

Factors Affecting the Feeding Pattern of Under-Five Children with Stunting in Indonesia

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Abstract: Under-five children with stunting are still commonly found in Indonesia, this issue is related to the culture. However, research on stunting children in terms of cultural aspects is still limited. The aim of this research was to identify the factors related to feeding patterns for stunting children based on transcultural nursing. This research used a cross-sectional approach, with 139 mothers of under-five stunting children as a sample. The variables were education, economy, regulation and policy, cultural values and lifestyle, religiosity and philosophy, social support and family, technology, and feeding patterns. The data was collected using questionnaires and tested with Spearman's rho. The results show the relationship between feeding patterns and economics ($p = 0,013$; $r = 0,210$), regulation and policy ($p = 0,040$, $r = 0,174$), cultural values and lifestyle ($p = 0,000$; $r = 0,502$), social support and family ($p = 0,000$, $r = 0,337$), religiosity and philosophy ($p = 0,000$, $r = 0,371$), and technology ($p = 0,017$; $r = 0,203$), the feeding pattern was not related with education ($p = 0,732$). Cultural values and lifestyle are the dominant factors. The findings suggest that the factors based on a cultural approach can be used as a basis for preventing a stunting incident.

1 BACKGROUND

Adequacy of nutrition in under-five children is very important to support their growth and development (Jackson, 2015). However, currently there are still high rates of stunting incidents in under-five children. Stunting has become a problem worldwide (Black *et al.*, 2008). There are approximately 171 million under-five children affected by stunting and 167 million from developing countries (de Onis, Blössner and Borghi, 2012). Around 3 in 4 of the world's stunting children are in Sub-Saharan Africa at 40%, and 39% are in South Asia. Indonesia is included in the 14 countries with the largest number of stunting under-five children and ranked fifth after India, Nigeria, Pakistan and China (Kementerian Kesehatan - Ministry of Health/Indonesia, 2016).

Stunting in Indonesia in 2010 is included in the high prevalence category. Stunting events reach more than 30% (Henry, 2015). The results of the Riskesdas report (2013) show that the national stunting incidence increased to 37.2% with 19.2% of short children and 18% very short. Based on data from the Health Department of Sumenep Regency (2012) the Sumenep area is included in the list of regional groups that have high stunting toddler problems that is <32%.

Based on the preliminary data collection at the Sumenep District Health Office in October 2017, the stunting problem in children increased to 32.6% in 2016.

Stunting is a condition that occurs due to chronic malnutrition caused by poverty and inappropriate feeding patterns (Black *et al.*, 2008; Kementerian Kesehatan - Ministry of Health/Indonesia, 2015). The feeding patterns of parents will affect the growth and development of children (Kudlova and Schneidrova, 2012). The pattern includes the type, amount, and schedule (Ministry of Health RI 2014). The pattern of feeding at each age varies. A study conducted by Subarkah (2016) shows that for the pattern of proper feeding in toddlers, most toddlers have normal nutritional status. Mothers who have a good feeding pattern, indicate that the mother has given the right food according to the age of the child and meets the nutritional needs of children (Kumala and Warsiti, 2013).

Behavioral factors associated with malnourished children in Indonesia are associated with habits and culture (Ramli *et al.*, 2009). Feeding problems in children that appear in culturally related communities include the types of foods given to children not being age appropriate and less attention to nutritional

content in food. Based on a preliminary study obtained from 20 mothers, all mothers give early feeding for children aged less than 6 months; they say that it is a tradition. Duration of breastfeeding less than 6 months is one of the causes of stunting in children (Jiang *et al.*, 2015). Lack of mother's knowledge about the fulfillment of children's nutritional needs is one of the factors causing stunting (Nkurunziza *et al.*, 2017).

The impact of stunting in the short term includes the disruption of brain development and intelligence, impaired physical growth, and metabolic disorders of the body (Ministry of Health, 2016; Lestari *et al.*, 2018). The prolonged implications of stunting are poor health, increased risk of non-communicable diseases, and poor cognitive and educational attainment achieved in childhood (The Ministry of National Development Planning (Bappenas) and the United Nations Children's Fund (UNICEF), 2017). There is a high risk of illness and disability in old age, as well as the uncompetitive quality of work resulting in low economic productivity (Ministry of Health of the Republic of Indonesia, 2016).

One of the National Medium-Term Development Plans in Indonesia in 2015-2019 is addressing the problem of under-five children with stunting (Kementerian Kesehatan - Ministry of Health/Indonesia, 2015). However, the efforts have not been able to solve the problem of stunting in under-five children. The aims of this study are to analyze the factors related to the feeding pattern of stunting toddlers based on the transcultural nursing approach.

2 METHODS

This research design uses a cross-sectional approach. The population in this study were under-five children with stunting, amounting to 213 children and their mothers. The total sample in this study was as many as 139 children and their mothers. The sampling technique used in this research is cluster sampling. The independent variables in this study are educational, economic, regulatory and policy factors, cultural values and lifestyle, social and family support, religiosity and philosophy, and technology. The dependent variable in this research is feeding pattern. Instruments in this study are questionnaires and the WHO standard for stunting measurement.

This research was conducted in 15 villages in the Dasuk Health Care Centre (Puskesmas) work area. The study was conducted in November 2017. Each data will be measured using a Spearman's rho (rs) statistic test if the significance value of $\alpha \leq 0.05$ is

determined. This study has passed the ethics review of the Health Research Ethics Commission of Faculty of Nursing Airlangga University with number: 579-KEPK.

3 RESULTS

Table 1: Characteristics of respondents.

Characteristics	Category	f	%
Age of the child (months)	12-24	70	50.4
	>24	69	49.6
Total		139	100
Gender	Boys	71	51.1
	Girl	68	48.9
Total		139	100
Mother's Age (years old)	< 20	7	5
	20-35	112	80.6
	>35	20	14.4
Total		139	100
Occupation	Housewife	87	62.6
	Government employees	2	1.4
	Private employees	5	3.6
	Entrepreneur	4	2.9
	Farmers	41	29.5
Total		139	100
Number of Children	≤ 2	110	79.1
	>2	29	20.9
Total		139	100
Family number	≤ 5	67	48.2
	>5	72	51.8
Total		139	100
Family income	Under the average minimum wage	109	78.4
	Over the minimum average wage	30	21.6
Total		139	100
Attendance at POSYANDU	Active	125	89.9
	Rarely	14	10.1
Total		139	100

Based on Table 1 the characteristics of respondents indicated that most of the stunting age children were 12-24 months i.e. 70 (50.4%). The majority of respondents were male gender – 71 (51.1%) of the children. Most mothers were aged 20-35 years – 112 (80.6%) of respondents. Most of the respondents were housewives – 87 (62.6%) of respondents. Most of the respondents had fewer than two children – 110 (79.1%) of respondents and 72 (51.8%) of the respondents had more than five family members. The income of respondent families per

month is mostly less than the average minimum wage – 109 (78.4%) respondents. Most of the active respondents attended the *Posyandu* – 125 (89.9%) respondents.

Table 2: Distribution of respondents by mother's education.

Variable	Category	f	%
Education	No school/ no primary school	8	5.8
	Basic education	99	71.2
	Middle education	23	16.5
	Higher education	9	6.5
Total		139	100

Table 3: Distribution of respondents by maternal economy.

Variable	Category	f	%
Economy level	Good	89	64
	Enough	37	26.6
	Less	13	9.4
Total		139	100

Table 4: Distribution of respondents based on regulations and policies.

Variable	Category	f	%
Regulations and Policies	Good	102	73.4
	Enough	24	17.3
	Less	13	9.4
Total		139	100

Table 5: Distribution of respondents by cultural values and lifestyle.

Variable	Category	f	%
Cultural Values and Lifestyle	Positive	74	53.2
	Negative	65	46.8
Total		139	100

Table 6: Distribution of respondents by social and family support.

Variable	Category	f	%
Social and Family Support	Good	66	47.5
	Enough	73	52.5
	Less	0	0
Total		139	100

Table 7: Distribution of respondents by technology.

Variable	Category	f	%
Technology	Good	31	22.3
	Enough	67	48.2
	Less	41	29.5
Total		139	100

Table 2 shows most of the respondents have a basic education – 99 (71.2%) of respondents. Middle education 23 (16.5%), higher education 9 (6.5%) and no school shows 8 (5.8%).

Based on Table 3, the economic variables indicate that most respondents have sufficient economic status to meet the needs of feeding an under-five child with stunting – 89 (64%) respondents.

Table 4 shows that the most respondents had good regulations and policies – 102 (73.4%). Enough category 24 (17.3%) respondents and Less category shows 13 (9.4%) respondent. Table 5 shows that most respondents had positive scores on cultural values and lifestyle – 74 (53.2%) and 65 (46.8%) showed negative values.

Table 5 shows most respondents have a positive score for cultural values and lifestyle in feeding on stunting, as many as 74 (53.2%) respondents. However, it still found the factors of cultural values and lifestyle in the negative category (46.7%).

Table 6 shows that most of the respondents had sufficient social and family support in feeding toddlers as many as 73 (52.5%) respondents, 66 (47.5%) were in the good category. Based on Table 7 the majority of respondents used technology in feeding stunting children – 67 (48.2%) of respondents, while 31 (22.3%) were in the good category and 41 (29.5%) were in the low category.

Table 8 shows that most respondents are right in the feeding pattern of under-five children as many as 137 (98.6%) of respondents and 2 (1.4%) have inappropriate feeding patterns.

Table 8: Distribution of respondents by feeding patterns in under-five children with stunting.

Variable	Category	f	%
Feeding Patterns	Right	137	98.6
	Not exactly	2	1.4
Total		139	100

Table 9: Analysis of the relationship between feeding pattern factors in stunting children.

Independent variable	Dependent variable	Analysis	
		p	r
Education	Feeding Pattern	0.732	0.029
Economy		0.013	0.210
Regulations and policies		0.040	0.174
Cultural values and lifestyle		0.000	0.502
Social and family support		0.000	0.337
Technology		0.017	0.203

The educational factor has no relationship with the mother's feeding pattern $p = 0.732$. Economic and regulatory factors, cultural and lifestyle values, social and family support, and technological factors have a relationship with the feeding pattern of stunting children with a significance value $\alpha < 0.05$. Factors of cultural values and lifestyle became the dominant factor associated with the pattern of feeding with the result of correlation $r = 0.502$.

4 DISCUSSION

4.1 Maternal Education Factor in Feeding Pattern on Under-Five Children with Stunting

The results showed that there was no statistically significant relationship between maternal education factors and the feeding pattern. It can be seen that most mothers have elementary education that is graduated from elementary school/junior high school, while the pattern of feeding on toddler stunting is appropriate.

According to transcultural nursing theory by Leininger (2002), the higher the client's education the more likely the client's conviction is usually supported by rational scientific evidence and the individual can learn to adapt to a culture appropriate to their health condition. The results of Nkurunziza *et al.* (2017) suggest that maternal education is a determinant of nutritional status of children with most studies showing low maternal education is a major determinant of malnutrition. The results of this study indicate that maternal education is not related to the pattern of feeding in children. However, according to the research by Casale, Espi and Norris (2018) the maternal education factor indirectly has an effect on the occurrence of stunting in a child and the study by Subarkah, Nursalam and Rachmawati (2017) states that mothers who have a proper diet are influenced by maternal education and good knowledge about child feeding.

The results of this study are in accordance with research by Sholikah, Rustiana and Yuniastuti (2017), which states that there is no significant relationship between maternal education and nutritional status of children. It can be influenced by the knowledge about nutrition and health that can be obtained by visiting *Posyandu*. Children with stunting need special attention and intervention. Health workers at *Posyandu* and health volunteers play an active role in providing health education such

as counseling about appropriate feeding patterns for stunting children. The mother's knowledge increases and they apply it properly.

4.2 The Economic Factors in Feeding Pattern on Under-Five Children with Stunting

Economics is a human effort to meet the material needs of a limited source. Family income is a factor affecting the pattern of feeding in toddlers. Revenue and prices of food products also affect the level of food consumption. The transcultural nursing theory explains that factors affecting one's economic value are income in the family, other income sources, health insurance, and the impact of income on health (Andrews and Boyle, 2012).

Research by Subarkah, Nursalam and Rachmawati (2017) states that high income will determine good purchasing power. Conversely, low income will lower purchasing power. This study shows that most respondents use income received to meet basic needs so that mothers can provide the right foods for children. The results of this study contradict Fauziah's (2009) study which states that a person's income level will affect the type and amount of food they consume. The higher the income the better the quality of food consumed by buying food that is better quality and more expensive. In this study, although the majority of families earn less than the average minimum wage in Sumenep Regency, the mother divides the money so that the child's nutritional needs are fulfilled, and also most of the fathers have jobs as farmers so that the source of the food is readily available without buying it. Most mothers when they get extra money also spend it to meet the needs of children first such as on milk or fruit. This study is in line with Hagos *et al.* (2017) showing that the family income incurred to improve the nutritional status of children, by spending to buy quality food, can protect children from malnutrition.

4.3 The Regulatory and Policy Factors in Feeding Patterns in Under-Fives

Mothers with appropriate feeding patterns for children is closely related to general education received by mothers who visit *Posyandu*, which can increase knowledge about nutrition and health (Masithah, Soekirman, and Martianto, 2005). *Posyandu* is one form of policy as an effort for Community-Based Health (UKBM) managed to provide convenience to the community in obtaining basic health services, especially for under-five

children. *Posyandu* provides a routine once a month service; the children are weighed, have health checks, supplementary feeding, and nutrition counseling. Children are measured by height and age, and if known to have stunting it is recorded by a *Posyandu* health volunteer, then a health worker reports to the nutritionist in Puskesmas so that respondents can consult with a nutritionist and receive supplementary food.

According to research by Welasasih *et al.* (2012) the emergence of stunting in nutritional status is not only because of the lack of food but also because of disease. The implementation of immunization is to prevent the occurrence of infectious diseases. In this study, most mothers have provided complete basic immunization for infants. According to Ulfani *et al.* (2011) the utilization of *Posyandu* and complete immunization is a factor related to the occurrence of underweight, stunting and wasting.

4.4 Cultural Value and Lifestyle Factors in Feeding Pattern of Under-Five Children with Stunting

Culture is the norm or action of group members who are studied and divided, and it gives instructions for thinking, acting, and making decisions (Leininger, 2002). The choice of food is influenced by the lifestyle and culture in which a person is located, and the feeding of children will also be influenced by cultural factors (Meier-Ploeger, 2003). Cultures influence the pattern of feeding in children (Culhane-Pera *et al.*, 2002) in terms of beliefs, values, and behaviors associated with different foods (Erika, 2016). Some studies suggest that cultural values and negative lifestyle will cause the pattern of feeding in children to be inappropriate, whereas the values of culture and positive lifestyle will enable the pattern of proper feeding in children.

In this study, most of the respondents had positive cultural values and did not believe in dietary restrictions such as eggs, fish and chicken were not good for the growth of children, and believed that nutritious food was good for child growth. This is supported by the willingness of mothers to come to *Posyandu*, so that mothers gain knowledge in the right feeding pattern to improve nutritional status, especially for stunting children. This research is in line with that of Isnatri, (2016) which states that there is a relationship between cultural values and lifestyle and the pattern of feeding in children with malnutrition status. This is because most respondents have cultural values and negative lifestyle that causes the pattern of feeding for children to be inappropriate.

In this study, respondents who had a negative cultural and lifestyle score of 46.8%, among others, have a history of giving early breast-milk in the form of young coconut water or ro'-moro to give a smooth banana crushed with rice or lotek when newborn with the intention that the babies are healthy and strong. They are convinced that giving more rice than the side dishes and vegetables is good for health, and they believe that their child is stunting due to the offspring of the parents. Thus, it is necessary to provide continuous health counseling about feeding infants and children to increase mothers' knowledge so as to improve the inappropriate behavior to improve the nutritional status of children.

4.5 Social and Family Support Factors in Feeding Pattern of Under-Five Children with Stunting

Social and family factors function as a support system for its members and are shown to improve health and adaptation processes (Leininger 2002). Each family member has several roles such as motivator, educator, and facilitator. The head of the family or husband plays an important role including providing motivation, education, and facilitating the wife when giving food to the child (Efendi and Makhfudli, 2009).

Most husbands provide support in the form of giving time to monitor child growth and knowing the appropriate pattern of feeding for children. A father's involvement is necessary and determines the nutritional status and diet of the child (Vollmer *et al.*, 2015). In addition, based on demographic data most mothers have only 1-2 children, and the number of family members in a house is mostly more than 5 people because of living with grandparents. Other family also took care of under-five children with stunting.

In this study, the social and family support is valuable in supporting and facilitating the mother in performing activities related to feeding patterns for under-five children with stunting. This study is consistent with Rumaseuw's *et al.* (2018) study which states that social factors and good family attachment improve proper maternal behavior.

This research is in contrast to Isnatri's (2016) study, which states that social and family support factors are not related to the pattern of feeding in under-fives with and without malnutrition. This is because most respondents have adequate social and family support, but the feeding pattern is not appropriate.

4.6 Technological Factors in Feeding Pattern of Under-Five Children with Stunting

Technological factors are one of the factors that influence a person's behavior based on culture (Leininger, 2002). Health technology is a means of infrastructure that allows individuals to choose or obtain services that solve problems in health (Giger, 2013).

Nutrition in children involves adequate access to care and feeding for children (Kim *et al.*, 2017). In this research most of the mothers simply use technology that utilizes existing health service facilities and most of the active mothers come to *Posyandu* every month. Most mothers use electronic media to get information about the appropriate feeding patterns of toddlers according to their age. Utilization of adequate technology in this study caused the respondents to utilize electronic media to identify the proper feeding patterns in toddlers. Respondents find it easy to utilize healthcare facilities such as attending *Posyandu* to monitor the growth of children under five and it is easy to consult with health officers at the Public Health Center. However, based on the results obtained the lowest score is for using print media (books, magazines, etc.). Most respondents said they rarely get information from books or magazines. Thus, the need is for printed media (leaflets, booklets, etc.) in health counseling about proper feeding for toddlers so as to support the pattern of technology utilization to improve the nutritional status of children. The results of this study are also in accordance with the results of research by Dwi Astuti, Fardhiasih; Sulistyowati (2013) shows that the current technological developments can easily access information from various media about feeding patterns for stunting children, so that mothers can improve knowledge.

5 CONCLUSIONS

Based on the Transcultural Nursing theory approach, the feeding pattern provided by mothers for under-five children with stunting is influenced by economic level, regulatory and policy factors, cultural values and lifestyle, social and family support, and technological factors. Factors of cultural values and lifestyle are the most dominant factors associated with the pattern of feeding in under-five children with stunting.

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