers who receive complete basic immunization and state spending on health do not affect stunting reduction. This study recommends expanding the BSPS Program to more districts/cities in Indonesia, increasing the level of knowledge and awareness of mothers about stunting, improving proper sanitation, evaluating health spending strategies at the district/city level, and considering regional socioeconomic factors in policy planning. Moreover, the allocation of resources contributes to reducing stunting.

Keywords: stunting, socioeconomic inequality, government policy, public health.

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INTRODUCTION

Malnutrition or stunting is still a serious threat to human development in Indonesia (Dasman, 2019). According to data from the 2021 Indonesian Nutritional Status Study (SSGI) conducted by the Ministry of Health, the stunting rate in Indonesia is still far below the target set by the World Health Organization (WHO), which is no more than 20% in every country, province, and district. (Dewi & Fuad, 2022). Only the province of Bali managed to reach the good category with a low stunted rate, namely 10.9%.

Meanwhile, 27 other provinces fall into the chronic and acute categories with high stunting rates. According to WHO data for 2021, Indonesia ranks second in the prevalence of stunting in children under five, after Cambodia, with the highest prevalence rate in Southeast Asia. Indonesia is also ranked 27th out of 151 countries, with children experiencing suboptimal growth of 5.33 million. Over a third of children under the age of five in Indonesia, experience stunted growth that does not comply with international standards for height based on age (UNICEF, 2021).

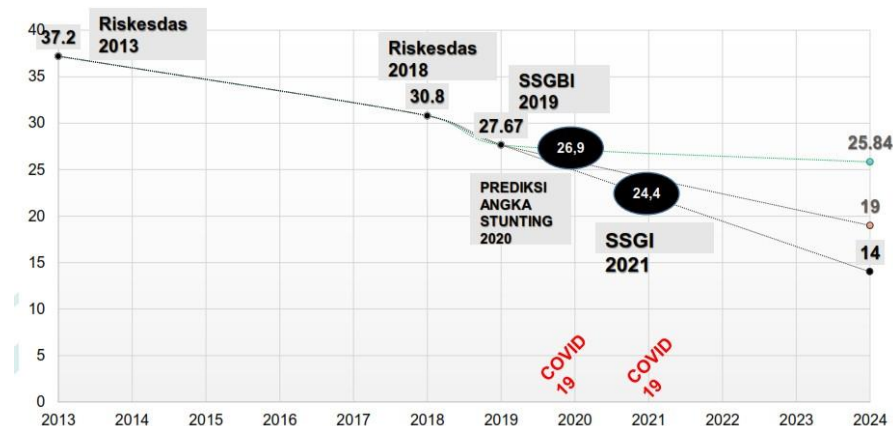


Figure 1. Trends and targets for reducing *stunting* in 2018-2024

Source: Bappenas, Ministry of Health

In 2021, the SSGI results show that 24.4% of children under five in Indonesia are *stunted*. Even though the prevalence rate has decreased by 1.6% per year from 27.7% in 2019, the prevalence rate still shows that 1 out of 3 children in Indonesia have been malnourished for a long time. To achieve the targets set in the 2024 National Medium-Term Development Plan (RPJMN), Indonesia needs to reduce the *stunting rate* by 3.1% annually. However, an annual reduction policy of 1.3% is implemented. In that case, the prevalence of *stunting* in Indonesia will only reach 19% in 2024, while the government's target is 14%.

Based on the 2020 report by the National Team for the Acceleration of Poverty Reduction (TNP2K), apart from chronic malnutrition in toddlers, other factors cause *stunting*, namely uninhabitable housing conditions and minimal sanitation facilities, lack of clean water supply, and low public awareness. Moreover, there are many other interrelated factors (PMK, 2023). One of the sensitive interventions being implemented by Ministries/Agencies is to provide housing assistance through the Self-Help Housing Stimulant Assistance Program (BSPS Program) or the home renovation program by the Ministry of Public Works and Public Housing (KemenPUPR), intending to create decent housing for society (Eliadi, 2021). Building houses that meet construction and health requirements, including good roofs, floors, and walls, can provide benefits for the development of children's bodies and maintain public health (Surahman et al., 2016). In addition, by implementing the BSPS Program, the government is trying to reduce the number of houses that do not meet standards for living in (RTLH) and slum areas in Indonesia so that all people can enjoy the results of development in the housing sector (BONE, 2021).

Empirical research has been conducted extensively on the correlation between housing and sanitation and child health in a country, province, or district/city. Previous research in Africa found that livable homes with durable construction, improved drinking water, and sanitation were associated with a 17% reduction *in stunting* (Tusting et al., 2020). This result is reinforced by other research, which suggests that this type of housing is livable with good sanitation and will reduce the risk of *stunting* in children (Caleyachetty et al., 2022) ; (Sahiledengle et al., 2022). Meanwhile, studies regarding the evaluation of the implementation of the BSPS program in Indonesia indicate that the implementation of the BSPS program in several regions has been running according to the target but is not yet effective and efficient (Ulumudin et al., 2020) ; (MUKHLIS & Siam, 2021).

Unlike the aforementioned BSPS Program study, which focuses more on evaluating its implementation and uses qualitative methods, this research aims to analyze the relationship between the government policy in the form of the BSPS Program and the reduction of stunting in Indonesia. By utilizing the prevalence data of stunting in districts/cities in Indonesia from 2016 to 2021 and the data on districts/cities receiving self-help housing assistance from 2016 to 2021.

METHODS

This study employs panel data regression method to demonstrate the correlation between the BSPS program and the reduction of stunting at the district/city level in Indonesia. The model used to analyze the relationship between the government policy in the form of the BSPS program and the reduction of stunting in Indonesia is as follows:

$$STUN_{ijt} = \alpha + \beta 1 RUMSWA_{ijt} + \beta 2 IMMUI_{ijt} + \beta 3 LHRT_{ijt} + \beta 4 SNTN_{ijt} + \beta 5 POORI_{ijt} + \beta 6 HEXPI_{ijt} + \beta 7 FLTRCY_{ijt} + \beta 8 GDRPC_{ijt} + \epsilon_{ijt}$$

Information:

- STUN_{ijt} : *Stunting* in district/city i province j year t
A : intercept point
B : Regression coefficient
RUMSWA_{ijt} : Self-help housing in district/city i province j year t
IMMUI_{ijt} : Toddlers who received immunization in the district/city i province year t
LRT_{ijt} : Ever married woman aged 15 to 49 years and her baby was delivered at a health facility in the district/city i province j year t
SNT_{ijt} : Percentage of households that can access proper sanitation in district/city i province j year t
POORI_{ijt} : Percentage of poor people in district/city i province j year t
HEXPI_{ijt} : Realization of health spending from APBD in district/city i province j year t
FLTRCY_{ijt} : Female literacy rate in district/city i province j year t
GDRPC_{ijt} : Gross regional domestic product per capita in district/city i province j year t
ε_{ijt} : Error for district/city i province j year t

Table 1. Operational Definition

Variable	Definition of Operational contents	Source
STUN	Percentage of short and very short toddler sizes based on comparing height with toddler age for each district/city in 2016-2021	Indonesian Nutrition Status Study (SSGI), Nutrition Status Monitoring (PSG), and Basic Health Research of the Ministry of Health (Riskesdas Kemenkes)
RUMSWA	Number of self-help houses in regencies/cities in 2016-2021	PUPR Ministry
IMMUNE	Percentage of children under five who received complete basic immunization for each district/city in 2016-2021	National Socioeconomic Survey and Riskesdas of the Ministry of Health

Variable	Definition of Operational contents	Source
LHRT	Percentage of women who have ever been married aged 15 to 49 years and gave birth using a health facility	National Socioeconomic Survey
SNTN	Percentage of households meeting WHO-UNICEF JMP standards for Water Supply and Sanitation for each district/city 2016-2021	National Socioeconomic Survey
POOR	Percentage of poor people in each district/city 2016-2021	Central Bureau of Statistics
HELP	Percentage of government budget allocation for the health sector for each district/city in 2016-2021	Ministry of Finance
FLTRCY	Percentage of women aged 15 and over who can read and write Latin and non-Latin letters without understanding their meaning for each district/city in 2016-2021.	Socioeconomic Survey National
GDRPC	Gross regional domestic product per capita per district/city year 2016-2021	Central Bureau of Statistics

The data analysis technique of this study used panel data regression. Through this regression, several procedures will be applied and adjusted to the appropriate model. The number of test methods applied is the Chow and Hausman Test. The Chow test was conducted to find the best model between the fixed and common effect models. The Hausman test aims to determine the best model, whether it is a random effect model or a fixed effect model.

RESULTS AND DISCUSSION

In the use of panel data regression techniques, there are three alternative method approaches that can be used in modeling. Some approaches that can be used are (1) the Common-Constant method (The Pooled OLS Method), (2) the Fixed Effect method (FEM), (3) the Random Effect method (REM). Based on the results of the Chow Test and Hausman Test, it can be concluded that the fixed effect is the best model. The interpretation of the results and analysis will refer to the regression results as presented in Table 1.

Table 1. Panel Data Regression Results

Variable	coefficient	std. Err.	t	P>t
Percentage of Self-Help Homes 2016-2021	-.0749729	.0235796	-3.18	0.001
Cumulative (Total) Self-Help Houses 2016-2021	.0003338	.000288	1.16	0.247
Cumulative (Total) Self-Help Houses 2016-2018	.000212	.0005137	0.41	0.680
Self-Help Home Dummy 2016-2021	.7461815	.4528112	1.65	0.099
Percentage of Women Who Give Birth in Health Facilities	-.0589636	.0081289	-7.25	0.000
Percentage of Sanitation Facilities	-.0624206	.0069468	-8.99	0.000
Percentage of Poor Population	.2088617	.0227361	9.19	0.000
Percentage of Health Expenditure Realization of the Ministry of Finance	-.0140649	.0280999	-0.50	0.617

Variable	coefficient	std. Err.	t	P>t
Percentage of women aged 15 and over who have good reading and writing skills	-.0215614	.0083949	-2.57	0.010
Percentage of Toddlers Who Get Complete Basic Immunization	.1284605	.0161233	7.97	0.000
Per capita GRDP Percentage with Log	-.3387979	.0826428	-4.10	0.000
Percentage of Toddlers Who Get Complete Basic Immunization	.1580269	.0190242	8.31	0.000
cons	2,827,962	1,271,805	22.24	0.000

Source: reprocessed (2023)

Based on the regression results, the 2016-2021 BPS Program can reduce stunting that occurs in Indonesia. The BPS Program provides opportunities for residents who cannot live in decent homes to create a healthy and clean environment. Implementing this lifestyle also supports efforts to improve public health, thereby reducing stunting (Jupri et al., 2022).

Complete basic immunization for toddlers does not affect reducing stunting in Indonesia, which is in line with previous research (Izah et al., 2020); (Puspita & Yanti, 2022). A negative and significant relationship to stunting is also influenced by women giving birth in health facilities, proper sanitation, people experiencing poverty, the ability to read and write in women aged > 15 years, and GRDP per capita in districts/cities in Indonesia. On the other hand, toddlers who receive complete basic immunization do not affect reducing stunting in Indonesia. Finally, state spending on health does not guarantee a reduction in stunting. This is related to the uneven distribution of health infrastructure or services by the local government, the uneven placement of human resources in health services, and the lack of government programs to address the problem of stunting.

CONCLUSION

In this study, the 2016-2021 Self-Help Housing Stimulant Assistance Program (BSPS/Self-Help Homes Program) as an independent variable shows a negative and significant relationship with a decrease in stunting in 514 districts/cities in Indonesia. Therefore, the implementation of the policy carried out by the Ministry of PUPR has succeeded in achieving the target by providing adequate housing for low-income people and having a direct positive impact in creating a safer and healthier environment for their families, as well as contributing to reducing the stunting rate in Indonesia. The level of knowledge, understanding, or awareness of mothers about stunting issues or conditions can be demonstrated through giving complete basic immunization to toddlers whose results are significantly positive but cannot help reduce the incidence of stunting in Indonesia. The ability to read and write in women aged > 15 years and women who give birth in health facilities as a form of maternal health awareness has a negative and significant relationship with reducing stunting in Indonesia. In addition, those with a negative and significant relationship with a decrease in stunting are proper sanitation, poor people, and district/city per capita GRDP indicators of regional socioeconomic conditions. Even though the government has implemented a health spending strategy at the district/city level to address the problem of stunting, there is no significant correlation between this expenditure and the reduction in the stunting rate in Indonesia.

Some of the policy recommendations proposed in this study include continuing and expanding the BSPS/Self-Help Home Program to more districts/cities in Indonesia, increasing the level of knowledge and awareness of mothers about stunting issues or conditions, improving proper sanitation, evaluating health spending strategies at the district/city level, as well as taking into account regional socioeconomic factors in policy planning and resource allocation to ensure a positive effect on stunting reduction.

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