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MORALITY BEFORE KNOWLEDGE

Maternal knowledge and stunting: A cultural and public health perspective on community health education

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ABSTRACT
Background: The incidence of stunting in children under five is one of the major global nutritional problems and remains a priority in public health, with an estimated 165 million children under the age of five affected by stunting. Stunting in young children is a consequence of multiple factors often associated with poverty, including nutrition, health, sanitation, and environmental conditions. The aim of this study is to analyze the relationship between maternal knowledge levels and the incidence of stunting in the working area of Moncongloe Public Health Center. **Methods**: The research method used in this study was a cross-sectional design. The population consisted of all breastfeeding mothers at the Moncongloe Public Health Center. A total of 66 respondents were included in the sample. **Findings:** Maternal Knowledge on Stunting, significant relationship between maternal knowledge and stunting incidence, factors influencing maternal knowledge behaviors and practices related to stunting implications of the findings: Health education programs, community-based approaches, policies and interventions **Conclusion**: This highlights the importance of implementing more targeted interventions aimed at reducing stunting rates by enhancing maternal education and awareness about child health. **Novelty/Originality of this article:** The relationship between maternal knowledge and stunting incidence in the Public Health Center's working area; integration of contextual knowledge in measurement; use of mixed-methods approach; focus on the influence of education and information access; analysis of knowledge differences based on socio-economic factors; development of knowledge-based intervention models; assessment of long-term impact of education; local context as a determining factor.

KEYWORDS: educational intervention; maternal knowledge; stunting.

1. Introduction

The incidence of stunting in children under five is one of the major global nutritional problems and has become a priority in public health. It is estimated that 165 million children under the age of five suffer from stunting, with the global prevalence rate in 2010 reaching 40%. Rural areas have a higher proportion of stunting cases among children under five (40%) compared to urban areas (33%). The prevalence of stunting among children living in households headed by individuals with no education is 17 times higher than among those in households headed by individuals with higher education (Rahayu & Darmawan, 2019).

The 2018 Basic Health Research (*Riskesdas*) reported that the national prevalence of stunting in Indonesia remained high at 30.8% (Riset Kesehatan Dasar, 2018; Ministry of Health, 2021). This figure exceeds the World Health Organization (WHO) threshold for stunting, which is less than 20%. This indicates that approximately 8.9 million Indonesian

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children experience impaired growth, meaning that 1 in 3 children in Indonesia is stunted. Among Indonesia's 34 provinces, 18 have stunting prevalence rates above the national average. The provinces with the highest stunting prevalence are East Nusa Tenggara (42.7%), followed by West Sulawesi (41.6%) and Aceh (37.1%). The province with the lowest stunting prevalence is Jakarta (17.6%) (Kiik & Nuwa, 2020). Stunting remains a major nutritional issue in the community, particularly among children under five. Stunting is measured using the Height-for-Age Index (HAZ), which categorizes children as stunted (short) or severely stunted (very short). A child is classified as stunted if the height-for-age Z-score is below -2 standard deviations (SD), and severely stunted if below -3 SD (Sinatrya & Muniroh, 2019).

According to WHO (2020), stunting in children under five is the result of multiple factors often linked to poverty, including poor nutrition, inadequate health services, lack of sanitation, and environmental factors. The five main causes of stunting are economic, social, and cultural factors; increased exposure to infectious diseases; food insecurity; and limited access to healthcare. The contributing factors to chronic nutritional status in children differ between urban and rural settings; therefore, interventions must be tailored to these specific influencing factors.

WHO also states that in addition to growth impairments, stunted children may experience delayed development. Istiany & Rusilanti (2013) explain that child development can be assessed in three domains: physical, cognitive, and psychosocial. Aryastami (2017) notes that stunting adversely affects children's intellectual and cognitive abilities (Kiik & Nuwa, 2020). According to WHO, parental—particularly maternal—knowledge about stunting plays a crucial role in shaping behaviors to prevent it. This study aims to identify the relationship between maternal knowledge and stunting, explore the relationship between maternal characteristics (age, education, and occupation), and assess how maternal knowledge influences the occurrence of stunting in children (Kiik & Nuwa, 2020).

Preliminary data from Moncongloe Public Health Center, Maros Regency, show that the number of stunted children was 120 in 2017, 115 in 2018, and 130 in 2019. In the six-month period from July to December 2020, there were 80 visits related to stunted children (Moncongloe Health Center Register, 2020). Therefore, the objective of this study is to analyze the relationship between maternal knowledge and the incidence of stunting in the working area of Moncongloe public health center.

2. Methods

The research method used in this study is a correlational study, which is a method aimed at examining the relationship between two variables within a specific situation or group of subjects. This approach seeks to determine whether there is a relationship between one phenomenon and another, or between one variable and another. To identify the correlation between variables, the process involves identifying one variable within an object and then identifying another variable within the same object to determine whether a relationship exists between the two (Notoatmodjo, 2012).

This study employed a cross-sectional approach, which is a type of research used to analyze the dynamic correlation between factors and effects through a one-time observation or data collection process (Notoatmodjo, 2012). The population in this study refers to the entire group of subjects to be examined, which in this case includes all breastfeeding mothers at the Moncongloe Public Health Center, totaling 80 individuals (Notoatmodjo, 2012). The sample, defined as a subset of the population that is considered to represent the whole, consists of 66 breastfeeding mothers who participated in the study. The data analysis focused on examining the relationship between two variables—an independent variable and a dependent variable—suspected to be correlated (Notoatmodjo, 2018). Statistical analysis was conducted using SPSS software and Microsoft Excel to assess the strength and significance of the correlations between the variables under study.

3. Results and Discussion

3.1 Classification of respondents by age

Based on Table 1, out of 66 respondents, 21 individuals (31.8%) were aged 17–19 years, 18 individuals (27.3%) were aged 20–25 years, 16 individuals (24.2%) were aged 26–29 years, 9 individuals (13.6%) were aged 30–35 years, and 2 individuals (3.0%) were aged 36–40 years.

Table 1. Distribution of respondents by age

No	Frequency	Percent	Valid Percent
1.	17-19 years	21	31.8
2.	20-25 years	18	27.3
3.	26-29 years	16	24.2
4.	30-35 years	9	13.6
5.	36-40 years	2	3.0
Total	66	100	100

3.2 Classification of respondents by occupation

Based on Table 2, out of 66 respondents, the majority were farmers, totaling 48 individuals (72.2%), followed by housewives with 10 individuals (15.2%), and the fewest were entrepreneurs/traders, totaling 8 individuals (12.1%).

Table 2. Distribution of respondents based on work

No	Occupation	Frequency	Percentage %
1	Housewives	10	15.2
2	Farmer	48	72.7
3	Entrepreneur/Trader	8	12.1
	Total	66	100.0

Based on Table 3, out of 66 respondents, 10 individuals (15.2%) had good knowledge, 27 individuals (40.9%) had moderate knowledge, and 29 individuals (43.9%) had poor knowledge.

Table 3. Respondents' classification was based on parents' knowledge of the incidence of stunting

No	Knowledge	Frequency	Percentage (%)
1.	Good	10	15.2
2.	Enough	27	40.9
3.	Less	29	43.9
	Total	66	100

3.3 Classification of respondents based on children's anthropopromethry sheets

Based on Table 4, out of 66 respondents, the highest number of children were aged 25–46 months, totaling 21 individuals (31.8%), followed by those aged 47–60 months with 18 individuals (27.3%), 19–24 months with 10 individuals (15.2%), 13–18 months with 9 individuals (13.6%), 6–12 months with 6 individuals (9.1%), and 0–5 months with 2 individuals (3.0%).

Table 4. Distribution of child anthropogenic sheet respondents

No	Age	Frequency	Percentage (%)
1.	0-5 Month	2	30
2.	6-12 Month	6	9.1
3.	13-18 Month	9	13.6
4.	19-24 Month	10	15.2

5.	25-46 Month	21	31.8
6.	47-60 Month	18	27.3
	Total	66	100

3.4 Classification of respondents based on anthropometryic observations of children

Based on Table 5, out of 66 respondents, 36 children (54.4%) had a normal height-for-age score ranging from -2 SD to +2 SD, while 30 children (45.5%) had a stunted score ranging from -3 SD to < -2 SD.

Table 5. Distribution of respondents using child anthropometrial observations

No	Score	Frequency	Percentage%
1.	Zscore Short -3 SD s/d < -2 SD	30	45.5
2.	Normal Zscore -2 SD s/d +2 SD	36	54.5
	Total	66	100

3.5 The relationship between knowledge level and stunting incidence in the work area of the Moncongloe health center, Central Kupang Regency

Based on table 6, the correlation significance value is 0.004, indicating that the null hypothesis (H_0) is rejected. This means there is a significant relationship between maternal knowledge and the observed incidence of stunting.

Table 6. The relationship between knowledge level and stunting incidence

		Mother's Knowledge	Stunting Observation
Mother's Knowledge	Correlation Coefficient	1.000	-0.349**
	Sig. (2-tailed)	.	0.004
	N	66	66
Stunting Observation	Correlation Coefficient	-0.349**	1.000
	Sig. (2-tailed)	0.004	.
	N	66	66

Note: ** Correlation is significant at the 0.01 level (2-tailed).

3.6 Discussion

3.6.1 Univariate analysis

Based on the results of the study conducted on 66 respondents in the working area of Moncongloe Public Health Center, the proportion of parental knowledge regarding the incidence of stunting in children showed that the majority had poor knowledge, totaling 29 individuals (43.9%), while 27 individuals (40.9%) had moderate knowledge, and only 10 individuals (15.2%) had good knowledge. According to Notoatmodjo (2012), knowledge is the result of awareness that occurs after an individual senses a particular object through the five senses—namely sight, hearing, smell, touch—and most human knowledge is acquired through the eyes and ears. Furthermore, Notoatmodjo (2003), as cited in Sarah (2013), stated that the level of knowledge is greatly influenced by one's educational background. Therefore, parents with lower levels of knowledge are more likely to introduce complementary feeding before the child reaches six months of age—an issue closely linked to low levels of education among respondents.

In line with theoretical perspectives and field data, knowledge is influenced by educational factors. The distribution of respondents' educational background shows that 19 individuals (28.8%) completed junior high school, 12 individuals (18.2%) completed elementary school, 18 individuals (27.3%) completed senior high school, 8 individuals (12.1%) held a bachelor's degree, and 9 individuals (13.6%) held a diploma. This indicates that even though a person may have a relatively high level of education, it does not

necessarily guarantee good knowledge regarding the incidence of stunting. Then, based on the research conducted on 66 respondents at Moncongloe Public Health Center across several Posyandu (integrated health service posts), the proportion of stunting in children was not visibly apparent. According to the child anthropometric measurement observation sheet and the calculated Z-scores, 36 children (54.5%) were classified as having normal height-for-age, while 30 children (45.5%) were classified as stunted. According to the Anthropometric Standards Measurement Guidelines (2011), children are categorized as severely stunted if the Z-score is ≤ -3 SD, stunted if the Z-score is between -3 SD and < -2 SD, and normal if the Z-score is between -2 SD and +2 SD.

The study conducted in June 2021 involving 66 respondents found that there are several causes of stunting beyond maternal knowledge. Some respondents stated that they understand the importance of exclusive breastfeeding for newborns, particularly within the 0–60 month age range. They also noted that they regularly attend Posyandu sessions scheduled in their respective areas, which helps mothers stay informed about the care needed to prevent stunting in their children.

However, some respondents also believed that stunting could be hereditary. Additionally, many mothers admitted being reluctant to visit health facilities or Posyandu centers for weighing and measuring their children's height. They often claimed that their children had already passed the age for immunization or cited being too busy with work—typically farming or other occupations—which hindered their ability to attend health services regularly.

3.6.2 Bivariate analysis

The relationship between maternal knowledge and the incidence of stunting in the working area of moncongloe health center. The data analysis in this study was conducted on two variables suspected to be correlated, using the Spearman's rho correlation test. To assess statistical significance, a p-value threshold of 0.05 was applied. If the calculated ρ-value is greater than 0.05, the relationship is considered not statistically significant. Conversely, if $\rho < 0.05$, then the relationship is statistically significant. Based on the statistical calculation, a ρ-value of 0.004 was obtained, which is below the threshold of 0.05. Thus, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted. This result indicates a significant correlation between the level of maternal knowledge and the incidence of stunting in the working area of the Moncongloe Health Center. Parental knowledge plays a crucial role in stunting incidence, as it is considered a key predisposing factor. Increased knowledge typically leads to changes in attitudes and behaviors, and this relationship is positive—meaning that as knowledge increases, behavioral change occurs more rapidly (Notoatmodjo, 2012).

This finding aligns with a study by Komang (2019), which employed a similar research design—an analytic correlational study with a cross-sectional approach. Data analysis in that study also used the Spearman's rho test (95% confidence level, $\alpha = 0.05$). Using purposive sampling, 45 respondents were selected. The results showed that 21 respondents (46.7%) had a good level of knowledge regarding stunting, while 12 (26.7%) had a moderate level, and another 12 (26.7%) had poor knowledge. A chi-square hypothesis test revealed a p-value of 0.004, indicating a significant relationship between maternal knowledge and stunting in toddlers. The study also reported a correlation coefficient (r) of 0.483, reflecting a positive and moderately strong correlation. Based on these findings, it is suggested that mothers should proactively enhance their knowledge about stunting in early childhood. This study also consistent with findings from Putri Anindita (2019), which showed that out of 127 respondents, 38 mothers (29.9%) had low knowledge, while 89 mothers (70.1%) had good knowledge. Similarly, a study by Khoirun et al. (2015) with 34 respondents reported that 29.4% of mothers had poor knowledge, and 70.6% had high knowledge. These results indicate that a higher proportion of mothers possessed good knowledge compared to those with poor knowledge.

Furthermore, the study found that among the 127 respondents, 29.9% of mothers had poor knowledge, and 97.4% of their children experienced stunting. Conversely, among the 70.1% of mothers with good knowledge, only 7.9% of children were stunted. A chi-square statistical test confirmed a significant relationship between maternal knowledge and stunting (p-value = 0.00). Similar results were found in a study conducted in the working area of the Tanah Kali Kendinding Health Center in Surabaya in 2015. It revealed that 61.8% of mothers of stunted children had low knowledge, compared to only 29.4% among mothers of non-stunted children. A chi-square test analysis also showed that maternal nutritional knowledge was significantly associated with stunting (p = 0.015) (Khoirun et al., 2015).

A study conducted by Round Nasikhah and Ani in East Semarang in 2012 also found a significant association between maternal nutritional knowledge and stunting, with a p-value of 0.041 using a bivariate chi-square test. Nutritional knowledge was identified as a significant risk factor for stunting. Mothers' knowledge influences their behavior in providing appropriate types and amounts of food to support optimal child growth and development (Round & Margawati, 2012).

Inadequate nutritional knowledge, misunderstanding of healthy eating habits, and lack of awareness of the nutritional value of various food types can lead to nutritional problems (Wulandari & Indra, 2013). Proper provision of food ingredients and meal planning for toddlers can be achieved when mothers possess adequate nutritional knowledge. A lack of awareness regarding nutritional information can reduce the quality of food consumed by families, particularly by young children (Sjahmien, 2003). One of the causes of nutritional disorders is insufficient nutritional knowledge and the inability to apply nutritional information in daily life. The level of maternal nutritional knowledge influences their attitudes and behaviors in selecting food, which in turn affects the nutritional status of their family (Suhardjo, 2003).

4. Conclusions

Based on the study conducted on 66 respondents, 10 mothers (15.2%) were classified as having good knowledge, 27 (40.9%) as moderate, and 29 (43.9%) as poor. Additionally, among the 66 children involved, none were classified as severely short (0%), 30 children (45.5%) were classified as short, and 36 children (54.4%) were of normal height. Thus, there is a significant relationship between the level of maternal knowledge and the incidence of stunting in the working area of moncongloe public health center.

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