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Competence Of Mothers and Cadres in Early Detection Of Stunting in 3 Provinces in Indonesia

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ABSTRACT

Stunting can affect a child's growth and development, leading to low human resource quality, thus posing a risk to work productivity. The stunting rate has increased significantly over the past 10 years, particularly in Eastern Indonesia, requiring serious attention from various professions, particularly the government, in collaboration with health workers. Research Objectives: 1) To identify the understanding, attitudes, and skills of mothers and health workers regarding the recognition, early detection, and risk factors of stunting, 2) increasing the knowledge of mothers and health cadres about early detection of stunting from the womb to the first 1000 days of life, and 3) To design an effective and practical guidebook that mothers and health workers can use to identify, early detection, and risk factors for stunting in the first 1,000 lives. Methods: This quantitative research study used a descriptive analytical design using a "One Group Pre-Post Test Design" and a pre-experimental method. The sample size was 210 mothers and health workers using a purposive sampling technique in the cities of Makassar, Mataram, and Soe, NTT. The results of the study in Makassar City and Soe City (NTT) showed that the level of knowledge of mothers about early detection of stunting was mostly lacking, namely 136 (93.8%). The level of knowledge of cadres about early detection of stunting was mostly high, namely 13 people (86.7%). Most were lacking, namely 113 (93.42%). While the skills of cadres about early detection of stunting were mostly good, namely 55 people (61.8%). The mother's attitude towards early detection of stunting was mostly lacking, namely 106 (99.1%). Meanwhile, the cadre's attitude towards early detection of stunting was mostly good, namely 62 people (60.2%). The statistical test results obtained p = 0.000, so it can be concluded that there is a difference in the proportion of the level of knowledge, skills and attitudes of mothers and health cadres with the ability to recognize early detection and risk factors stunting. Conclusion: Knowledge, skills and attitudes of mothers and health cadres are very lacking regarding the introduction, early detection and risk factors for stunting, and there is a significant relationship between the level of knowledge, skills and attitudes of mothers and health cadres, with the introduction of early detection and risk factors for stunting.

Keywords: decline, stunting, knowledge, mother, cadre

INTRODUCTION

The problem of stunting is still one of the main nutritional problems in Indonesia and is a national development priority as stated in the 2020-2024 RPJMN. Stunting is a linear growth disorder in children caused by a lack of nutritional intake over a long period of time, characterized by a child's length or height being shorter than their age. It is known that stunting can affect the growth and development of children which can have an impact on the low quality of human resources, thus risking work productivity (Setianingsih et al., 2022)2. Research in three provinces (NTT, Makassar, and Mataram) revealed a significant gap in knowledge among health cadres regarding early detection and risk factors for stunting in the first trimester (HPK), with 93.8% of 145 health cadres reporting low knowledge. Similarly, attitudes toward early detection and risk factors are also significantly affected, along with their very limited knowledge and skills.

Toddlerhood is a period of early development in a child's life. During this period, children experience growth and development in various aspects of their lives, such as physical, cognitive, social, emotional and language skills. This period is considered an important period in forming the foundation of child development for the next stage, if the child's golden period is neglected, it will have an impact on the child's health status (Oematan et al., 2023)3. Budi Gunadi Sadikin said that the results of the 2022 Indonesian Nutritional Status Survey (SSGI) showed that the stunting rate fell from 26.92% in 2020, 24.4% in 2021 to 21.6% in 2022. Although there has been a decrease in the incidence of stunting, this figure is still relatively high from the government's target figure of 14% in 2024 (Nurcahyanti, 2024).

The results of the study by Muhasidah, Baharuddin, Nur.M (2019), found that the number of stunted children was 32 children (10.1%) out of 318 elementary school children in the city of Makassar, 62 stunted (36.9%) out of 168 in the city of Soe, and 72 stunted (79.6) out of 221 elementary school children in the city of Mataram. It was found that mothers who had stunted children were exposed to cigarette smoke during pregnancy in 3 (Three) Provinces, namely 47 mothers (75.8%) were exposed to cigarette smoke in the city of Soe, and there were 46 mothers (63.8%) in the city of Mataram. It was found that mothers who had stunted children consumed unhealthy food during pregnancy, namely 19 mothers (59.3%) in the city of Soe (NTT), and there were 46 mothers (29.1%) in the city of Mataram. The number of mothers who had stunted children who were hospitalized during pregnancy was in the city of Soe NTT = 18 mothers out of 62 mothers (29.0%), Mataram City = 11 mothers out of 72 mothers (15.3%), and Makassar City = 4 mothers out of 32 mothers (12.5%). The number of mothers who had stunted children with hypertension during pregnancy was in the city of Soe NTT = 8 mothers out of 62 mothers

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(12.9%), Mataram City = 12 mothers out of 72 mothers (16.6%), Makassar City = 9 mothers of 32 mothers (28.1%), Number of Mothers Who Often Have Stomach Aches During Pregnancy: Soe City NTT = 15 mothers of 62 mothers (24.2%), Mataram City = 17 mothers (sample 72 mothers (23.6%). The aim is to identify and see the relationship between the knowledge, skills and attitudes of mothers and health cadres with the recognition and early detection of stunting risk factors.

MATERIALS AND METHODS

This quantitative research used a descriptive analytical design using a "One Group Pre-Post Test Design" and a pre-experimental method (Sugiyono, 2013). This research was conducted using quantitative research and "Research and Development." According to Borg and Gall (1989) in Putra (2012), the research and development model refers to the use of Research and Development to produce a model book on recognizing, early detection, and risk factors for stunting in children. A purposive sampling technique was used to select 210 mothers of toddlers and health cadres. The inclusion criteria were: mothers of children aged 0-2 years, physically and mentally healthy, healthy cadres, and willing participants. The research variables were: Knowledge, Attitudes, and Skills of mothers of toddlers and health cadres.

The number of samples in the study was 147 mothers and 63 health cadres with a total sample of 210 in Makassar City and Soe City, NTT Province, with a sampling technique of purposive sampling. The research method uses the development method, (Putra, 2012)5, what is meant by the development research model is that in this study Research and Development is used to produce a module book on introduction, early detection and risk factors for stunting in children.

RESEARCH RESULTS

Descriptive Analysis Results; The descriptive analysis results describe the knowledge, skills, attitudes, and awareness of early stunting detection among mothers and health workers. Knowledge of Mothers and Health Workers about Early Stunting Detection. Mothers' and health workers' knowledge about early stunting detection can be seen in Table 1

Table 1 Knowledge of Mothers and Health Workers about Early Stunting Detection (n = 210) Mothers' Knowledge

Knowledge	Mother (n=147)		Cadres (n=63)		Total	
	`n	%	n	%	n	%
Poor	136	93,8	9	6,2	145	100,0
Moderate	9	18,0	41	82,0	50	100,0
High	2	13,3	13	86,7	15	100,0

Source: Primary Data 2019

Table.1 shows that the majority of mothers' knowledge regarding early detection of stunting was poor (136 children, 93.8%). The majority of cadres' knowledge regarding early detection of stunting was high (13 children, 86.7%). Skills of Mothers and Health Cadres regarding Early Detection of Stunting; The attitudes of mothers and health cadres regarding early detection of stunting can be seen in Table 2.

Table 2 Skills of Mothers and Health Cadres regarding Early Detection of Stunting

Attitude	Mother (n=147)		Cadre (n=63)		Total	
	`n	%	n	%	n	%
Not enough	113	93,42	8	6,6	121	100,0
Good	34	38,2	55	61,8	89	100,0

Source: Primary Data 2019

Table 2 shows that the majority of mothers' skills regarding early stunting detection were lacking, at 113 (93.42%), while the majority of cadres' skills regarding early stunting detection were good, at 55 (61.8%). Attitudes of Mothers and Health Cadres regarding Early Detection of Stunting; The attitudes of mothers and health cadres regarding early detection of stunting can be seen in Table 3.

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Table 3 Attitudes of Mothers and Health Cadres regarding Early Detection of Stunting

Attitude	Mother (n=147)		Cadre (n=63)		Total	
	`n	%	n	%	n	%
Not enough	106	99,1	1	0,9	107	100,0
Good	41	39,8	62	60,2	103	100,0

Source: Primary Data 2019

Table 3 shows that the majority of mothers' attitudes regarding early detection of stunting were poor (106 respondents (99.1%). Meanwhile, the majority of cadres' attitudes regarding early detection of stunting were good (62 respondents (60.2%). Inferential Analysis Results : Relationship between Mothers' and Cadres' Knowledge and Recognition of Early Detection and Stunting Risk Factor ; Mothers' and cadres' knowledge was categorized as poor, moderate, and high, in relation to recognition of early detection and stunting risk factors, which were categorized as poor and good. The relationship between mothers' and cadres' knowledge and recognition of early detection and stunting risk factors can be seen in Table 4.

Table 4 Relationship between mothers' and cadres' knowledge and recognition of early detection and stunting risk factors

Knowledge	Early Detection				Total		*P*
	Not enough		Good				
	n	%	n	%	n	%	
Poor	117	80,7	28	19,3	145	100,0	0,000
Moderate	20	40,0	30	60,0	50	100,0	
High	0	0,0	15	100,0	15	100,0	
Amoun	137	65,2	73	34,8	210	100,0	

Source: Primary Data 2019

Table 4 shows the results of the analysis of the relationship between maternal and cadre knowledge with the introduction of early detection and stunting risk factors. It was found that 117 (80.7%) mothers and health cadres who had poor knowledge had poor early detection and stunting risk factors. Meanwhile, among the health cadre mothers with moderate knowledge, there were 30 people (60.0%) who had good early detection and stunting risk factors. There were 15 people (100.0%) mothers and health cadres who had high knowledge had good early detection and stunting risk factors. The statistical test results obtained p = 0.000, so it can be concluded that there is a difference in the proportion of the level of knowledge of mothers and health cadres with the ability to recognize early detection and stunting risk factors.

Relationship between Mothers' and Health Cadre Skills and Recognition of Early Detection and Risk Factors for Stunting; The skills of mothers and health cadres are categorized as poor and good, in relation to recognition of early detection and risk factors for stunting, which are categorized as poor and good. The relationship between mothers' and health cadre skills and recognition of early detection and risk factors for stunting can be seen in Table 5

Table 5 Relationship between mothers' and health cadre skills and recognition of early detection and risk factors for stunting

Skills	Stunting events				Total		*p*	OR (95% CI)
	Not enough		Good					
	n	%	n	%	n	%		
Not enough	98	81,0	23	19,0	121	100,0	0,000	5,46 2,94-10,13
Good	39	43,8	50	56,2	89	100,0		
Amoun	137	65,2	73	34,8	210	100,0		

Source: Primary Data 2019

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Table 5 shows the results of the analysis of the relationship between skills and early detection of stunting. It was found that the majority of mothers and health cadres with poor skills (98 individuals) had poor early detection skills, representing 81.0%. Meanwhile, mothers and health cadres with good skills had good early detection skills, representing 50 individuals (56.2%). The statistical test results showed a p=0.000, concluding that there is a difference in the proportion of early detection skills among mothers and health cadres with poor and good skills. Relationship of Mothers' and Health Cadres' Attitudes with Recognition of Early Detection and Risk Factors for Stunting; The attitudes of mothers and health cadres were categorized as poor and good in relation to recognition of early detection and risk factors for stunting, which were categorized as poor and good. The relationship between the attitudes of mothers and health cadres with recognition of early detection and risk factors for stunting can be seen in Table 6.

Table 6 Relationship of Mothers' and Health Cadres' Attitudes with Recognition of Early Detection and Risk Factors for Stunting

Attitude	Stunting Events				Total		p	OR (95% CI)
	Not enough		Good					
	n	%	n	%	n	%		
Not enough	87	81,3	23	18,7	107	100,0	0,000	4,61 2,47-8,57
Good	50	48,5	53	51,5	103	100,0		
Amoun	137	65,2	73	34,8	210	100,0		

Source: Primary Data 2019

Table 6 shows the results of the analysis of the relationship between the attitudes of mothers and health cadres with early detection of stunting. It was found that the majority of mothers and health cadres with poor attitudes had poor early detection skills for stunting, namely 87 people (81.3%). Meanwhile, mothers and health cadres with good attitudes had good early detection skills for stunting, namely 53 people (51.5%). The results of the statistical test obtained p = 0.000, so it can be concluded that there is a difference in the proportion of early detection skills for stunting between mothers and health cadres with poor attitudes and good attitudes.

DISCUSSION

Relationship between Mothers' and Health Cadres' Knowledge and Early Detection and Stunting Risk Factors, The analysis of the relationship between mothers' and health cadres' knowledge and early detection and stunting risk factors revealed that 117 (80.7%) mothers and health cadres had poor knowledge of early detection and stunting risk factors. Among mothers and health cadres with moderate knowledge, 30 (60.0%) had good early detection and stunting risk factors. Fifteen (100.0%) mothers and health cadres had good knowledge of early detection and stunting risk factors. The statistical test showed a p-value of 0.000, indicating a significant difference in the proportion of mothers' and health cadres' knowledge and their ability to recognize early detection and stunting risk factors. The results of this study align with the notion that one of the most important steps in monitoring toddler growth is early detection of stunting to identify growth disorders (Mei et al., 2025). Early detection allows for early identification of developmental abnormalities in toddlers, allowing for more optimal intervention (Fajar et al., 2024).

These results strongly contradict the Ministry of Health's (2018) regulation, which states that health cadres need training to effectively carry out their roles. Cadre training is an activity aimed at improving the abilities, knowledge, technical skills, and dedication of cadres. Therefore, to support Posyandu development, community education measures are needed, including efforts to increase the capacity of cadres through Posyandu cadre training.

These results strongly support the findings of Pangestuti et al. (2025), who explained that mothers' lack of knowledge leads to less than optimal application of information in their daily lives. Lack of maternal knowledge regarding stunting prevention makes infants and toddlers vulnerable to stunting because maternal knowledge greatly influences the incidence of stunting (Pangestuti et al., 2025)8. Likewise, the role of Posyandu cadres is at the forefront in recognizing stunting incidents from a mother's pregnancy until the child is born. The role of Posyandu cadres is very necessary because they serve as an extension of information and are aware of conditions occurring in the community.

Cadres can act as both educators and facilitators, so adequate knowledge is required to carry out this role. Through the use of integrated health posts (Posyandu), cadres can fulfill their role in contributing to stunting prevention (Santi et al., 2024). 10. Mothers and cadres should have received training to understand stunting prevention, including early detection and risk factors for stunting. However, in reality (the results of this study) indicate that cadres' understanding and skills are very limited, thus impacting mothers' understanding and skills.

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Relationship between Mothers' and Health Cadres' Skills and Early Detection and Risk Factors for Stunting ; The analysis of the relationship between skills and early detection of stunting revealed that the majority of mothers and health cadres (98 individuals) had inadequate skills, while 50 (56.2%) had adequate skills in early detection of stunting. The statistical test yielded a p-value of 0.000, concluding that there is a difference in the proportion of mothers and health cadres with inadequate and adequate skills in early detection of stunting. According to the Millennium Challenge Account – Indonesia (2018), stunting is a serious health problem in Indonesia, impacting the quality of human resources and the country's economy. Stunting can affect an individual's cognitive abilities and productivity, necessitating effective prevention and management efforts, and the Millennium Challenge Account – Indonesia (2018) stated that stunting is a complex problem and requires a comprehensive approach to address it, including increasing access to quality health, education, and nutrition services.

The results of this study are in line with the statement of Indanah et al (2024)11 that health cadre training aims to prepare health cadres to participate in the development of health programs in their villages or sub-districts. The purpose of this training is to improve the knowledge and skills of health cadres regarding health development in their respective areas (Indanah et al., 2024)11. According to the cadre guidebook published by the Indonesian Ministry of Health, a cadre must understand the Posyandu system, especially the 5-table system which includes registration, weighing, filling out the KMS, nutrition counseling, and basic health services as well as good performance in carrying out their duties as a cadre (Oematan et al., 2023).

Cadre training is an activity carried out to improve the technical skills and dedication of cadres by participating in training activities to build confidence in carrying out duties as cadres. The main objectives of training are: First, to develop one's skills so that work can be completed more quickly and effectively. Therefore, to support Posyandu development, educational steps are needed for the community, including efforts to increase the capacity of cadres through Posyandu cadre training (Nilawati, 2018), and Komalasari (2011) stated that contextual learning can improve students' ability to understand and apply the concepts learned in everyday life.

The results of this study strongly contradict the Ministry of Health's (2016) regulation, which states that cadres should mobilize the community to participate in Posyandu activities and be willing to work voluntarily, possessing the skills and free time to ensure effective implementation. If cadres can increase community participation, meaning that more mothers of infants and toddlers are willing to attend Posyandu, the Posyandu program will be successful.

If Posyandu cadres or health cadres had received training, the results of this study would not be as clear-cut as they were, namely, a significant lack of knowledge and skills regarding early detection and risk factors for stunting. Therefore, the lack of knowledge and skills of these health cadres, in line with this, would be a corresponding lack of knowledge and skills among mothers regarding stunting prevention, particularly regarding early detection and risk factors for stunting.

Relationship between Mothers' and Health Cadre's Attitudes and Early Detection and Risk Factors for Stunting ; The analysis of the relationship between mothers' and health cadres' attitudes and early detection of stunting revealed that 87 mothers and health cadres with poor attitudes had poor early detection skills, representing 81.3%. Meanwhile, 53 mothers and health cadres with good attitudes had good early detection skills, representing 51.5%. The statistical test showed a p-value of 0.000, concluding that there is a difference in the proportion of early detection skills for stunting between mothers and health cadres with poor and good attitudes.

The results of this study strongly align with Johan's (2024) findings, which state that improving the knowledge, attitudes, and behavior of the community, particularly mothers, is a crucial aspect in efforts to address stunting. Maternal knowledge and attitudes are closely related to stunting prevention behaviors. Mothers who understand the First 1,000 Days of Life (HPK) tend to be more active in implementing behaviors that can prevent stunting (Johan et al., 2024).

The lack of understanding, attitudes, and skills of mothers and health cadres in this study is due to the lack of education and motivation among Posyandu (Integrated Service Post) administrators, namely health workers and cadres, regarding the importance of stunting prevention, including early detection and risk factors for stunting. This includes administering iron tablets to adolescent girls and caring for pregnant women and newborns throughout the first 1,000 days of life (HPK). Consequently, mothers and health cadres also lack education or understanding regarding early detection and risk factors for mothers of toddlers when they visit Posyandu.

If health cadres and workers understand, are skilled, and agree to provide education to every mother of toddlers attending the integrated health post (Posyandu) about early detection and risk factors for stunting, there will be an increase in the knowledge, skills, and attitudes of mothers of toddlers in stunting prevention, leading to a reduction in stunting rates in the community, especially in Makassar and Soe (NTT).

CONCLUSIONS AND SUGGESTIONS

Knowledge, attitudes and skills of mothers and health cadres regarding the introduction of early detection and risk factors for stunting in children are very lacking. There is a significant relationship between the level of knowledge of mothers and health cadres with the introduction of early detection and risk factors for stunting, There is a

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significant relationship between the skills of mothers and health cadres with the introduction, early detection and risk factors for stunting, and There is a significant relationship between the attitudes of mothers and health cadres, with the introduction of early detection and risk factors for stunting.

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