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Knowledge and skills in combating stunting in toddlers in Aceh Besar regency (a comparative study of BKKBN cadres with Integrated Service Post cadres)

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ABSTRACT

Stunting is a critical issue with irreversible consequences on children's growth and development. In Ingin Jaya and Indrapuri districts, stunting is a significant concern. This research examined the knowledge and skills of TPK and Posyandu cadres in tackling stunting in Aceh Besar Regency. The study included 50 TPK cadres and 50 Integrated Service Post cadres actively engaged in Want Jaya and Indrapuri districts in 2022. Analysis revealed no significant differences in knowledge (P=0.562) and skills (P=0.445) between the cadres. Cadres' motivation level emerged as the most influential factor impacting stunting prevalence, with lower motivation associated with a 4.67% increase in stunting village score (P=0.030). These findings offer valuable insights for addressing stunting and inform effective management strategies in rural areas. While no significant differences were found in knowledge, skills, education, and occupation between TPK and Integrated Service Post cadres in Aceh Besar District, variations were observed in the distance from the village to the district capital. Inadequate knowledge and motivation in both cadre groups significantly affect efforts to combat toddler stunting.

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INTRODUCTION

The issue of stunting has become a serious threat in the global nutritional context. Data indicates that 165 million children under the age of five are experiencing stunting, with over 90% of them located in the regions of Africa and Asia(Beal et al., 2018; Fernald et al., 2012; Titaley et al., 2019). Indonesia itself has the highest stunting rate in Southeast Asia, as indicated by the Ministry of Health of the Republic of Indonesia in 2019. The World Health Organization (WHO) estimates that the prevalence of stunting in toddlers worldwide reached 22%, or around 149.2 million children in 2020 (Giles & Satriawan, 2015; Utami et al., 2019). Data from the Indonesian Child Nutrition Status

Survey (Survei Status Gizi Balita Indonesia - SSGBI) in 2019 also indicates that the prevalence of stunting in Indonesia reached 27.7%. This means that approximately one in four toddlers, or more than eight million children, is experiencing stunting. This figure remains significantly above the threshold set by the World Health Organization (WHO), which is 20% (Fadmi et al., 2023; Hastuti et al., 2020) In the province of Aceh, particularly in Aceh Besar Regency, the prevalence of stunting is also notably high. In 2019, the stunting rate in Aceh Besar reached 34.18%, and Aceh ranked third nationally in terms of stunting rates among toddlers, following Nusa Tenggara Timur (NTT) and West Sulawesi (Sulawesi Barat - Sulbar) (Kemenkes RI, 2021). Data from the Aceh Besar Health Office (Dinkes Aceh Besar) indicates that the prevalence of stunting in this regency has fluctuated over the past three years. There was a significant increase from 537 cases in 2019 to 1,537 cases in 2020, followed by a decrease to 1,211 cases in 2021. However, these figures remain far above the maximum limit set by the WHO. The Indonesian government has set an ambitious target to reduce the prevalence of stunting to 14% by 2024, as part of accelerated efforts to decrease stunting. Achieving this target will require new, collaborative, and sustainable strategies and methods that encompass the entire spectrum from stunting prevention to management (Kemenkes RI, 2021). Stunting prevention has become a priority in national development, and concrete steps have been taken, including through the National Action Plan for Nutrition and Food Security as well as the national movement for stunting prevention launched in 2018(de Onis & Branca, 2016a; Onyango et al., 2015; Syafrawati et al., 2023). Aceh Besar Regency is included in the priority areas for addressing stunting in Indonesia. The Ministry of Health has also implemented specific nutritional interventions, especially during the first 1000 days of life, utilizing Integrated Service Post and existing programs to enhance health and education (Adistie et al., 2018; Purnamasari, 2019). Various studies have shown the importance of cross-sectoral collaboration in supporting the success of Posyandu as a platform for empowerment and adolescent health preventio(Indari et al., 2022; Kumala Dewi et al., 2024)n. With comprehensive health services, such as reproductive education and nutrition counseling, Posyandu plays a crucial role in improving the well-being of adolescents. The prevention of stunting also becomes a significant focus within Posyandu. Through active community participation, Posyandu creates a space for collaboration and knowledge-sharing that leads to community empowerment(Handayani et al., 2019; Indari et al., 2022).

The family approach through family support cadres targeting those at risk of stunting is one of the highly relevant and effective strategies in accelerating the reduction of stunting rates in Indonesia. This approach allows for the identification, intervention, and appropriate support for families at high risk of experiencing stunting, focusing on three main target groups: prospective brides/grooms of reproductive age couples, pregnant and lactating mothers, and children aged 0-59 months(de Onis & Branca, 2016b; Sullivan, 2016; Vaivada et al., 2020). Field-level collaboration involving various stakeholders, such as Midwives, Family Empowerment and Welfare Task Force Cadres, and Family Planning Cadres, is crucial for the success of this approach. Characteristics of Integrated Service Post cadres influencing their role in stunting prevention include age, education level, knowledge level, training, distance from home to Integrated Service Post, family support, marital status, occupation, length of time as a cadre, and income. Additionally, the frequency of training attended by cadres also affects their knowledge(Goudet et al., 2019; Rohmayanti et al., 2022).

The skills of cadres in weighing and measuring the height and weight of toddlers and the elderly are crucial in monitoring physical growth and nutritional status (Afifa, 2019; Bernike et al., 2021; Goudet et al., 2019). The prevalence of stunting in Aceh Besar District is still high, reaching 24.15%, exceeding the universal threshold indicating a public health issue. The stunting prevention program in Aceh Besar District covers various aspects, including maternal and child health, nutritional counseling, water and sanitation, early childhood education, and social protection (Suwarni et al., 2020). However, despite these previous studies, there is still a research gap in

understanding the specific factors that influence stunting prevalence and management in rural areas, particularly in the context of ingin Jaya and Indrapuri districts in Aceh Besar Regency. This current research aims to fill this gap by examining the knowledge, skills, and motivation of TPK and Posyandu cadres and their impact on stunting prevalence in these specific districts. By identifying the factors that contribute to stunting and the challenges faced by cadres, this study provides valuable insights for designing effective management strategies to combat stunting in rural areas. The collaboration between Integrated Service Post cadres and Family Support Team (TPK) cadres is key to these efforts. The districts of Ingin Jaya and Indrapuri are two focal districts in combating stunting in Aceh Besar District. Differences in characteristics and abilities between Integrated Service Post cadres and TPK cadres can influence their effectiveness in combating stunting in these two districts. Therefore, special attention is needed in developing the capacity of cadres so that they can play their role optimally.

RESEARCH METHOD

The research is a quantitative study with a cross-sectional approach designed to identify knowledge and skills in addressing stunting in toddlers in Aceh Besar Regency. A comparative study was conducted between the Family Support Team (TPK) cadres and Posyandu cadres in two districts, namely Ingin Jaya District with 50 villages and Indrapuri District with 50 villages, located in Aceh Besar Regency, Aceh Province. The research was conducted from June 30 to July 10, 2022, lasting for 11 days. The study population consisted of 50 TPK cadres and 52 Posyandu cadres in both districts, making a total of 102 cadres as research subjects in 2022. Based on the mentioned population, the sample size for this study included 50 Family Support Team (TPK) cadres located in Ingin Jaya District and 50 Integrated Service Post cadres located in Indrapuri District, Aceh Besar Regency. Thus, the total sample size for this research was 100 cadres. The inclusion criteria for respondents in this study included willingness to participate, no visual or hearing impairments, and maintaining a good level of consciousness, communication, and cooperation. Exclusion criteria covered cadres who resigned during the research process and cadres who were currently ill. The research was conducted at the PKK office and cadre's homes. Primary data were obtained through questionnaires filled out by cadres during interviews, while secondary data were obtained from the Community Health Center (Puskesmas).

Data collection used a questionnaire instrument that had been tested for validity and reliability. Observed variables included stunting intervention, knowledge, skills, education, motivation, and sources of cadre information. Reliability measurement used the Cronbach's Alpha range criteria, where a very good value is $\alpha \geq 0.9$, good if $0.9 > \alpha \geq 0.8$, acceptable if $0.8 > \alpha \geq 0.7$, doubtful if $0.7 > \alpha \geq 0.6$, low if $0.6 > \alpha \geq 0.5$, and unacceptable if $0.5 > \alpha$. The data processing involved editing data for completeness, coding data to convert it into numerical form, data entry to input data into the computer program, and data cleaning to ensure accuracy. Data analysis included univariate analysis for variable description, bivariate analysis to find correlations between variables, and multivariate analysis to understand more complex relationships between variables. Ethical approval was obtained from the Head of Aceh Besar Health Office and the Head of TPK Aceh Besar, and respondents were given consent forms to understand the research objectives and their rights. Respondents' identity confidentiality was maintained by providing substitute codes for names, and respondent information was ensured to be confidential by the researcher.

RESULTS AND DISCUSSIONS

Research Location Overview Aceh Besar Regency is located in the latitude region of 5.05° - 5.75° North and the longitude region of 94.99° - 95.93° East. This area is bordered by the Malacca Strait and the city of Banda Aceh to the north, Aceh Jaya Regency to the south, Pidie Regency to the east,

and the Indonesian Ocean to the west. The total area of Aceh Besar Regency is 2,903.50 km2, with the majority on the mainland and a small part on the islands. There are 23 sub-districts, 68 districts, and 604 villages/hamlets in this regency. The population in the 2021 population census was 405,535 people, consisting of 204,428 males and 201,107 females. Ingin Jaya Sub-district, with its capital in Lambaro, covers an area of 24.34 km2 (2,434 Ha) and consists of 50 villages. This area is bordered by Banda Aceh City, Krueng Barona Jaya Sub-district, Kuta Baro Sub-district, Simpang Tiga Sub-district, Suka Makmur Sub-district, Montasik Sub-district, and Darul Imarah Sub-district. The population in Ingin Jaya Sub-district in the same year reached 33,290 people with a sex ratio of 103 (BPS Aceh Besar, 2020). Indrapuri Sub-district, located at 5.30 - 5.53 latitude and 95.34 - 95.57 longitude, has an area of 197.04 km2 (19,704 Ha) with 52 villages. This area is bordered by Montasik Sub-district, Mesjid Raya Sub-district, Kuta Cot Glie Regency, Leupung Sub-district, Suka Makmur Sub-district, and Kuta Malaka Sub-district in Aceh Barat Regency. The population of Indrapuri Sub-district is 22,372 people with a sex ratio of 97 (BPS Aceh Besar, 2021).

Respondent Characteristics

The respondents in this study are TPK (Family Support Team) and cadres Integrated Service Post. The characteristics of the respondents in this study will provide a frequency distribution overview of age, marital status, and occupation. The following table presents the data distribution of respondent characteristics:

Table 1. General characteristics of respondents

No	General Characteristics	TPK cadres		Posyandu cadres	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1	Age				
	≤ 35 years old	29	58.0	37	74.0
	> 35 years	21	42.0	13	26.0
2	Marital status				
	Marry	44	88.0	38	76.0
	Not married yet	6	12.0	12	24.0
3	Work				
	Work	25	50.0	11	22.0
	Doesn't work	25	50.0	39	78.0
4	Education				
	Base	2	4.0	4	8.0
	Intermediate	17	34.0	24	48.0
	Tall	31	62.0	22	44.0
	Total	50	100.0	50	100.0

Distribution of respondent characteristics in Table 5.1 indicates that the majority of respondents, both in TPK cadres and Integrated Service Post cadres, are aged less than or equal to 35 years, with 29 people (58%) and 37 people (74%) respectively. Meanwhile, respondents aged over 35 years consist of 21 people (42%) from TPK cadres and 13 people (26%) from Integrated Service Post cadres. In terms of marital status, TPK cadres are predominantly married, with 44 people (88%), while unmarried individuals amount to 6 people (12%). On the other hand, respondents in Integrated Service post cadres are mostly unemployed, with 39 people (78%), while 11 people (22%) are employed. However, there is a difference with TPK cadres, where the number of cadres who are employed or unemployed is almost the same, namely 25 people. In terms of education, 6 cadres (6.0%) have elementary education, with 2 people from TPK cadres and 4 people from Integrated Service post cadres. Secondary education, including junior and senior high school, is followed by 41 cadres (41.0%), with details of 17 people from TPK cadres and 24 people from Posyandu cadres. Furthermore, there are 53 cadres (53.0%) with higher education, consisting of 31 people from TPK cadres and 22 people from Integrated Service Post cadres.

Univariate Analysis

Based on secondary data from the E-PPGBM Public health center report, the percentage distribution of stunting handling will be shown in Table 2 below.

Table 2. Frequency distribution of respondents based on categories of knowledge, skills, motivation, and information sources

No	Knowledge	TPK cadres		Posyandu cadres	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
1	Good	22	44.0	24	48.0
2	Not good	28	56.0	26	52.0
	Total	50	100.0	50	100.0
	Skills				
1	Good	36	72.0	30	60.0
2	Not good	14	28.0	20	40.0
	Total	50	100.0	50	100.0
	Motivation				
1	Good	27	54.0	33	66.0
2	Not good	23	46.0	17	34.0
	Total	50	100.0	50	100.0
	Resources				
1	Good	27	54.0	33	66.0
2	Not good	23	46.0	17	34.0
	Total	50	100.0	50	100.0

Table 2 above illustrates the distribution of knowledge, skills, motivation, and information sources of TPK cadres and Integrated Service Post cadres in percentage. The results show that the majority of TPK cadres and Posyandu cadres have good knowledge, with percentages of 44.0% and 48.0%, respectively. However, there is a difference in the skill level, where 72.0% of TPK cadres have good skills, while only 60.0% of Integrated Service Post cadres have good skills. In line with that, TPK cadres also have a better level of motivation, with 54.0% having good motivation, while Integrated Service Post cadres have a lower level of motivation, with only 46.0% having good motivation. Finally, in terms of information sources, 54.0% of TPK cadres have good information sources, while 66.0% of Integrated Service Post cadres have good information sources. Overall, both groups of cadres show similar levels of knowledge, while there are differences in the levels of skills, motivation, and information sources between TPK cadres and Integrated Service Post cadres.

Bivariate Analysis

In Table 3 below, it will show the relationship between knowledge, skills, motivation, cadre knowledge, information sources, education, village distance to the capital of the district, the number of health facilities, and the drinking water sources of the majority of the population with the percentage of village stunting.

Table 3. Relationship between knowledge, skills, motivation, cadre knowledge, information sources, education, village distance to the capital of the district, number of health facilities, and drinking water sources of the majority of the population with the percentage of village stunting on TPK cadres

	Variable	Coefficient	95%CI	*P*
1	Cadre Knowledge Good Not good	2.36	-1.6-6.3	0.242
2	Cadre Skills Good Not good	1.70	-2.7-6.1	0.445
3	Cadre Motivation Good Not good	2.28	-2.1-6.7	0.306
4	Resources Good	2.50	-1.4-6.4	0.212

	Variable	Coefficient	95%CI	*P*
	Not good			
	Cadre Education			
5	Tall			
	Intermediate	6.69	2.8-10.5	0.001
	Base	5.30	-4.0-14.6	0.259
	Cadre Work			
6	Work	-1.68	-5.6-2.3	0.402
	Doesn't work			
	Marital status Cadre			
7	Marry	-2.85	-9.0-3.2	0.356
	Not married			
	Cadre Age			
8	<36 years	-0.43	-4.5-3.6	0.830
	≥36 years old			
9	Village distance to Regency capital	-0.24	-0.6-0.2	0.285
	Number of Means Health			
10	There isn't any			
	One	-0.7	-9.0-7.5	0.856
	Two	-12.9	-27.0-1.0	0.070
	Source of Drinking Water			
	Most of the Population			
11	Bottled water			
	Plumber	3.42	-3.4-10.3	0.322
	Well	0.01	-5.5-5.5	0.997

The results of logistic regression analysis indicate that, among the observed factors, only the education level of the cadre significantly influences the efforts to overcome stunting in toddlers in Aceh Besar Regency. Cadres with higher education tend to have a strong positive contribution to stunting prevention efforts, with a coefficient value of 6.69 and a very low p-value (<0.001). Meanwhile, other variables such as knowledge (coefficient: 2.36, p-value: 0.242), skills (coefficient: 1.70, p-value: 0.445), motivation (coefficient: 2.28, p-value: 0.306), information sources (coefficient: 2.50, p-value: 0.212), occupation (coefficient: -1.68, p-value: 0.402), marital status (coefficient: -2.85, p-value: 0.356), age (coefficient: -0.43, p-value: 0.830), village distance to the capital of the district (coefficient: -0.24, p-value: 0.285), the number of health facilities (Two: coefficient: -12.9, p-value: 0.070), and drinking water sources (Piped: coefficient: 3.42, p-value: 0.322) do not have a significant influence in this context. These results emphasize the importance of education as a key factor in enhancing the knowledge and skills of cadres contributing to stunting prevention in the region. Efforts to improve the education of cadres can be an effective strategy in addressing stunting issues in Aceh Besar.

Table 4. Relationship between knowledge, skills, motivation, cadre knowledge, information sources, education, village distance to the capital of the district, number of health facilities, and drinking water sources of the majority of the population with the percentage of village stunting on posyandu cadres

No.	Variable	Coefficient	95%CI	P
	Cadre Knowledge			
1	Good			
	Not good	8.28	2.3-14.1	0.007
	Cadre Skills			
2	Good			
	Not good	4.09	-2.2-10.4	0.204
	Cadre Motivation			
3	Good			
	Not good	9.52	3.4-15.6	0.003
	Resources			
4	Good			
	Not good	0.50	-7.2-6.2	0.881

No.	Variable	Coefficient	95%CI	P
5	Cadre Education			
	Tall			
	Intermediate	1.17	-5.4-7.8	0.723
	Base	1.29	-12.6-15.2	0.852
6	Cadre Work			
	Work	2.55	-5.0-10.1	0.505
	Doesn't work			
7	Marital status			
	Cadre			
	Marry	-7.33	-14.4- -0.1	0.044
	Not married			
8	Cadre Age			
	<36 years			
	≥36 years old	1.58	-5.6-8.8	0.661
9	Distance from village to district capital	-0.19	-1.3-1.0	0.747
10	Number of Health Facilities			
	There isn't any			
	One	-1.65	-10.9-7.6	0.722
	Two	-0.17	-16.6-16.2	0.983
11	Source of Drinking Water			
	Most of the Population			
	Bottled water			
	Plumber			
	Well	4.83	-2.7-12.3	0.204

The results of logistic regression analysis reveal several significant findings related to factors influencing the prevention of stunting by cadres in Aceh Besar Regency. Cadre knowledge factor (coefficient: 8.28, p-value: 0.007) and cadre motivation (coefficient: 9.52, p-value: 0.003) have a significant impact on stunting prevention. This indicates that cadres with good knowledge and motivation tend to be more effective in carrying out stunting prevention tasks. Additionally, the marital status of cadres (coefficient: -7.33, p-value: 0.044) also proves to have a significant influence, where unmarried cadres are more likely to succeed in stunting prevention compared to those who are married. Other factors such as cadre skills, information sources, cadre education, cadre occupation, cadre age, village distance to the capital of the district, the number of health facilities, and drinking water sources do not have a significant influence in this context. These findings indicate that focusing on improving knowledge (with a coefficient of 8.28) and motivation (with a coefficient of 9.52), as well as selecting unmarried cadres (with a coefficient of -7.33), can be effective strategies to enhance stunting prevention efforts in Aceh Besar Regency. This result aligns with research conducted by Agustikawati et al., (2023) indicating that cadre knowledge about stunting prevention influences cadre performance in stunting prevention programs. Therefore, health cadres need to receive knowledge reinforcement and mentoring The research results by (Megawati & Wiramihardja, 2019) indicate that the training conducted is effective in improving the knowledge and skills of PKK cadres in performing anthropometric measurements. It is crucial in the effort to prevent stunting in toddlers. PKK cadres who have undergone training are expected to contribute significantly by screening the status of toddlers in the community. Globally, addressing stunting and nutritional issues in toddlers in developing countries is a major challenge that requires effective and sustainable interventions. A study by Victora et al., (2008) revealed that malnutrition in childhood can have long-term impacts on health and human capital in adulthood. This includes the risk of chronic diseases such as diabetes and heart disease. Dewey and Adu-Afarwuah (2008), in their research on supplementary food interventions in developing countries, found that such interventions have significant potential to improve child nutrition and reduce the risk of stunting. Studies by (Bhutta et al., 2008, 2013)emphasize the importance of evidence-based interventions to enhance maternal and child nutrition. Various interventions have proven effective

in reducing mortality due to malnutrition and improving child nutrition. On the other hand, (Dewey & Adu-Afarwuah, 2008) examined nutritional interventions that should also be sensitive to various social and economic aspects, aiming to accelerate progress in improving maternal and child nutrition. Addressing stunting and nutritional issues in toddlers is not just a health concern but also has long-term implications for human capacity and a country's economic development. Effective and sustainable interventions to improve the nutrition of children and mothers are crucial for achieving sustainable development goals.

CONCLUSION

In conclusion, there is no significant difference in knowledge, skills, education, information sources, the number of health facilities, main sources of drinking water, and occupation between TPK cadres and Integrated Service Post cadres. However, there is a significant difference in the distance from the village to the district capital, with Integrated Service Post cadres tending to be closer. We also found that poor knowledge and poor motivation in both cadre groups are significantly related to the efforts to tackle stunting in toddlers. Additionally, middle-level education has a significant association with stunting prevention, while elementary-level education does not have a significant relationship. Thus, this research provides a deeper understanding of the factors that can influence the prevention of stunting in toddlers by TPK and Integrated Service Post cadres in Aceh Besar District. The practical implications of the research findings suggest the need for targeted training and capacity-building programs for both TPK (Posyandu Cadres) and Integrated Service Post cadres to enhance their knowledge and motivation in tackling stunting in toddlers. Collaborative efforts between the cadre groups should be fostered to ensure a more integrated approach. Theoretical implications include recognizing the importance of education levels, considering contextual factors such as geographical proximity, and adopting a multifaceted approach that goes beyond knowledge to address the complex factors influencing stunting prevention. These implications provide valuable insights for improving the effectiveness of community health worker interventions and promoting better outcomes for stunting prevention in the Aceh Besar District.

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