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Family Empowerment Model for Stunting-Sensitive Nutrition Interventions in Bangkalan, Indonesia

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ABSTRACT Stunting is the result of chronic nutritional problems as a result of poor quality food, coupled with morbidity, infectious diseases, and environmental problems. Family is the first and main social environment for children's growth and development. Children will develop optimally if they get good stimulation from the family. Nutrition-sensitive interventions include 12 things that can be done by families and communities to tackle stunting in children under five. This study aims to develop a family empowerment model on nutrition-sensitive interventions for handling stunting. The research was conducted in April-June 2022 with a survey / observational design with a cross sectional design, a sample size of 170 respondents who met the inclusion criteria. The results showed that behavior has a direct influence on stunting. Respondent characteristics have an indirect influence in influencing the occurrence of stunting through increasing knowledge, attitudes and behavior in stunting prevention. Facility availability has an indirect influence through behavior, while knowledge has an indirect influence through attitudes and behavior. Attitudes will influence behavior in stunting prevention so that the incidence of stunting will decrease. Increased knowledge will greatly determine attitudes and behaviour in preventing stunting. Family behaviour in handling stunting through sensitive nutrition interventions will be formed if it is based on good knowledge and the availability of adequate facilities.

INDEX TERMS family empowerment model, sensitive intervention, stunting.

I. INTRODUCTION

Stunting is a form of malnutrition characterised by height-for-age below the standard deviation (< -2 SD) as referenced by the World Health Organization (WHO) 2005[1]. In Bangkalan Regency, the results of the weighing month of February 2019, the incidence of stunting was 5.2% with the highest sub-district of Arosbaya at 15.1%, Kokop District 10.5% and Bangkalan District 10.4%. (Bangkalan District Health Office, 2019).

The family is the first and main social environment for the growth and development of children. Children will develop optimally if they get good stimulation from the family. Friedman mentioned that one of the functions of the family is health maintenance, namely maintaining the

health condition of family members in order to maintain high productivity. A good care system will help children to grow and develop better (Graves and Shelton, 2007). Various potential resources in the family that are utilised properly will help overcome existing problems more effectively than using other resources that are not necessarily owned[2]. The high incidence of stunting and the suboptimal level of public health are basically influenced by environmental conditions, community behaviour, health services and genetics[3]. The family as the closest resource still cannot be maximised in carrying out its functions, especially in preventing and handling stunting. The socio-culture of family meals, the pattern of caring for toddlers who are mostly cared for by grandmothers or relatives and

family food security are some of the factors that influence the incidence of stunting from the family side [4]. The results of this study are in accordance with the concept of family empowerment, explaining that one of the difficulties of families in fulfilling their needs is not because of their inability to do so, but rather the family's social support system that does not provide opportunities for this to be achieved (Graves and Shelton, 2007).

Nutrition-sensitive interventions are efforts to deal with stunting by targeting the general public including the family environment, which contributes to 70% of stunting interventions[3]. Nutrition-sensitive interventions include 12 things that can be done by families and communities to treat stunting in toddlers. The results of Esyuananik's research (2019) state that parenting patterns in the family affect the incidence of stunting. Rahmawati states that there is a relationship between the implementation of family roles and the incidence of stunting[5]. Likewise, the results of Wiliyanarti's research that the role of the family is very influential on the diet of stunting toddlers[6].

Unicef recommends providing nutrition education to families in dealing with stunting in Indonesia [7]. This means that families need to play a more active role in preventing and managing stunting. Therefore, it is very important to understand what elements support both directly and indirectly in activating family empowerment. This research emphasises on identifying the elements that make up the family empowerment model in overcoming stunting.

This research aims to develop a Family Empowerment Model in overcoming stunting. interventions for handling stunting among toddlers in Bangkalan Regency. Through this research, it is expected that families will be more active in increasing their participation in controlling the incidence of stunting in their neighbourhood.

II. METHOD

Stunting is a form of malnutrition characterised by height-for-age below the standard deviation (< -2 SD) as referenced by the World Health Organization (WHO) 2005. In Bangkalan Regency, the results of the weighing month of February 2019, the incidence of stunting was 5.2% with the highest sub-district of Arosbaya at 15.1%, Kokop District 10.5% and Bangkalan District 10.4%. (Bangkalan District Health Office, 2019).

The family is the first and main social environment for the growth and development of children. Children will develop optimally if they get good stimulation from the family. Friedman mentioned that one of the functions of the family is health maintenance, namely maintaining the health condition of family members in order to maintain high productivity. A good care system will help children to grow and develop better (Graves and Shelton, 2007). Various potential resources in the family that are utilised properly will help overcome existing problems more effectively than using other resources that are not necessarily owned[6]. The high incidence of stunting and the suboptimal level of public health are basically influenced

by environmental conditions, community behaviour, health services and genetics.

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This study aims to develop a Family Empowerment Model in nutrition-sensitive interventions for handling stunting among toddlers in Bangkalan Regency.

III. RESULTS

The characteristics of 170 research respondents and research variables can be seen in TABLE 1. The characteristics of the respondents included the age of the wife mostly in the range of 20-35 years (77.6%), the age of the husband mostly in the range of 20-35 years (57.1%), the age of the wife at marriage mostly in the range of 20-35 years (69.4%), the age of the husband at marriage mostly in the range of 20-35 years (93.5%), length of marriage was mostly > 10 years (35.3%), education of the wife was mostly primary level (53.5%), education of the husband was mostly primary level (55.3%), parity was mostly multiparous (68.2%), occupation of the head of the family was mostly private (87.1%), family income was mostly $< \text{UMR}$ (65.3%) and family form was mostly nuclear family (77.6%). As for cultural variables, the majority are not supportive (70.650), the availability of facilities is mostly not available (58.8%), knowledge about sensitive nutrition interventions is mostly good (74.7%), parents' attitudes in preventing stunting are mostly supportive (53.5%) and parents' behaviour in preventing stunting is mostly appropriate (52.4%). Judging from the incidence of stunting in toddlers, the majority of toddlers do not experience stunting (61.8%).

TABLE 1
 Frequency Distribution Of Respondents' Characteristics

Respondent Characteristics n	n	%
Age of wife		
<20 years	3	1,8
20-35 years	132	77,6
>35 years	35	20,6
Age of husband		
<20 years	0	0
20-35 years	97	57,1
>35 years	73	42,9
Age of wife at marriage		
<20 years	52	30,6
20-35 years	118	69,4

>35 years	0	0
Age of husband at marriage		
<20 years	10	5,9
20-35 years	159	93,5
>35 years	1	0,6
Length of marriage		
1-5 years	55	32,4
5-10 years	55	87,9
>10 years	60	35,3
Wife education		
Elementary School	91	53,5
Senior High School	40	23,5
University	39	22,9
Husband education		
Elementary School	94	55,3
Senior High School	43	25,3
University	33	19,4
Paritas		
Primipara	50	29,4
Multipara	116	68,2
Grande multipara	4	2,4
Family Head Occupation		
Government Employee		11
Private	148	87,1
Farmer	9	5,3
Housewife/not working	2	1,2
Income		
<UMR (Regional minimum wage)	111	65,3
UMR (Regional minimum wage)	59	34,7
Family form		
Nuclear family	132	77,6
Extended family	38	22,4
Culture		
Supportive	50	29,4
Not supportive	120	70,6
Facility availability		
Available	70	41,2
Not available	100	58,8
Pengetahuan		
Good	127	74,7
Moderate	36	21,2
Less	7	4,1
Attitude		
In favour	91	53,5
Not in favour	79	46,5
Behaviour		
Appropriate	89	52,4
Not appropriat	81	47,6
Incidence of Toddler Stunting		
Stunting	65	38,2
Not Stunted	105	61,8

6,5

A. DISCRIMINANT VALIDITY MEASUREMENT RESULTS.

The complete discriminant validity test results are presented in the following TABLE 2

From TABLE 2, it can be seen that in the six variables, the root AVE value is greater than the correlation value between variables, thus discriminant validity is fulfilled.

B. RELIABILITY TEST RESULTS

The following presents the results of reliability measurements:

TABLE 3
 Composite Reliability Testing Results

Variable	Composite Reliability	Description
Facilities	0.790	Reliable
Characteristics	0.847	Reliable
Knowledge	0.835	Reliable
Behaviour	1.000	Reliable
Attitude	0.814	Reliable
Stunting	1.000	Reliable

TABLE 3 is the test results show the composite reliability value of all variables above 0.7, so the composite reliability has been fulfilled. so it can be concluded that the existing indicators can be a measure of variable constructs.

Based on FIGURE 1, the Bootstrapping test results, the following model is obtained:

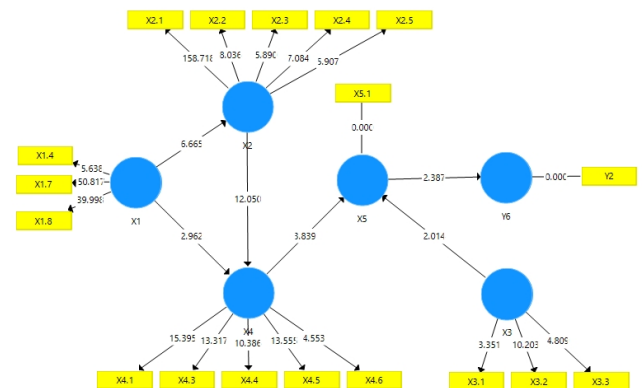


FIGURE 1. Family Empowerment Model

Based on the concept model there are 8 hypotheses tested as in the following TABLE 4

Based on TABLE 4, the following hypotheses can be analysed:

1. H1 (influence between facilities on behaviour)

The results of testing the first hypothesis show that the effect of the Facility variable on behaviour shows a statistical t value of 2.014, this value is greater than the t table (1.96) and a p-value of 0.045, which is smaller than (0.05). This shows that there is a significant influence between facilities on behaviour. Therefore, it can be stated that hypothesis 1 (H1) is accepted.

2. H2 (influence between Characteristics on Knowledge)

TABLE 2
 Discriminant Validity Test Results

	Facility	Characteristic	Knowledge	Beha-viour	Attitude	Stunting
Facilities	0.749					
Charac-teristics	0.150	0.813				
Knowledge	0.241	0.284	0.716			
Behaviour	0.226	0.232	0.376	1.000		
Attitude	0.244	0.354	0.685	0.446	0.687	
Stunting	-0.170	-0.081	-0.234	-0.228	-0.284	1.000

The results of testing the second hypothesis show that the effect of the Characteristics variable on Knowledge shows a statistical t-value of 6.665, this value is greater than the t table (1.96) and a p-value of 0.000, which is smaller than (0.05). This shows that there is a significant influence between Characteristics on Knowledge. Therefore, it can be stated that hypothesis 2 (H2) is accepted.

3. H3 (influence between Characteristics on Attitude)

The results of testing the third hypothesis show that the effect of the Characteristics variable on Attitude shows a statistical t value of 2.962, this value is greater than the t table (1.96) an a p-value of 0.003, which is smaller than (0.05). This shows that there is a significant influence between characteristics on attitude. Therefore, it can be stated that hypothesis 3 (H3) is accepted.

4. H4 (the influence between Knowledge on Attitude)

The results of testing the fourth hypothesis show that the effect of the Knowledge variable on Attitude shows a statistical t value of 12.050, this value is greater than the t table (1.96) and a p-value of 0.000, which is smaller than (0.05). This shows that there is a significant influence between knowledge on attitude. Therefore, it can be stated that hypothesis 4 (H4) is accepted.

5. H5 (influence between Behaviour on Stunting)

The results of testing the fifth hypothesis show that the effect of the Behaviour variable on Stunting shows a statistical t-value of 2.387, this value is greater than the t table (1.96) and

a p-value of 0.000, which is smaller than (0.05). This shows that there is a significant influence between behaviour and stunting. Therefore, it can be stated that hypothesis 5 (H5) is accepted.

6. H6 (influence between Attitude and Behaviour)

The results of testing the sixth hypothesis show that the effect of the Attitude variable on Behaviour shows a statistical t-value of 3.839, this value is greater than the t table (1.96) and a p-value of 0.000, which is smaller than (0.05). This shows that there is a significant influence between attitude and behaviour. Therefore, it can be stated that hypothesis 6 (H6) is accepted.

Based on the results of the above analysis, all paths are significant, so it can be concluded that the model fits and can be used in the population. The results showed that behaviour has a direct influence on stunting. Respondent characteristics have an indirect influence in influencing the occurrence of stunting through increasing knowledge, attitudes and behaviour in preventing stunting[9][10]. Facility availability has an indirect influence through behaviour, while knowledge has an indirect influence through attitudes and behaviour[11]. Attitudes will influence behaviour in stunting prevention so that the incidence of stunting will decrease. It can be concluded that maternal characteristics, especially age and parental education, determine maternal behaviour in making efforts to prevent stunting. Increased knowledge will greatly

TABLE 4
 Hypothesis Significance Test Results

Variable	From	To	Hipotesis	Path Koefisien	T-Statistic	p-value	Description
Facilities		Behaviour	H1	0.124	2.014	0.045	Diterima
Characteristics		Knowledge	H2	0.284	6.665	0.000	Diterima
Characteristics		Attitude	H3	0.173	2.962	0.003	Diterima
Knowledge		Attitudes	H4	0.640	12.050	0.000	Diterima
Behaviour		Stunting	H5	-0.228	2.387	0.018	Diterima
Attitude		Behaviour	H6	0.416	3.839	0.000	Diterima

determine attitudes and behaviour in stunting prevention[12][13].

IV. DISCUSSION

Stunting is caused by a lack of adequate nutrition as well as the threat of recurrent infectious diseases and these two things influence each other. However, if you look deeper, these two direct causes are greatly influenced by how the mother's parenting, food availability at the household level, and environmental sanitation[7][14][15]. The results of Sri Supadmi's research (2018) concluded that several options related to stunting are optimising specific nutrition, sensitive nutrition and other factors such as maternal education, empowering mothers and communities through targeted advocacy at the regional level that refers to national health development program policies in a sustainable manner[16][17][18].

The family is the first and main social environment for child development. Children will develop optimally if they get good stimulation from the family. The family through its role is expected to help reduce the incidence of stunting in toddlers. The family empowerment model in this study adopts the Caregiver Empowerment Model (CEM) theory. This model defines family empowerment as increasing the family's ability to assess, influence, and manage situations by using family resources to achieve desired outcomes.

The family empowerment model, based on the CEM theory, takes into account background variables that affect the care-giving situation by the family[19][20]. These variables include knowledge. Based on the results of the study, it was found that there was a significant influence between behaviour and stunting (p value 0.000). Behaviour is a form of response or reaction to a stimulus or stimulus from outside the organism (person), but in giving a response it depends on the characteristics or factors of the person concerned[21][22]. Knowledge is a very important factor for the formation of a person's behaviour. The characteristics of respondents mostly have good knowledge about stunting (74.4%). Parents who have good knowledge about stunting will try to put that knowledge into practice[23]. This is in line with the results of Hariyani's research which states that the incidence of stunting is influenced by knowledge[24]. Likewise, the results of Halim's research (2021) show that knowledge is one of the 21 factors that cause stunting[25].

Another variable that also indirectly affects family empowerment is the availability of facilities. In this study, the availability of facilities includes latrine ownership, access to clean water, access to toddler health services and family planning and JKN ownership. The results showed 58.8% of respondents did not have facilities that support the implementation of sensitive interventions. The geographical location where the stunting locus area is surrounded by rivers is one of the factors causing many respondents to use the river to defecate. Toddlers will only be taken to health care facilities (Posyandu) when sick. Likewise, the ownership of JKN (BPJS) will only be taken care of when someone is sick. This is in line with Januarti's research which states that

environmental quality, especially the availability of clean water, sanitation facilities, healthy living habits can reduce the risk of infectious diseases that can affect child growth [6][14] [28].

This study focuses more on the family empowerment model, especially on nutrition-sensitive interventions related to individual and family behaviour in handling stunting. While specific nutrition interventions have not been carried out.

V. CONCLUSION

This study aims to analyse the effect of sensitive interventions on efforts to reduce stunting at Puskesmas in Bangkalan Regency. The results showed that the characteristics of respondents were mostly 20-35 years old, multiparous and the last education level was elementary school. Sensitive interventions that affect the incidence of stunting in toddlers are PHBS and BPJS health. For future research, other variables included in other sensitive interventions such as food fortification, parenting, nutrition education, adolescent reproductive health and food and nutrition security can be used as study materials for research.

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