

Modeling Of Stunting Prevelence Reduction In Toddlers By Securing Household Waste (Based On The Health Belief Model Theory)

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ABSTRACT

Stunting is a condition of nutritional deficiencies caused by insufficient long-term nutritional intake. It is estimated that one in four children under the age of five fails to grow along the optimal trajectory set in the World Health Organization's Child Growth Standards. This study aims to find a model of reducing the prevalence of stunting in children under five in the city of Palembang through processing household waste. This research was an analytic observational study through a quantitative approach and cross-sectional study design. In this study, the population is all mothers who have children under five (0-59 months) who check the condition of their children in the working area of Palembang city health center. Each increase in 1 unit of perception of seriousness increases 0.074 units of Securing Household Waste Behavior (p value = 0.024) On the perception of benefits obtained every increase of 1 unit it will increase 0.135 units of Securing household waste behavior (p value = 0.001). Every increase of 1 unit of perception of eating problems will decrease 0.067 units of Securing Household Waste Behavior (p value = 0.049). Cue unit to act increases 0.078 units of CTPS behavior (p value = 0.023) Every increase of 1 unit of ability / efficacy increases 0.518 units of Securing household waste behavior (p value = 0.001). Each increase of 1 unit of Securing Household Waste Behavior will decrease stunting of 0.071 units (p-value = 0.039) From this study conclusions can be drawn from the perception of vulnerability, perception of seriousness, perceived usefulness, gestures to act, ability / self-efficacy has influence uh positive about household waste management behavior, but the

perception of obstacles has a negative influence on Securing household waste. The most influential component of gesture for action is family support.

Keywords: Stunting, Health Belief Model, Securing Household Waste.

INTRODUCTION

Stunting is due to nutritional deficiencies caused by insufficient nutritional intake.¹ It is estimated that one in four children under the age of five fails to grow along the optimal trajectory set in the Standards Required by the World Health Organization Children's Children.² Stunting is a manifestation of the deficiency nutrition and is a significant health problem.^{3,4} Global predictions show one in five children will be hampered by 2020.²

Research data from the Basic Health Research on nutritional status of short and very short toddlers in Indonesia in 2018 shows the stunting rate is 30.8%, compared to 2013 which was 37.2% and in 2017 amounted to 36.8%, when there was a significant improvement. The nutritional status of short and very short toddlers is lowest in Jakarta province with 17.7% and highest in East Nusa Tenggara province with 42.6% .⁵

The incidence of full statistical stunting has affected 165 million children worldwide, 90% of whom have managed to live in Africa and Asia. According to WHO, the estimated prevalence of stunting among children aged 5-18 years in Africa in 2015 was 37% compared to the next highest prevalence of 23% in Asia.² The prevalence of children under the age of five causing stunting in Southeast Asia is 29.4%, while in East Asia the prevalence of stunting was 14.4%, and West Asia was 20.9% .⁶

Stunting can provide poor health throughout a child's age, such as complications that require life during labor, decreased performance and cognitive development, poorer school participation, and reduced ability to improve adult abilities. Historically, research on stunting has to be done on food intake, however, much evidence is needed about the important role of the environment and physical health in children. The interaction between environment and nutrition presents interesting dynamics, while the interaction of environmental factors and nutritional status can cause changes in health status. An example is iron deficiency, which is triggered by increased lead, or parasitic infections, which are associated with stunting.²

One of the environmental factors, such as cleanliness, both from the results of waste obtained from the benefits used by human needs, can be interpreted as waste. Waste is considered as something that has no benefit and has no value.⁷ The more the number of occupations in a place, the more garbage is generated. Increasing the amount of waste produced by humans without being balanced with good waste management will have a negative impact on the surrounding environment and will cause health problems for the surrounding population.

Poor management of household waste tends to cause infection agents in the environment or an increased risk of infection. Chronic infections can cause malnutrition, through increased calorie requirements, tissue catabolism for energy, absorption of certain micronutrients, and reduced food intake so that the incidence of stunting also increases. Incorrect management of waste such as burning also carries the risk of air pollution which impacts on children's development. Pollution can

be in the form of proinflammatory cytokines that can interfere with hormones involved in the regulation of growth hormone and bone growth plates.^{8,9} Other infections can be like diarrhea, which as an indirect cause of stunting in children under five years, resulting in the same results in child growth barriers.^{10,11}

Securing household waste is conducting waste management activities in the household by prioritizing the principles of reducing, reusing, and recycling so as not to endanger public health and the environment. This study aims to find a model of reducing the prevalence of stunting in children under five in the city of Palembang through the processing of household waste.

METHOD

This research was an analytic observational study through a quantitative approach and cross-sectional study design. "In this study, the population is all mothers who have children under five (0-59 months) who check the condition of their children in the working area of Palembang city health center. "Sampling in this study uses consecutive sampling technique in which each respondent who meets the inclusion criteria is included as a research subject until the minimum number of samples is met within a certain period of time.

The inclusion criteria in this study are that respondents are willing to take part in the study, respondents can communicate well. Meanwhile, the exclusion criteria are children who have physical and / or mental disabilities, children who have chronic diseases and / or congenital diseases, children who have a history and / or are taking steroid drugs for a long time, children of parents with parents short stature history. Analysis of the model for reducing the prevalence of stunting of children under five in Palembang in terms of the Health Belief Model in the handwashing with soap program using *Path Analysis*

RESULT

From this study the data obtained were 582 male subjects and 524 female subjects (1.106 people). The largest population is at the age of 13-25 months (430 people). The population with vulnerable age 0-12 months is 273 people and vulnerable age 36-60 months is 403 people. In this study found 198 children who were stunted (17.9%). Research subjects with good Securing household waste behavior were 864 people, enough behavior was 206 people and bad Securing household waste behavior were 35 people.

Based on the perception of vulnerability as many as 967 research subjects have good vulnerability perceptions. A total of 553 subjects had sufficient perceptions of seriousness. A total of 971 subjects had good perception of benefits. Based on the perception of obstacles 938 research subjects have less obstacles. As many as 78 people in the study subject have a signal to act well and 860 people in the study subject have the ability or good self-efficacy.(figure 1)

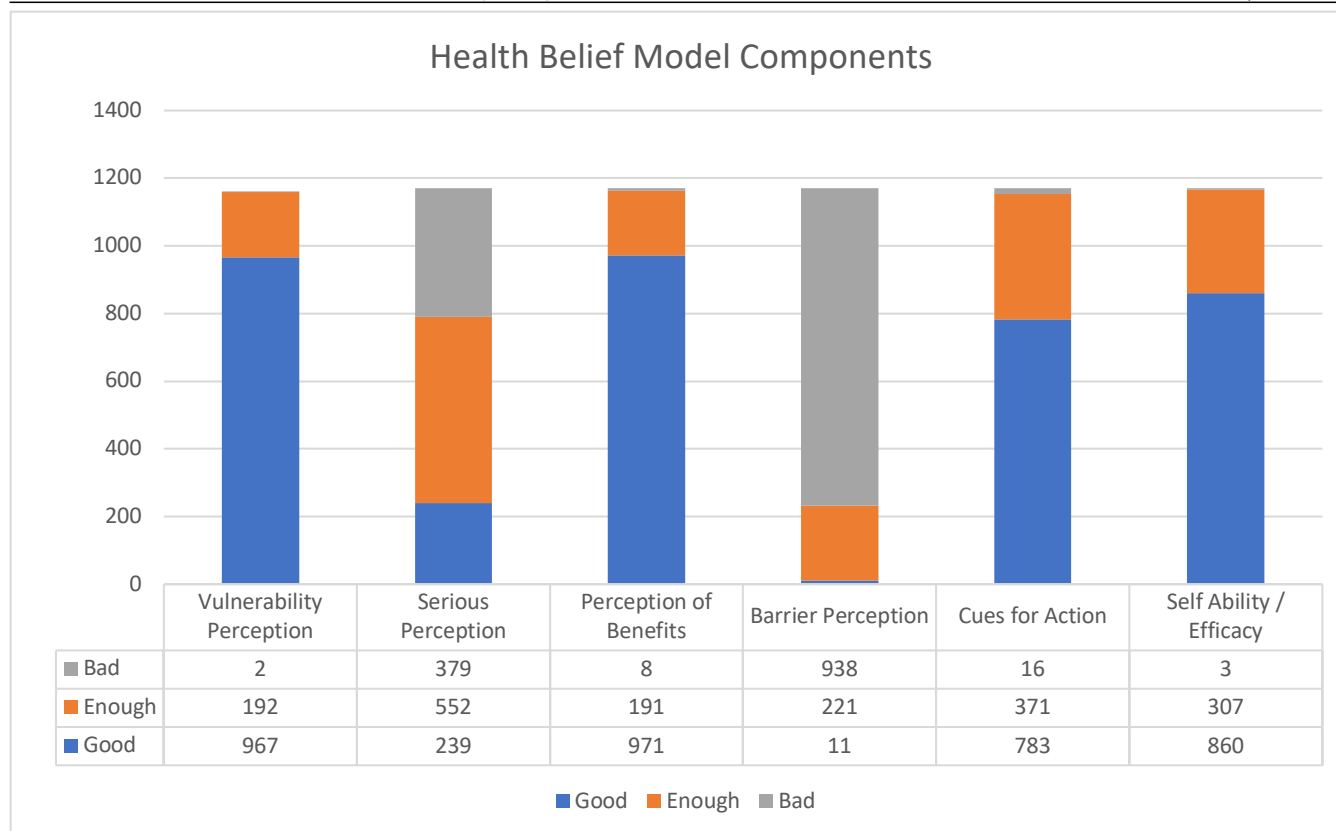


Figure 1. Frequency distribution of research subjects based on HBM

The path analysis model that is made is checked for compatibility with the variable relationship model using the SPSS AMOS 24 application. The indicators used to determine the suitability of the model in the path analysis can be seen in table 1. Obtained CMIN / DF 7,434 results, CFI of 0,707, NFI of 0,678, and RMSEA of 0.074.

Every increase of 1 unit of vulnerability perception increases 0.219 units of Securing household waste behavior (p-value = 0.001). Each increase in 1 unit of perception of seriousness increases 0.074 units of Securing household waste behavior (p value = 0.024). On the perception of benefits, each increase of 1 unit will increase 0.135 units of Securing household waste behavior (p value = 0.001). Every increase of 1 unit of perception of eating problems will decrease 0.067 units of Securing household waste behavior (p value = 0.049). An increase in 1 unit of gesture to act increases 0.078 units of CTPS behavior (p value = 0.023). Every increase of 1 unit of ability / efficacy increases 0.518 units of Securing household waste behavior (p value = 0.001). Every 1 unit increase in Securing household waste behavior will reduce stunting 0.071 units (p-value = 0.039). (Table 1) Table 1. Results of path analysis of applying the Health Belief Model to the factors that influence stunting in infants.

Dependent	Independent	Unstandardized path coefficient	S.E	p	Standardized path coefficient
Securing household waste Behavior	Vulnerability Perception (Y1)	0.235	0.37	0.001	0.219
Securing household waste Behavior	Serious Perception (Y2)	0.073	0.32	0.024	0.074
Securing household waste Behavior	Perception of Benefits (Y3)	0.140	0.35	0.001	0.135
Securing household waste Behavior	Barrier Perception (Y4)	-0.072	0.37	0.049	-0.067
Securing household waste Behavior	Cues for Action (Y5)	0.060	0.027	0.023	0.078
Securing household waste Behavior	Self Ability / Efficacy (Y6)	0.518	0.042	0.001	0.511
Stunting	Securing household waste Behavior	-0.058	0.028	0.039	-0.071
N Observation =	1106				
Model Fit					
CMIN/DF	7.434				
CFI	0.707				
NFI	0.678				
RMSEA	0.074				

The gesture to act because of family support correlates with Securing household waste behavior of 0.175 (p value = 0.001) and self-conscious awareness of 0.072 (p value = 0.022). Getting information from written messages is positively correlated with Securing household waste behavior of 1.67 with p-value of 0.001.

DISCUSSION

In this study, the results of each increase in 1 unit of vulnerability perception increase 0.219 units of PSRT behavior (p-value = 0.001). Each increase in 1 unit of perception of seriousness increases 0.074 units of PSRT behavior (p value = 0.024). On the perception of benefits, each increase of 1 unit will increase 0.135 units of PSRT behavior (p value = 0.001). Every increase of 1 unit of perception of eating problems will decrease 0.067 units of PSRT behavior (p value = 0.049). An increase in 1 unit of gesture to act increases 0.078 units of CTPS behavior (p value = 0.023). Every increase of 1 unit of ability / efficacy increases 0.518 units of PSRT behavior (p value = 0.001). Every 1 unit increase in PSRT behavior will reduce stunting 0.071 units (p-value = 0.039).

The results of this study support the research conducted by Badriyah namely there is a direct relationship between families managing waste and the prevalence of stunting. Families with poor household waste security increased the incidence of stunting by 1.17 times compared to families who applied waste security.¹²

Environmental health, in principle, is a state of healthy environment that gives a positive influence on healthy health status. The scope of which is covered in environmental health are among others: residential homes, sewage or feces, facilities for the availability of clean water, garbage disposal, disposal of household wastewater, and others. A bad environment can increase the risk of various kinds of infectious diseases that can be a risk of stunting.¹²

Other research that supports the results of this study is a study conducted in Brazil which found that children who live with difficult access to household waste management facilities are more vulnerable 2.55 times stunted and 2.74 times become underweight when compared to children with good access to facilities household waste management.¹³ Research conducted in Moramanga and Morondava environment is a factor for stunting.¹⁴

Research conducted by Wiyono stated that a house with a household solid waste security, has a z-score with a normal value compared to those that do not apply a household solidarity security. In this study, factors other than securing household waste such as cement floors, toilets that are routinely aligned become determinants of infection in homes that do not apply the above.¹⁵ Infectious diseases are one of the indirect causes of stunting. Recurrent or chronic infectious diseases can cause a disruption in the balance of nutritional needs and nutrient intake which, if not managed as soon as possible, will cause growth and development disorders in children. Influence given by dirty environment can also cause growth disturbance since intra uterine.¹⁶

A multi-center study conducted by Danaei et al in 137 developing countries found that environmental risk had the second largest impact on stunting occurring globally and in South Asia, sub-Saharan Africa, and the East Asia and Pacific region, while nutrition and infection problems children are the second risk factor group in other regions. In particular, 7.2 million cases of stunting worldwide are caused by poor sanitation.¹⁷ Reducing the burden of stunted growth requires ongoing efforts to diagnose and treat maternal and child infections, especially diarrhea, along with a renewed focus on clinical and public health interventions that focused on improving nutrition and sanitation among mothers and families. Modified stunting risk factors include environmental sanitation, exclusive breastfeeding, and family income.^{18,19,20}

Health Belief Component The perception constraint model in this study has a negative correlation with PSRT behavior. This is in line with the results of research conducted by Johansson on the influence of Swiss government regulations, namely the policy on weak waste can be an obstacle to the management and prevention plan for waste in the future.²¹ A form of service from the government in providing public services in the field of solid waste is carried out in the form of providing waste management services on public roads, public places or facilities for public interest and benefit.

Table 2. Regression Analysis Components of the cues act with a Securing household waste behaviour.

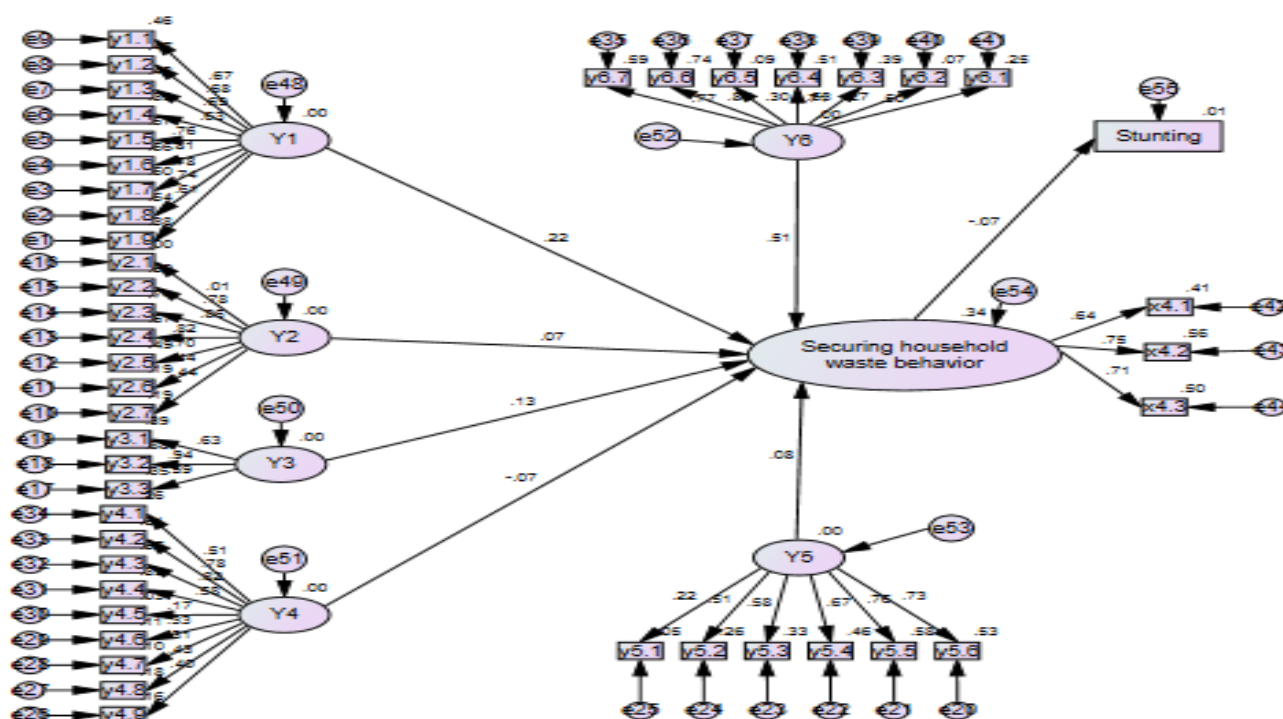
			Estimate	S.E.	C.R.	P
Securing household waste Behavior	<---	Y5.1 (Self Awareness)	.072	.032	2.286	.022
Securing household waste Behavior	<---	Y5.2 (Family Support)	.175	.037	4.708	***
Securing household waste Behavior	<---	Y5.3 (Information from neighbours)	-.027	.023	-1.191	.234
Securing household waste Behavior	<---	Y5.4 (Information from Health Education)	-.064	.029	-2.240	.025
Securing household waste Behavior	<---	Y5.5 (Information from written rules)	.167	.023	7.211	***
Securing household waste Behavior	<---	Y5.6 (Information from multimedia)	-.011	.025	-.444	.657

In this study also obtained the results that the cue to act because of the support of the family correlated with PSRT behavior of 0.175 (p value = 0.001) and self-conscious awareness of 0.072 (p value = 0.022). Getting information from written messages is positively correlated with Securing household waste behavior of 1.67 with p-value of 0.001. The results of this study are in line with research conducted by Zhang who analyzed the effectiveness of government written regulations on waste management in China. From the research it was found that with written regulations can increase awareness of the community and factories in processing household waste.²² Various forms of support including family support can contribute to the formation of a desire to process household waste this was examined by Chalak in 44 countries.²³ In the study one conducted by Nahman on household waste management in the community found that one of the factors that made someone want to do waste management regularly was encouragement from family and social support from the surrounding community.²⁴

In this study the process of taking information from respondents using a questionnaire filled directly by respondents. As a result of the sampling technique the data obtained are subjective data based on the acknowledgment of the respondents. Researchers do not see directly the process of processing household waste from respondents so that data cannot be obtained objectively. There is a possibility of a bias in the sampling process due to the sampling technique being carried out.

CONCLUSION

Standardized Structural Model



From this study conclusions can be drawn from the perception of vulnerability, perception of seriousness, perception of benefits, gestures to act, ability / self-efficacy has a positive influence on household waste management behavior, but the perception of obstacles has a negative influence on household waste processing. The signaling component for action has a significant positive correlation with the behavior of household waste management, namely family support and obtaining information through written messages. Suggestions that can be given based on this research are to improve interventions with family approaches and convey information through written messages such as regulations for the community.

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