A Study on Healthy Family Index with Stunting in PT. Mifa Bersaudara

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Abstract: Stunting is a global problem that has a long-term impact on the quality of human resources. The reduction and prevention of stunting can be carried out with supervision during the first 1000 days of life.This study aims at examining whether health-conscious families can reduce and prevent stunting. The study is conducted in the operational area of PT Mifa Bersaudara. The research method used in this study was a quantitative study. This study had been conducted from March to September 2019. The instrument used is the Family Health Indicators issued by the Ministry of Health of Indonesia. The data were analyzed using the formula of health-conscious family index and Z-score. The population is all families in the area of 1,133 households with 293 families having toddlers as the respondents. The results show that the families in the operational area of PT Mifa Bersaudara are mostly in pre-healthy families (51.5%) and there were 88 stunted children. The statistical test results show that there is a relationship between the index of healthy families and the incidence of stunting (p-value<0.05).The logistic regression test shows a significant relationship between the incidence of stunting and the families following the family planning program, exclusive breastfeeding, toddlers receiving monitoring, and no family members smoking. Stunting is associated with health-conscious family. The incidence of stunting in infants and toddlers is associated with families that plan the pregnancy spacing (family planning), babies getting exclusive breastfeeding, toddlers getting growth monitoring, and no smoking family members.

Keywords: Stunting, Healthy Family Index, PT Mifa Bersaudara.

Introduction

Nutritional status is a condition caused by a balance between the amount of nutrient intake and the body's nutritional needs[1]. The strategic role of nutritional status in Indonesia's human development efforts sets it as one of the targets of the National Medium-Term Development Plan (RPJMN) in the health sector, which is to reduce the prevalence of undernourished nutrition and the prevalence of short stunting[2].

Stunting is a failure to grow in children due to long-term malnutrition in where the growth that does not match the age of the child[3]. For Indonesia, there are currently estimated to be 37.2% of children aged 0-59 months or around 9 million children with stunting, which continues until school age 6-18 years[4]. Stunting starts from pre-conception when a teenager becomes an undernourished and anemic mother. It becomes worse when being pregnant with inadequate nutritional intake, especially when the mother lives in an environment with inadequate sanitation[5]. To overcome the problem of stunting, efforts are needed to reduce stunting with the supervision during the first 1000 days of life in order to monitor whether nutritional intake needs supporting the growth and development of children can be fulfilled[6].

As a matter of fact, PT Mifa Bersaudara has been established since January 14, 2002 and has been ratified by the Decree of the Minister of Law and Human Rights No.C- 03647.HT01.01.TH.2002 regarding Ratification of the Deed of Establishment of a Limited Company. Right in 2012, PT. Mifa Bersaudara started to explore the coal mines in the area of West Aceh. Since its presence, the families

living around PT Mifa Bersaudara have often faced social upheaval problem such us a stunting which cause by the coal[7]

With the problems that arise, it is necessary to have a health-conscious family index study. It is important that people in the operational area of PT. Mifa Bersaudara are aware of the importance of health. With this study, it can also be found whether families with a healthy family index can prevent stunting from their children.

The purpose of this study is to examine the index of health-conscious families with stunting in the Operational Area of PT Mifa Bersaudara, West Aceh Regency.

Methods

This study is a quantitative study with cross sectional study design. The study is conducted in the working area of PT Mifa Bersaudara, West Aceh Regency that has two rings (Ring 1 consists of operational crossing village and port village; and Ring 2 consists of non-operational crossing village). This study measures the Healthy-Conscious Family Index in Ring 1 Village which consists of nine villages, they are Peunaga Cut Ujong Village, Buloh Village, Bukit Jaya Village, Sumber Batu Village, Balee Village, Paya Baro Village, Reudeup Village, Pucok Reudeup Village, and Suak Puntong Village. The study was conducted from March to September 2019. The population is all families in the area consisting of 1,133 households with the target population were those families who have toddlers. Thus, it indicates that the inclusion criteria consist of respondents living in the operational are of PT Mifa Bersaudara, having toddlers, and are willing to participate in this study. This inclusion process resulted in 293 families as the sample of this study. The data were collected using the Family Health Indicators issued by the Ministry of Health of Indonesia which possesses a good validity and reliability. The data were analyzed using the formula of health-conscious family index and Z-score.

The stages of the research carried out are as follows[8]. First, the coordination meeting with the Community Health Center of Meureubo and Padang Rubek, which are the health center in the operational area of PT MIFA Bersaudara, was carried out. Second, a family indicator survey was conducted. Third, the process was classifying each family as healthy, pre-healthy and unhealthy. The determination of a healthy family index was carried out (< 0.5 unhealthy, 0.5 up to 0.8 Pre-Healthy, > 0.8 Healthy). Fourth, the measurement of the nutritional status of children under five was done by using the formula of Body Weight/Age, Body Height/Age, and Body Weight/Body Height. Fifth, performing the the the Z-Score test to see the value comparison. The formula is as show below:[5]

$$Z\text{-score} = \frac{\text{Subject Individual Value} - \text{Referenced Standard Median Value}}{\text{Referenced Standard Deviation Value}}$$

Later, the data analysis in this study used univariate, bivariate and multivariateanalysis. Bivariate analysis used chi-square test, while multivariate analysis used logistic regression test. And finally, the instrument used in this study is an instrument from the Ministry of Health concerning family health indicators.

Results

Operational Crossing Village and Ring 1 Port Village in PT MIFA Bersaudara's work area are villages in West Aceh Regency and Nagan Raya Regency. The villages in West Aceh Regency consist of Balee Village, Bukit Jaya Village, Buloh Village, PayaBaro Village, Peunaga Cut Ujong Village, Reudeup Village, Reudeup Village, Reudeup Village, SumberBatu Village, and Meureubo Village as a comparison village. There is only 1 village in Nagan Raya Regency namely SuakPuntongVillage.

Based on the data found in the region, the number of households in the operational area of PT Mifa Bersaudara was 1,133 households with a population of 3,351 people consisting of 1,773 women and 1,758 men. The number of children under five years old in this region is 293 children out of 601 households.

Figure 1 below shows that every village has stunting case with the highest number of 43.42%.

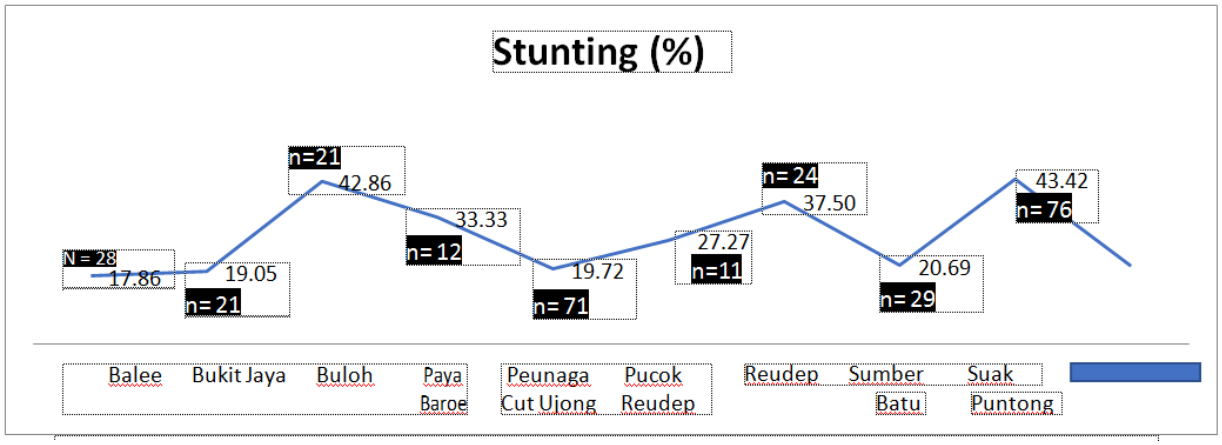

Figure 1: Stunting frequency Distribution in the region Operasional PT. Mifa Bersaudara

Table 1 below shows that families with normal growing infants and toddlers, majority of them received exclusive breastfeeding (69.1%), completed immunization (62.6%), participating in family planning (69.8%), having clean water facilities (66.4%), and having no family members smoking or exposed to smoking environment (69.2%).

Table 1. Overview of indicators of family health with stunting

Indicators of family health	Stunting (n= 125)		Normal (n= 168)		Total = 293	
	f	%	f	%	F	%
Families Participating in Family Planning	42	30.2	97	69.8	139	100
Maternity in a health facility	103	39.8	156	60.2	259	100
Receiving complete immunization	68	37.4	114	62.6	182	100
Having exclusive breastfeeding	47	30.9	105	69.1	152	100
Havingtoddlers getting growth monitoring	100	47.2	112	52.8	212	100
Having non-smoking/smoke exposure to family members	68	30.8	153	69.2	221	100
Possessing national health insurance	106	46.3	123	53.7	229	100
Having clean water facilities	51	33.6	101	66.4	152	100
Healthy latrines relate to the incidence	70	35.5	127	64.5	197	100

The table above shows that from 293 toddlers, 42.7% of them are stunted. Statistical test results show that families participating in family planning, having exclusive breastfeeding, having toddlers getting growth monitoring, having non-smoking/smoke exposure to family members, possessing national health insurance, having clean water facilities, and healthy latrines relate to the less incidence of stunting (obtained p-value <0.05).

Table 2. Relationships between Health-Conscious Families and Stunting

Family Health Indicators	Stunting				Total		P-Value	OR
	Yes		No					
	f	%	f	%	f	%		
Families Participating in Family Planning							0.000	2.7
Yes	42	30.2	97	69.8	139	100		
No	83	53.9	71	46.1	154	100		
Maternity mother							0.01	2.77
Yes	103	39.8	156	60.2	259	100		
No	22	64.7	12	35.5	34	100		
Babies get complete immunizations							0.026	1.77
Yes	68	37.4	114	62.6	182	100		
No	57	47.4	54	63.6	111	100		
Having exclusive breastfeeding							0.000	2.76
Yes	47	30.9	105	69.1	152	100		
No	78	55.3	63	80.8	141	100		
Having toddlers getting growth monitoring							0.017	0.5
Yes	100	47.2	112	52.8	212	100		
No	25	30.9	56	69.1	81	100		
Having non-smoking/smoke exposure to family members							0.000	8.555
Yes	68	30.8	153	69.2	221	100		
No	57	79.2	15	20.8	72	100		
Possessing national health insurance							0.026	0.49
Yes	106	46.3	123	53.7	229	100		
No	19	29.7	45	70.3	64	100		
Having clean water facilities							0.002	2.187
Yes	51	33.6	101	66.4	152	100		
No	74	52.5	67	47.5	141	100		
Healthy latrines relate to the incidence							0.001	2.434
Yes	70	35.5	127	64.5	197	100		
No	55	57.3	41	42.7	96	100		

Table 3 is the final stage of analysis of this research. After analyzing the data, it turns out that the family health indicators included in the regression model are the family following the family planning program, the baby getting exclusive breastfeeding, the toddler receiving growth monitoring, and none of the family members smoke by getting R2 = 35.4%, which state that 35.4 % of these indicators can explain stunting. F-test results show that the p-value = 0.000, at alpha 5%. It is stated that this model is suitable in stunting prevention. The logistic regression test was carried out for variables of families following the family planning program, exclusive breast feeding, toddlers receiving monitoring, and no family members smoking with the incidence of stunting. The final model produced through several phases released is: Y = -1.628 + 1.046 X1 + 0.993 X2 + (- 0.981) X3 + 2.198 X4.

Discussion

Families Not Participating in Family Planning

The results showed that most families did not participate in the family planning program (52.6). Multivariate test results found Exp (B) of 2.846 which indicated that families who did not participate in family planning were 2.86 times more likely to have stunting on their children.The number of families correlated with family food security. Toddlers living with 5 to 7 family members have a risk of 2.97 times greater stunting than toddlers who live with 2 to 4 family members. This is caused by the lack of food availability if many people live in one house[9]. Adjusting birth spacing is a precaution to minimize unwanted pregnancy and can reduce stunting. Reproductive health interventions in couples of childbearing age are integrated into nutritional fulfillment relationships for family members[10].

The results showed that families who used contraceptives to keep their pregnancy space correlated with supplementary feeding for children under five[11].The ideal number of family members has an impact on meeting the nutritional needs of their children. Mothers who are pregnant at the age of their children are still under 2 years are vulnerable to malnutrition in infants associated with breastfeeding weaning and supplemental feeding[12].

Infants Receiving Exclusive Breastfeeding

Exclusive breastfeeding is the best food for babies of 0-6 months. Exclusive breastfeeding increases five times babies' body immunity, thus making it not susceptible to disease, which also impact on the incidence of stunting. In this region, the achievement of exclusive breastfeeding is still low at 51.9%. The regression model shows that exclusive breastfeeding is very influential for avoiding the incidence of stunting, with an exp (B) value of 2.7, which indicated that infants who did not get exclusive breastfeeding were 2.7 times more at risk for stunting.

In addition, health promotion in this region continues to be encouraged so that mothers will have their babies exclusively breastfed, but the achievement of targets is still very low. The reason a mother does not give exclusive breastfeeding to her baby is the cultural factor that requires babies in *peucicap* to provide drinks and additional food such as bananas. Besides, some of them are career women[13]. The results of the study by Ashok, et al. (2015) explain that children who are given exclusive breastfeeding have good immunity and nutritional content in breast milk can prevent stunting[9].

Toddlers Receiving Growth Monitoring

Stunting is a complex phenomenon associated with malnutrition where monitoring of toddler growth can reduce the risk of stunting in toddlers. The results of the study of health-conscious families reveal that most toddlers who do not get growth monitoring (30.9%) will experience stunting.

Family care supports the growth and development of healthy children[14]. Monitoring toddler growth is an effort to prevent stunting. Inadequate feeding and care will lead to high rates of stunting in toddler[15]. The results of research in India found that households that monitor growth every two weeks have a significant correlation with the growth of their children[16].

Smoking by Family Members

Toddlers who are often exposed to cigarette smoke will be at risk of pneumonia and ARI, which are classified as an infectious disease. The result of Angina (2019) shows that infectious diseases in children under five is closely related to the incidence of stunting[17]. Another research found that children who live in households that use solid fuels are significantly associated with the incidence of stunting[18]. Coal is a type of solid fuel[19, 20]. The use of solid fuel used by the PT Mifa Bersaudara can have an impact on health, especially for infants and toddlers in the operational area of PT. Mifa Bersaudara.

Families Not Possessing Clean Water

Clean water facilities correlate with stunting. Availability of clean water is an intervention to prevent infectious diseases such as diarrhea. Mbuya, et al. (2016) found that microbes that are processed into human body can reduce immunity and suppress growth as well as inhibit bone growth which then correlates with the incidence of stunting in children[21]. Furthermore, the research results of Cha y, et al. (2014) indicated that poor sanitation can cause diarrhea[22]. Children who often experience infectious diseases such as diarrhea is prone to malnutrition[23].

Possessing Healthy Latrines and Proper Defecation Practice

Possessing a healthy latrine for each house is needed to improve family sanitation. Proper sanitation and good waste management are very important for health [24, 25]. The results of this study indicate that 32.8% of families do not have proper latrines. This circumstance is caused by several factors which are knowledge, family economy, and habits that are difficult to change. Clean and healthy behavior is still not optimally applied in this region. This is due to the location of the area that is far from health services, so the education for PHBS (Healthy and Clean Behavior) is not conveyed properly[26].

Conclusion

Health-conscious families have a significant influence on the incidence of stunting. In this study, it was found that a health-conscious family study model is an appropriate model used for stunting prevention. The model obtained from the study results is Y = -1.628 + 1.046 (Families participating in the Family Planning program); + 0.993 (Babies receiving breast milk/exclusive breastfeeding); + (-0.981) (Toddlers getting growth monitoring); + 2.198 (Family members not smoking). The incidence of stunting in infants and toddlers is associated with families that regulate the distance of pregnancy (family planning), infants getting exclusive breastfeeding, toddlers getting growth monitoring and no family members who smoke.

Thus, it is suggested that In PT Mifa Bersaudara area, education is needed for the community to understand what is considered as a healthy family since it helps improving the health status of the community in the area. In addition, with PT Mifa Bersaudara CSR funds a place called *Rumoh Gampong Sehat* (Healthy Village House) can be formed as a place for health literacy, a place for public education about health, and a place for sharing if the community experiences health problems.

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