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ORIGINAL ARTICLE

THE EFFECT OF SENSITIVE INTERVENTIONS ON STUNTING REDUCTION EFFORTS

Pengaruh Intervensi Sensitif Pada Upaya Penurunan Stunting

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ABSTRACT

Background: Stunting occurs when a toddler's growth is not age-appropriate, characterized by a child's body length or height being less than age-appropriate. Reducing stunting requires integrated interventions, including both nutrition-specific and nutrition-sensitive interventions. Efforts to address the indirect causes of stunting are summarised in nutrition-sensitive interventions, which account for 70% of stunting interventions. **Purpose:** This study aims to analyze the effect of sensitive interventions on efforts to reduce stunting among children under five years of age at *Puskesmas* (Community Health Centre) in Bangkalan Regency. **Methods:** The study was conducted in March-September 2020 with an analytical cross-sectional design. The population in this study were all children aged 1 to 5 years who were in the working area of Bangkalan District in January - December 2019, totaling 430. A sample of 207 was taken by random cluster sampling. The independent variables in this study were clean and healthy living behaviour (PHBS), access to family planning services, and insurance ownership (only BPJS because this insurance is the most commonly owned by the community). In comparison, the independent variable was stunting in toddlers. The data used were primary and secondary data using closed question questionnaires, Maternal and Child Health books, and cohorts of pregnant women/toddlers. Data were analyzed using logistic regression. **Results:** It was found that sensitive interventions that affect the incidence of stunting were PHBS with a p-value = 0.03 and

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BPJS ownership variables with a p-value = 0.04, which means that PHBS and BPJS affect the incidence of stunting in children under five. Meanwhile, the variable access to family planning does not affect stunting. **Conclusion:** Sensitive interventions affecting stunting incidence are PHBS and BPJS ownership.

ABSTRAK

Latar Belakang: *Stunting merupakan kondisi gagal tumbuh pada balita karena kekurangan gizi kronis yang ditandai dengan panjang atau tinggi badan dibawah standar. Penurunan stunting memerlukan intervensi yang terpadu, mencakup intervensi gizi spesifik dan gizi sensitive.* ***Tujuan:*** *Penelitian ini bertujuan untuk menganalisis pengaruh intervensi sensitif pada upaya penurunan stunting balita di Puskesmas Kabupaten Bangkalan.* ***Metode:*** *Penelitian dilakukan pada Maret-September 2020 dengan desain analitik cross sectional. Populasi pada penelitian ini adalah semua anak usia 1 sampai 5 tahun yang berada di wilayah kerja Kab. Bangkalan pada bulan Januari - Desember 2019 sejumlah 430. Didapatkan sampel 207 diambil secara cluster random sampling. Variabel independent pada penelitian ini adalah perilaku hidup bersih dan sehat, akses pada pelayanan KB dan kepemilikan asuransi (hanya BPJS karena asuransi ini yang paling umum dimiliki oleh masyarakat). Sedangkan variable independen stunting pada balita. Data yang digunakan adalah data primer dan sekunder menggunakan kuesioner pertanyaan tertutup, buku Kesehatan Ibu dan Anak dan kohort ibu hamil/balita. Data dianalis menggunakan regresi logistik.* ***Hasil:*** *Berdasarkan analisis didapatkan intervensi sensitive yang berpengaruh pada kejadian stunting adalah PHBS dengan nilai p value = 0,03 dan variable kepemilikan BPJS dengan nilai p value = 0,04 yang berarti PHBS dan BPJS berpengaruh terhadap kejadian stunting pada balita. Sedangkan variable akses pada keluarga berencana tidak berpengaruh pada stunting.* ***Kesimpulan:*** *Intervensi sensitif yang berpengaruh terhadap kejadian stunting adalah PHBS dan kepemilikan BPJS.*

INTRODUCTION

Stunting occurs because the growth of toddlers is not in accordance with age-appropriate growth, characterised by a body length or height less than age-appropriate length. Children will be categorised as stunted if their length or height is below -2 SD. The results of the 2018 Basic Health Research show that the national stunting rate has decreased to 6.40% in 5 years, from 37.20 (2013) to 30.80% (2018), while normal toddler growth has increased from 48.60% (2013) to 57.80% in 2018 (Kementerian Kesehatan, 2021). The 2016 Global Nutrition Report noted that the incidence of stunting in Indonesia is quite high. Indonesia is ranked 108 out of 132 countries with stunted toddlers. In the Southeast Asia region, the prevalence of stunting in Indonesia is the second highest after Cambodia (Kementerian Koordinator Bidang Pembangunan Manusia dan Kebudayaan, 2019). The results of the February 2019 weighing month, the incidence of stunting in Bangkalan Regency has decreased. The highest number of stunting in Arosbaya District was 260 toddlers or 15.10%, Kokop District was 476 toddlers or 10.50%, and Bangkalan District was 535 toddlers or 10.40% (Dinas Komunikasi dan Informatika Kabupaten Bangkalan, 2020).

Stunting is a threat to the quality of human development, as well as reducing economic productivity. The incidence of stunting and other nutritional problems that occur during the growth and development of children since the womb will have an impact on the growth and development of children, and they are at risk of growth retardation, which causes children to get sick easily. In addition, the impact on brain development will cause children's intelligence levels to decrease. Stunting and other nutritional problems are estimated to reduce gross domestic product (GDP) by around 3% per year. Global experience shows that sustainable, cross-sectoral, and cross-programme stunting prevention efforts in vulnerable groups at the appropriate time and place are key to the success of improving nutrition, child growth and development, and preventing stunting. In line with the initiative to accelerate stunting prevention, the government launched the National Movement for the Acceleration of Nutrition Improvement (Gernas PPG) stipulated by Presidential Regulation No. 42 of 2013 within the framework of 1000 HPK. Stunting prevention indicators and targets have been included as national development goals in the 2015-2019 National Medium-Term Development Plan/ Rencana Pembangunan Jangka Menengah Nasional (RPJMN) (Kementerian Koordinator Bidang Pembangunan Manusia dan Kebudayaan, 2019).

The government has made various efforts to reduce the incidence of stunting, namely specific nutrition interventions to address direct causes and sensitive nutrition interventions to address indirect causes. Nutrition-sensitive interventions are ideally carried out through cross-sectoral development. These efforts include the provision and use of clean water and environmental health, food diversity, easy access to health and family planning services, Jampersal, education about the correct parenting model, early childhood education, community nutrition education, sexual and reproductive health education, and nutrition in adolescents, social security for low-income families and nutritional food security (Kementerian Kesehatan, 2021). Nutrition-sensitive interventions contribute as much as 70% to the handling of stunting and involve many sectors, as the results by Probohastuti, Rengga, & Si (2019) research that nutrition-sensitive interventions involved many sectors, including increasing and providing access to clean water and sanitation, increasing access to nutrition and health and family planning, the National Health Insurance Programme (JKN), and increasing access to nutritious food. Nutrition-sensitive interventions contribute to 70% of the stunting response. Setyawati & Ramadha (2020) mentioned that one of the efforts to overcome stunting is to involve the role of the family in this case related to PHBS practices, parenting patterns, and families who have family planning. The target of this intervention is the general community, not just pregnant women and toddlers in the first 1000 days of life. Research by Bhutta et al., (2020) stated that reducing stunting on a large scale includes several steps related to diagnostics, stakeholder consultation, and implementing direct and indirect nutrition interventions in the health and non-health sectors.

The results of research in Bangladesh and Vietnam showed a decrease in the average annual rate of reduction (AARR) of up to 4.5% with the implementation of handling stunting through sensitive nutrition, including agriculture and food security, social security networks, early childhood development, maternal mental health, women's empowerment, child protection, schools, water, sanitation, hygiene, health, and family planning services (Handayani, Darmayanti, Setyorini, & Widiyanto, 2020). Sspecific and sensitive nutrition interventions had been proven to reduce the incidence of stunting in various Asian countries and Indonesia. Specific nutrition programmes and interventions implemented in Indonesia emphasise more on the direct handling of nutrition problems such as food intake and the onset of infectious diseases. Sensitive nutrition interventions cover a wider range of issues, including policies in other supporting sectors. Sensitive interventions have also been shown to be effective in reducing stunting through improved hygiene practices and the role of fathers in childcare (Setyawati & Ramadha, 2020).

PHBS is one way to prevent stunting by fulfilling healthy and correct nutritional needs and using clean water. A family with PHBS has implemented 10 indicators of PHBS in the household setting, from the fulfillment of nutrition from infancy (exclusive breastfeeding), healthy lifestyles, and good sanitation. Difficult access to clean water and poor sanitation also support stunting (Fitriani, Nislawaty, & Mayasari, 2021). Nutrition-sensitive interventions target not only the first 1000 days of life (HPK) but also continuous preparation efforts to prevent and treat

stunting in all sectors and the surrounding environment where toddlers grow and develop.

This study aims to analyse the effect of sensitive interventions (including PHBS, access to family planning services, and BPJS health) on efforts to reduce stunting at the Community Health Centre in Bangkalan Regency. Through this study, it is expected that health workers, families, and communities will more actively increase their participation in controlling the incidence of stunting in the surrounding environment.

METHODS

The research applied an analytical cross-sectional design. The population in this study were all children aged 1 to 5 years who were in the work area of Bangkalan Regency from January to December 2019. A total of 430 respondents with a sampling technique of random cluster sampling obtained a sample of 207 toddlers who met the inclusion criteria, namely children aged 1-5 years, have a Maternal and Child Health book, and did not suffer from congenital abnormalities. The following was how the research sample was taken:

NO	Community Health Centre	N	n
1.	Bangkalan City Community Health Centre	105	50
2.	Arosbaya Community Health Centre	100	48
3.	Kokop Community Health Centre	106	22
4.	Kwanyar Community Health Centre	53	26
5.	Galis Community Health Centre	66	32
		430	207

The independent variables in this study were (1) Clean and Healthy Living Behaviour (PHBS) which was measured based on the implementation of 10 indicators of PHBS in the household including childbirth assisted by health workers, exclusive breastfeeding, weighing babies and toddlers, washing hands with soap and running water, using clean water, using healthy latrines, eradicating larvae at home, eating vegetables and fruit every day, doing physical activity every day and not smoking in the house where the family was categorised as a PHBS family if 10 indicators were achieved, (2) access to family planning services, which was measured based on whether or not one of the contraceptives used, whether using hormonal or non-hormonal, temporary or permanent contraceptive methods, where if one of the partners (husband or wife) used one of the contraceptive methods, it was categorised as having access to family planning services and (3) ownership of health insurance, in this case only BPJS Health because this type of health insurance was widely owned by the community, especially in the Bangkalan Regency area, where if family members had BPJS Health insurance, it was categorised as having health insurance.

The dependent variable was the incidence of stunting in children aged 1 to 5 years, which was measured based on body length/height and age. It was categorised as stunting if the measurement results were below the normal line. In addition to these two variables, the characteristics of respondents who were also studied in this study were mothers of a toddler. It referred to the number of parity (the number of children born by the mother either born in full term, premature, over term, or abortion) and the level of education of the mother of a toddler. The research locations were 5 Community Health Centres in the Bangkalan district. They were Bangkalan Community Health Centre, Arosbaya Community Health Centre, Kokop Community Health Centre, Kwanyar Community Health Centre and Galis Community Health Centre, which represent urban, mountainous, and coastal areas near the sea. Data were collected using questionnaires tested for validity and reliability. Then, it has also been processed with the Spearman Rank statistical test, MCH books, and cohorts of pregnant women/toddlers.

The collected data were analysed descriptively. The relationship between factors and the incidence of stunting was analysed using logistic regression. This study was conducted after obtaining ethical permission from the Health Research Ethics Committee of Surabaya Health Polytechnic (Number EA/178/KEPK-Poltekkes_Sby/V/2020, 1 April 2020). Permission from the local government (district) as well as the local health office was also obtained before conducting this study. The data collection process followed the basic principles of bioethical research, explaining the details of the study, emphasising the voluntary nature of the respondents, collecting data safely, and ensuring data confidentiality. Respondents willing to be included in the study provided written informed consent.

RESULTS

The characteristics of 207 research respondents and research variables can be seen in Table 1. The characteristics of the respondents were mostly aged 20-35 years (76.70%), multiparous (72.70%), and the last education was primary level (70.70%). The frequency distribution of the dependent variable was mostly as a family with PHBS (80.20%), was a family planning acceptor (78.30%), and did not have health insurance (75.80%). According to the incidence of stunting in toddlers, most toddlers are stunted (81.20%).

The results of the logistic regression test in Table 2 show that the PHBS variable has a p-value = 0.03, which means that the PHBS variable affects the incidence of stunting in children under five. Likewise, the variable of health insurance ownership (BPJS) has a p-value = 0.04, which means that BPJS ownership affects the incidence of stunting in children under five. Nagelkerke's R Square value is 0.10. It indicates that the variability of the dependent variable (stunting) that can be explained by the variability of the independent variables (PHBS, access to family planning services, BPJS health simultaneously) is 10%. Meanwhile, the remaining 90% is explained by the variability of other variables outside the three independent variables studied.

DISCUSSION

Based on the logistic regression analysis of the variables, PHBS and BPJS health affect the incidence of stunting in toddlers with an R Square value of 0.10. This matter indicates that the variability of the dependent variable (stunting), which can be explained by the variability of the independent variables (PHBS, access to family planning services, BPJS health simultaneously), is 10%. In comparison, the remaining 90% is explained by the variability of other variables outside the three independent variables studied. At the same time, access to family planning does not affect the incidence of stunting (p-value 0.51). The strength of the relationship between PHBS and BPJS variables is weak, but that does not mean it can be ignored. PHBS in the household setting is one of the benchmarks of family behavior in implementing a healthy lifestyle, including efforts to meet healthy and correct nutritional needs and the use of clean water. It is in line with the research by Yuniar, Sumarni, & Adiastuty (2020), which stated that there was a relationship between PHBS and the nutritional status of infants.

Table 1
Frequency Distribution of Respondents

Variable	n	%
Age (Year)		
< 20	7	3,40
20-35	158	76,30
>35	42	20,30
Paritas		
Primipara	49	23,70
Multipara	151	72,90
Grandemultipara	7	3,40
Education		
Elementary	147	71,00
Intermediate	54	26,10
High	6	2,90
PHBS		
Have PHBS	166	80,20
No have PHBS	41	19,80
Access to family planning		
Have family planning	162	78,30
Not have family planning	45	21,70
BPJS Insurance		
Have Insurance	50	24,20
No Have Insurance	157	75,80
Incidence of Toddler Stunting		
Stunting	168	81,20
No Stunted	39	18,80
Total	207	100

Table 2
Logistic Regression Test Results

Variable	*p*	Wald	R square	Omnibus Tests of Model Coefficients
PHBS	0,03	4,89	0,10	0,00
BPJS	0,04	4,07		

One of the causes of stunting was households that have not had PHBS. The categorisation of households with PHBS uses 10 indicators, including childbirth assisted by health workers, exclusive breastfeeding, weighing babies and toddlers, washing hands with clean water and soap, using clean water, using healthy latrines, eradicating mosquito larvae at home, consuming vegetables and fruit every day, doing physical activity every day and not smoking in the house. Lack of access to clean water and healthy latrines can lead to an increased risk of infectious diseases related to the digestive system, such as diarrhoea and helminthiasis, which can hinder the absorption

of food in the body. If this condition lasts a long time and is not accompanied by adequate intake, it can result in stunting (Heryanto & Martha, 2019). The occurrence of stunting in Indonesia was caused by the low number of risk factors originating from the environment. These factors included economic status, mother's education level, family income, open defecation habits, latrines that do not meet the requirements, untreated drinking water, and high pesticide exposure (Nirmalasari, 2020). The causes of stunting in Bandung city were poverty and poor sanitation (Essa, Nurfindarti, & Ruhyana, 2021).

Children who live in an environment with good sanitation conditions are at low risk of stunting (Rah, Sukotjo, Badgaiyan, Cronin, & Torlesse, 2020). Increasing the coverage of households with good access to sanitation is the strongest predictor of stunting prevalence (Wardani, Sukandar, Baliwati, & Riyadi, 2020). The high stunting rate in North Lombok Regency was due to poor community sanitation conditions. Many people still have the habit of defecating in the river or garden and have low maternal knowledge about utilising health facilities, so children are more often taken to traditional healers than health care facilities (Liem, Marta, & Panggabean, 2019). Nutrition improvement programs in Ethiopia reduced the prevalence of stunting and fever compared to nutrition programs alone (JR, H, W, M, & Freeman, 2019). Nutritional improvement efforts followed by WASH behaviours were most effective in improving long-term child health (Kwami, Godfrey, Gavilan, Lakhanpaul, & Parikh, 2019).

The results is in line with Rahmawati, Fajar, & Idris (2020) which stated that the number of toddlers and birth spacing are not associated with stunting. The use of contraceptives is one of the main forms of preventive services for women. Contraceptives used by acceptors are one of the actions to help couples of childbearing age to avoid unwanted births, regulate birth spacing and determine the number of children in the family. The goal of the family planning programme is to form a small, quality family in the sense that each child has the opportunity to get the appropriate care, love, and nurture that can support their growth and development. The family planning programme provides the opportunity to space births or reduce the number of births by using hormonal or non-hormonal contraceptive methods. These efforts can be temporary or permanent, although each type of contraception has a different and almost equal level of effectiveness (Jitowiyono & Rouf, 2019). Mothers who have several children have experience in child care and parenting. The care and upbringing of toddlers can be assisted by other family members (older siblings) so that the growth of toddlers is monitored (Rahmawati et al., 2020). Research by (Ariningtyas, 2019) also showed the same results, that the number of family members was not associated with the incidence of stunting.

Family planning services related to stunting are the size of the family. The size of the family is directly proportional to the fulfilment of food needs, especially related to the amount and distribution of food in the household. A large number of family members without being followed by adequacy in good food distribution can make families vulnerable to malnutrition, especially if there are toddlers in the family, which will greatly impact their growth and development. However, if the number of large families is followed by the adequacy of good food distribution, then the vulnerability of malnutrition in the family can be prevented (Haris, Fitri, & Kalsum, 2019). Children in families who participated in health insurance had a decreased risk of stunting by 4.30 points compared to those who did not participate in health insurance. The benefits obtained by participating in health insurance include increased health protection, financial protection, and maximum utilisation of health services. It means that having health insurance reduces the incidence of stunting in children (Nshakira-Rukundo, Mussa, Gerber, & von Braun, 2020).

Presidential Regulation, No 64 of 2020 on Health Insurance, emphasises that all Indonesians must have health insurance. It aims to protect the entire Indonesian population regarding basic health needs. Toddlers with health insurance will find it easier to access health services when needed. Toddlers who get sick more often can interfere with their growth and development. If left unchecked, it will affect the nutritional status of toddlers. The results of research by Budiana & Supriadi (2021) stated that there is a relationship between child health insurance ownership and malnutrition incidence. Having child health insurance will reduce the need for parents to provide money for treatment. It also means that it is easier for toddlers to access better health services. The government has attempted to overcome stunting by overcoming the indirect causes that cause stunting through relevant ministries/institutions. The efforts include the

existence of the National Health Insurance (JKN), Universal Childbirth Insurance (Jampersal), providing assistance and social security for poor families through the Low-Income Community Rice Subsidy Program (Raskin / Rastra) and the Family Hope Program (Ridua & Djurubassa, 2020).

Research Limitations

This study focuses more on nutrition-sensitive interventions related to individual and family behaviour in responding to government policies that have been implemented, namely PHBS, family planning services, and the provision of health insurance in the form of BPJS. Other variables included in other sensitive interventions, such as food fortification, parenting patterns, nutrition education, adolescent reproductive health and food, and nutrition security, have not been studied.

CONCLUSION

The results showed that the characteristics of respondents were mostly aged 20-35 years, multiparous, and the last level of education was elementary. Sensitive interventions that affect the incidence of stunting in toddlers are PHBS and BPJS health.

CONFLICT OF INTEREST

There is no conflict of interest in this study, starting from research preparation, licensing, and data collection to finance.

AUTHOR CONTRIBUTIONS

The entire research team actively participated in the research activities. UK was responsible for drafting the proposal, processing and analysing the research data, and publication. Meanwhile, E was responsible for recapitulating the results, editing, coding, and tabulating. ANL was responsible for coordinating licensing, enumerator liaison, and data collection. The last, NLS was responsible for processing and analysing the research data and publication.

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