



Stunting Countermeasures Intervention Model in Remote Areas of Banyuwangi Regency East Java

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DOI: <http://doi.org/10.29080/jhsp.v7i1.853>

Received : December 2022, Accepted : February 2023, Published : April 2023

Kata Kunci

Abstrak

Model
Intervensi;
Stunting;
Wilayah
Terpencil;

Stunting pada balita menjadi masalah gizi kronik. Faktor yang menyebabkan stunting adalah gizi ibu saat hamil, kondisi sosial ekonomi, penyakit infeksi pada bayi, akses pelayanan kesehatan, kesehatan reproduksi, sanitasi dan air bersih. Penelitian ini bertujuan untuk menganalisis model intervensi penanggulangan stunting di wilayah terpencil Sukamade Kabupaten Banyuwangi. Penelitian ini merupakan penelitian observasional analitik dengan pendekatan kuantitatif. Teknik pengambilan data dengan wawancara dan observasi menggunakan kuesioner. Teknik pengambilan sampel menggunakan total sampling dengan besar sampel sebanyak 42 rumah tangga balita. Teknik analisis yang digunakan adalah model persamaan *Structural Equation Models* (SEM) metode alternatif PLS. Hasil akhir menunjukkan bahwa variabel lingkungan berpengaruh signifikan terhadap stunting. Variabel laten yang berpengaruh ke variabel stunting adalah variabel lingkungan. Perlu dibuat model intervensi yang memperhatikan kebutuhan air minum yang aman dengan menjaga sumber air dan kualitas air.

Keywords

Abstract

*Intervention
Model;
Stunting;
Remote Regions;*

Stunting in toddlers becomes a chronic nutritional problem. Factors that cause stunting are maternal nutrition during pregnancy, socioeconomic conditions, infectious diseases in infants, access to health services, reproductive health, sanitation and clean water. This study aims to analyze stunting prevention intervention models in remote areas of Sukamade, Banyuwangi Regency. This study is an analytical observational study with a quantitative approach. Data collection techniques by interview and observation using a questionnaire. The sampling technique used a total sampling with a sample size of 42 toddler households. The analysis technique used is the Structural Equation Models (SEM) equation model, an alternative method of PLS. The final results show that environmental variables have a significant effect on stunting. The latent variable that affects the stunting variable is the environmental variable. It is necessary to create an intervention model that takes into account the need for safe drinking water by maintaining water sources and water quality.

Introduction

Stunting is a growth and development disorder that occurs in children due to malnutrition, poor parenting and recurrent infections [1]. Toddlers with stunting have a height that is too short based on their proper age. This condition is usually only seen when toddlers are 2 years old [2]. Toddlers are said to be stunted if the results of the anthropometric measurements based on the height-for-age index show a value of ≤ -2 standard deviations (SD)[3].

Stunting in toddlers is a chronic nutritional problem. Factors that cause stunting are maternal nutrition during pregnancy, socioeconomic conditions, infectious diseases in infants, access to health services, reproductive health, sanitation and clean water [4]. In addition, parenting styles, quality of health services and food security are also causes of stunting [5]. Toddlers with stunting will experience impaired physical growth due to low body composition which interferes with their motor skills and failure of physical growth occurs [6],[7]. Neurocognitive in stunting sufferers is also disturbed, causing low learning abilities and mental retardation [8]. Besides that, they are also at risk for having chronic diseases, such as hypertension, diabetes and obesity [4]. When they are adults, people with stunting will find it more difficult to work and have lower incomes. In addition, stunting sufferers also have to pay more for health care [9]. This will be a threat to the quality of human resources in Indonesia [4]. According to data from the Indonesian Ministry of Health, in 2020 as many as 151 million children under five in the world are stunted. As much as 55% of the stunted toddler population is in Asia [4]. Based on data from the Indonesian Toddler Nutrition Status Survey (SSGBI) in 2019 and 2021, the prevalence of stunting in 2019 was 27.7% and decreased to 24.4% in 2021[10,11]. This figure is very high when compared to the WHO threshold, which is 20%. In addition, 27 provinces fall into the chronic-acute category (Stunted \geq 20% & Wasted \geq 5%), including East Java [10].

Facing this, the government has established several stunting prevention programs. One of them is to designate 360 regencies in Indonesia as loci (locations of focus) for stunting in 2021. One of the regencies in East Java that has become the focus of reducing stunting rates is Banyuwangi Regency [12].

The prevalence of stunting in Banyuwangi Regency is 20.1%. This figure is lower when compared to the prevalence in East Java which is 23.5%. However, the prevalence of wasting in Banyuwangi Regency is 7.4%, higher than the prevalence in East Java which is 6.4%. If this is not anticipated, it will cause health problems in the future [13].

In Banyuwangi Regency there are remote areas in the forest and access to health services could be improved. The area is Sukamade Hamlet, Sarongan Village, Peanggaran District, Banyuwangi Regency. Access to Sukamade hamlet is very difficult because you have to pass through the forest, narrow rocky roads and there are cliffs and ravines on either side. In addition, to go to this village must cross the river. Lighting facilities such as electricity are only available from 04.00 to 05.30 in the morning and at night from 17.30 to 22.00 [14].

Health services for the people of Sukamade Hamlet are carried out at the Community Health Center in Sarongan District, which is located together with the village head's office [15]. The distance between Sukamade Hamlet and the Sarongan District Sub-Health Center is 14 km. There is also no maternity home in this auxiliary health center. Stunting can occur due to chronic malnutrition in the first 1,000 days of life, from the fetus to the 23 month old child [16]. This greatly affects health services for pregnant women, especially health services to prevent stunting.

An intervention model and the right strategy are needed to be able to overcome this stunting problem. The specific interventions given should be adjusted to the characteristics of the region. Therefore, the purpose of this research is to obtain a stunting intervention model in remote villages. It is also hoped that this model can later be adopted for interventions in remote areas with the same characteristics in Indonesia.

The purpose of this study was to analyze the stunting prevention intervention model in the remote Sukamade area, Banyuwangi Regency.

Methods

This research is an analytic observational study with a quantitative approach. This research was conducted in Sukamade Banyuwangi Regency. The population consists of all under-five households in Sukamade Village, East Java, totaling 42 under-five households. The sampling technique used total sampling with a sample size of 42 households under five. Data collection techniques by interview and observation using a questionnaire. The variables of this study consisted of independent variables, namely demographic factors, socioeconomic factors, pregnancy history factors, food access factors, parenting factors, health service access factors, care factors, infectious diseases, while the dependent variable was the nutritional status of toddlers. Descriptive and inferential data analysis. The analysis technique used is the Structural Equation Models (SEM) alternative PLS method.

Results

Based on data collection on households in Sukamade Hamlet, Banyuwangi Regency. The majority of toddlers in Sukamade Hamlet are aged 0-12 months and 37-48 months. A total of 41 toddlers are still not in school and the majority are male (54.8%). Meanwhile, the educational level factor of the head of the family was mostly elementary and high school graduation. A total of 32 heads of families work in the private sector as plantation employees.

Community ownership of assets in Sukamade Hamlet is also relatively low (78.6%). However, many have health protection cards (45.2%).

The distance between the last pregnancy and the previous pregnancy which was >2 years was 52.4% and the majority consumed iron tablets (83.3%). Perceptions of access to food were also high (88.1%), but breastfeeding and complementary feeding behavior was moderate (61.9%). As many as 92.9% of mothers also did not attend classes for pregnant women.

Sanitation for the people in Sukamade Hamlet is low (33.3%), while access to clean water is 52.4% which is in the moderate category. As many as 83.3% of mothers did not have a MCH book and the majority of toddlers' immunization status was moderate (35.7%). As much as 73.8% are also included in the high category of taking medication when toddlers are sick. As many as 88.1% of toddlers also monitored their growth.

As many as 57.1% of mothers gave birth at health facilities and 88.1% were assisted by health workers, but this was due to complications in delivery that required delivery at a hospital. Meanwhile, for normal conditions, people give birth at home with the help of village nurses and families.

The level of diversity of food given to toddlers is also moderate (50%). As many as 97.6% of children under five did not suffer from diarrhea, 85.7% did not have ARI, 97.6% did not suffer from TB, 95.2% did not have measles and 100% did not have worms.

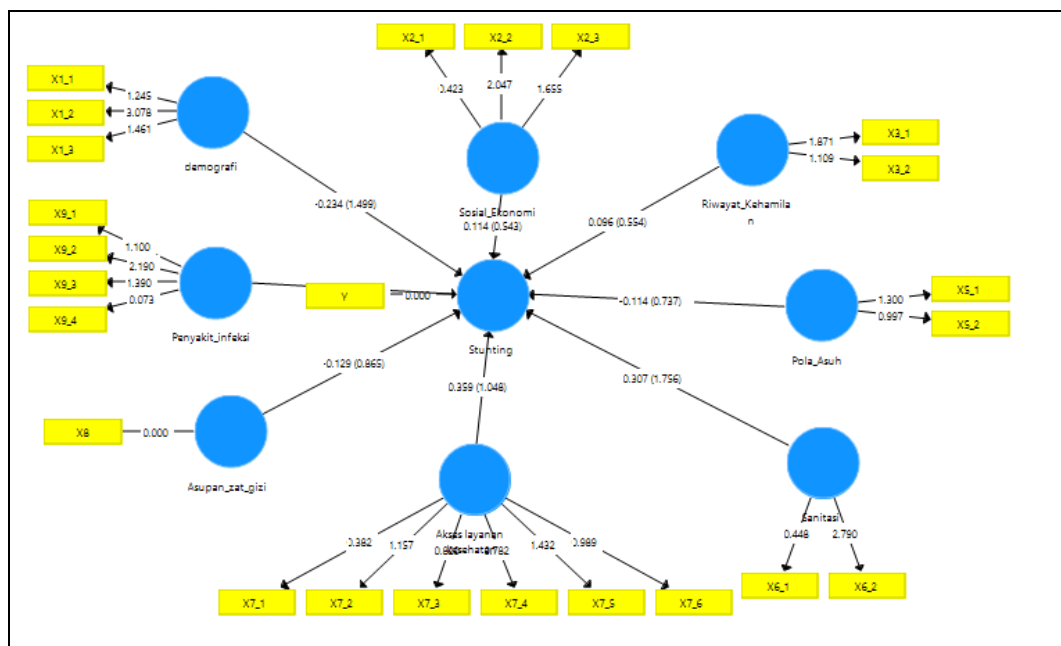


Figure 1. SEM-PLS Structural Model

Figure 1 above provides information about the results of testing the stunting prevention intervention model in remote areas of Banyuwangi Regency, East Java. In the indicators that make up infectious diseases, there is one indicator that measures helminthiasis, which is not included in the model because its value is constant.

Table 1 The value of t statistics and p_value of each latent variable for stunting

Variable	Original Sample (O)	T Statistics (O/STDEV)	P Values
Access to health services -> Stunting	0.36	1.05	0.30
Intake_Nutrients-> Stunting	-0.13	0.86	0.39
Infections Diseases -> Stunting	-0.24	1.21	0.23
Parenting -> Stunting	-0.11	0.74	0.46
Pregnancy History-> Stunting	0.10	0.55	0.58
Enviroment -> Stunting	0.31	1.76	0.04
Social_Ekonomi -> Stunting	0.11	0.54	0.59
Demographics -> Stunting	-0.23	1.50	0.13

In the table above, the results of the analysis for latent variables that affect stunting variables are also presented. The results of the analysis resulted in the conclusion that environmental variables have a significant effect on stunting.

Discussion

From all the factors studied, environmental factors were found to influence the incidence of stunting in Sukamade Hamlet. The environmental factors studied consisted of clean water sources and sanitation. The measured source of clean water is the distance between the source of clean water and the sewage site, the main source of drinking water and the source of water for other needs. Meanwhile, sanitation includes the ownership of latrines, the type of toilet used and the fecal disposal model.

Based on the Minister of Health of the Republic of Indonesia number. 32/2017, the physical quality of drinking water must meet health requirements. That is, it should not be cloudy / clear, tasteless, odorless, free from chemical contamination, and free from various microorganisms that can cause stunting in children. There are several studies that show that there are still many areas in Indonesia that do not have a decent water source and this causes stunting [17–27].

The results of this study are in line with research from Ethiopia which shows that drinking water sources are associated with developmental delays in children under the age of 5 years [13]. Another study found that in Ethiopia, an inappropriate source of drinking water can increase seven times the incidence of stunting in children [14]. Other research results also show that unsafe drinking water sources, distance from landfills to water sources, water quality, storage, treatment and accessibility can cause stunting [15].

Improper drinking water and the distance from the water source to the toilet are too short and improper water treatment before consumption can cause malnutrition in the child. This is because water contains pathogenic microorganisms and other chemicals that cause diarrhea in children [16]. Children will experience malnutrition in the form of growth retardation if diarrhea lasts more than 2 weeks [17].

Many people in Sukamade Hamlet use water sources from unprotected wells and wash in the river. The distance between the well and the dump is less than 10 m. This is because the community does not have their own land.

Some research results related to sanitation use of latrine facilities ranging from latrine ownership, types of latrines, latrines not using septic tanks, latrine hygiene and open defecation (BABS) are related to increasing stunting in toddlers in Indonesia [2,3,6–10,10–12,18–23].

These findings are in line with research which states that children who live in the environment contaminated with improper sanitation has a 40% risk of stunting [24]. A similar study was conducted by Bagcchi, revealing that the practice of open defecation is associated with the incidence of stunting in children under five in India [25]. Such behavior leads to environmental pollution due to the spread of pathogenic germs from the fecal. If the germ is touched by a child who is in the process of growth and has the behavior of inserting a finger into the mouth, it causes the child to swallow a number of fecal bacteria that can infect the intestines. Intestinal infections in the form of diarrhea and EED can affect nutritional status in children by reducing appetite and interfering with nutrient absorption, causing malnutrition and stunting in children [26].

The use of toilet facilities that do not meet health requirements, the practice of open defecation, and the disposal of baby feces outside the toilet result in contamination of the baby with environmental pollution, thus facilitating the transmission of fecal pathogens and failure of the development and development of toddlers.

A study in 13 provinces in Indonesia found that between 2007 and 2014, households with good sanitation could reduce the incidence of stunting in children under five [27]. These results are in accordance with the results of research which states that providing access to adequate toilet facilities to families can reduce the incidence of stunting in children aged 0–23 months by 16–39% [28].

Many people in Sukamade Hamlet still do defecation in the river even though they already have toilets. The water in the river is also used for bathing and washing.

Based on this, it is necessary to create an intervention model that pays attention to the need for safe drinking water. Starting with maintaining water sources, quantity and quality, especially the storage and handling of 1000 HPK water to prevent and reduce stunting in children under 5 years old. In addition, efforts to reduce the incidence of stunting in children under five in Sukamade Hamlet include improving environmental sanitation, building latrines that meet health requirements, and increasing public awareness not to defecate indiscriminately through health education that involves the community.

Conclusion

The nutritional status based on TB/U or PB/U in Sukamade Hamlet is that there are 20 stunted toddlers and 22 toddlers with normal height. The latent variables that affect the stunting variables are environmental variables. It is necessary to create an intervention model that pays attention to the need for safe drinking water by maintaining water sources and water quality. In addition, sanitation improvements were carried out, the construction of latrines that meet health requirements, and increased public awareness not to defecate indiscriminately through health education that involves the community.

Acknowledgements

A word of gratitude was conveyed to the Community Service Research Institute (LP2M) UIN Sunan Ampel Surabaya and the entire community of Sukamade Hamlet.

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