



Factors Influencing Nutritional Practice of Mothers with Stunted Children

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Abstract. Background: The role of feeding in the first two years of life is closely related to the mother's ability to fulfill nutrition. During this age, there is a risk of nutritional problems due to transition/weaning and infant feeding practices, particularly in terms of food variety, quality of diet, availability and accessibility of nutritious food, exposure to infection, and poor sanitation. Food quality and nutrition depend on the mother's ability to properly feed children aged 6–24 months. Empowerment of mothers is influenced by family and environmental factors as well as the resources they have. Support from family, groups, and mothers' involvement in social activities (ex: public health centers) can influence mothers' attitudes and behavior.

Aim: This study aims to identify factors influencing the nutritional practice of mothers with stunted children.

Methods: The study used a cross-sectional study design. The population in this study were all mothers who had children aged 6–24 months who were stunted and registered at the Malang Regency. The research sample was determined by taking- into account the inclusion criteria, age of the mother 20–45 years, the mother who has two or more children, the mother who breastfeeds her child, and the mother who can read and write, and can communicate well in the Indonesian language. The instrument used in this study is a questionnaire. The final study was carried out on 180 respondents using multistage random sampling at Public Health Center Malang Regency in May- September 2022. Data analysis using multiple binary logistic regression.

Results: Factors significantly related to the nutritional practice of mothers with stunted children and healthcare system factors. This result shows that 47% factors significantly related to nutritional practice in mothers with stunted children (p value = 0.000). Factors influencing the nutritional practice of mothers with stunted children that have related to mother's ability which can affect nutritional status.

Conclusion: There is a direct impact of women's empowerment on children's nutritional status by improving growth and children's health. It is recommended to design comprehensive interventions based on women's empowerment to enhance child nutrition status through involvement in decision-making in family activities, especially on produce and processed food.

Keywords: factors · nutritional practice · stunted · children

1 Introduction

The role of feeding in the first two years of life is closely related to the mother's ability to fulfill nutrition [1, 2]. During this age, there is a risk of nutritional problems due to transition/weaning and infant feeding practices, particularly in terms of food variety, quality of diet, availability, accessibility of nutritious food, exposure to infection, and poor sanitation. The quality of food and nutrition depends on the mother's ability to feed children aged 6–24 months properly and is supported by their nutrition field [3]. Mothers with good education and knowledge affect child care patterns, including feeding, food consumption patterns and nutritional status. In practice, mothers provide food to children based on the hunger response expressed by the child; besides that, the food menu is prepared based on the child's wishes, and instant complementary foods is considered more practical [4].

Mothers are part of the family who have autonomy and a nurturing role in feeding infants and children and can make decisions, especially regarding children's health. Mother's knowledge and skills are essential as a basis for fulfilling child nutrition; mothers must be able to apply parenting in terms of providing food to children (responsive feeding), which includes feeding according to the child's age, mother's sensitivity regarding the child's eating time, creating a good child's eating environment and comfortable. Infant and Child Feeding requires a variety of food variations, gradually increasing portions, food consistency, and balanced proportions of macro-micro nutrients, including vegetables, fruits, side dishes (sources of animal and vegetable protein), and staple foods as a source of energy [5].

Based on a preliminary study conducted from the report on the results of weighing operations in February 2021 from 138.155 children in 39 Public Health Centers in Malang Regency, 15.055 children experienced stunting (10.9%). The highest cases in Malang Regency include Pagak Public Health Center, with 506 children from 1.288 children (39.2%), Ngajum Public Health Center, as many as 562 children from 2.122 children (26.4%), Pujon Public Health Center as many as 881 children from 3.451 children (25.5%), Sumberpucung Health Center as many as 389 children from 1,799 children (21.6%), and Tajinan Health Center as many as 717 children from 3.705 children (19.4%). Based on these results, under the coordination of the Regional Planning Agency in the Malang Regency, stunting management was formulated where the areas increase in every year became locus intervention and approved by the Head of Malang Regency. Locus intervention in every year is in 2020, as many as 22 locus, in 2021 as 32 locus and 2022 as many as 50 locus [6].

Efforts and strategies that can be done with stunting are specific nutrition interventions targeting breastfeeding mothers and supplemental breastfeeding. Interventions that can be done are encouraging early initiation of breastfeeding, encouraging exclusive breastfeeding, promotion and education of appropriate complementary foods, prevention of helminth infections in mothers and children, giving zinc supplementation to children, fortification of iron into food/ micronutrient supplementation, prevention and clinical

management, complete immunization, prevention and treatment of diarrhea, implementation of the principles of management of sick toddlers, vitamin A supplementation in children 6–59 month, management of severe acute malnutrition in children, monitoring of child development. In addition, nutritional interventions that can be carried out in stunted and moderately malnourished children are increasing Feeding babies and children and increasing diet in infants and toddlers with a strategy of an increasing variety of foods, especially those containing animal protein and Ultra Treatment Milk or fortified milk, giving multiple micronutrients (Zink, iron, vitamins). Efforts made by the Malang Regency Government under the coordination of the Malang Regency Regional Planning Board, in order to reduce the incidence of stunting are to increase the area covered by stunting handling (locus area) every year [3, 5]. Empowerment of mothers is influenced by family and environmental factors as well as the resources they have. Support from family, groups and mother's involvement in social activities (ex: Public Health Center) can influence mothers' attitudes and behavior. The aims of this study are to analyze multiple factors influencing nutritional practice in mothers with stunted children.

2 Methods

The study used a cross sectional study design. The population in this study were all mothers who had children aged 6–24 months who were stunted and registered at the Public Health Center in Malang Regency. While the samples in this study were some mothers who had children aged 6–24 months who experienced stunting in the Malang Regency Health Center. The research sample was determined by taking into the inclusion criteria such as age of the mother 20–45 years, the mother who has two or more children, the mother who breastfeeds her child, the mother can read and write, cooperative in complying with the agreed activity rules, well communicate in the Indonesian language. The instrument used in this study is a questionnaire. The sample of this study is 180 respondents using multistage random sampling at Public Health Center Malang Regency in May- September 2022. Data analysis using Multiple binary logistic regression in SPSS 23.0 application. This study was approved by the Health Research Ethics Committee Faculty of Nursing Universitas Airlangga (Ethical Approval No- 2574-KEPK 2022).

3 Results

The data collection of this research used an multistage random sampling technique in five public health center in Malang (Tajinan PHC, Bululawang PHC, Singosari PHC, Wajak PHC, Kepanjen PHC) which was carried out in the period May- September 2022. Mothers with stunted children who have children aged 6–24 months, because in this age nutritional pattern, intake nutritional of children has changed, from exclusive breastfeeding and supplemental breastfeeding. General characteristic data shown in Table 1.

Table 1. General Characteristic on Nutritional Practice of Mother with Stunted Children in Malang Regency, East Java, Indonesia

Factors	Characteristic	Classification	f (%)	Correlation	p
Individual	Age	17–25 years	51 (28.4)	0.391	0.000
		26–35 years	89 (49.4)		
		46–40 years	40 (22.2)		
	Occupation	Housewife	155 (86.1)	1.305	0.000
		Civil government	2 (1.1)		
		Private sector	5 (2.8)		
		Others	18 (10)		
	Educational Level	Elementary school	21 (11.7)	0.297	0.000
		Junior high school	84 (46.7)		
Senior high school		62 (34.4)			
Higher Education		13 (7.2)			
Motivation	High motivation	26	0.339	0.000	
	Low motivation	154			
Mobility	High mobility	62	0.368	0.000	
	Low mobility	118			
Decision making	Good	4	0.361	0.000	
	Moderate	8			
	Less	168			
Knowledge	Good	108	0.340	0.000	
	Moderate	59			
	Less	13			
Self- esteem	Low	111	0.401	0.000	
	High	69			
Self- efficacy	Confidence	30	0.311	0.000	
	Insecure	150			
Family	Family type	Nuclear family	132	0.334	0.000
		Extended family	48		
	Family role	Good	1	0.425	0.000
		Moderate	87		
		Less	92		
Family stressor	No stress	71	0.386	0.000	
	Stress low	104			
	Stress moderate	5			
Coping in family system	Adaptive	178	0.419	0.000	
Family Social Support	Maladaptive	2	0.472	0.000	
	High	179			
	Low	1			

(continued)

Table 1. (continued)

Factors	Characteristic	Classification	f (%)	Correlation	p
	Family Attainment	Democrats	65	0.376	0.000
		Authoritative	112		
Permissive		3			
	Social and economy	Absolute poverty	56	0.358	0.000
		Relative poverty	124		
Healthcare system	Healthcare resource	Good	4	0.426	0.000
		Moderate	85		
		Less	91		
	Role of cadre	Good	22	0.439	0.000
Moderate		86			
Less		72			
Role of nurse	Good	18	0.460	0.000	
	Moderate	90			
	Less	72			
Activity in public health center	Good	4	0.227	0.001	
	Moderate	85			
	Less	91			

From the table above, it can be shown that almost all of the respondents are average being 30 years old, with the majority being housewife. As for the educational levels of mothers, the majority had junior high school. As for income-generating activities, almost all participants as mother came from All data collected were analyzed using SPSS statistic 23.0. The correlation between multiple factors as major variable are shown in Table 2. Individual factors from mothers showed a significant positive correlation with nutritional practice of mother such as age ($r = 0.391, p = 0.000$), occupation ($r = 0.305, p = 0.000$), educational level ($r = 0.297, p = 0.000$), motivation ($r = 0.339, p = 0.000$), mobility ($r = 0.368, p = 0.000$), decision making ($r = 0.361, p = 0.000$), knowledge ($r = 0.340, p = 0.000$), self-esteem ($r = 0.401, p = 0.000$), self-efficacy ($r = 0.311, p = 0.000$). Family factors from mother showed a significant positive correlation with nutritional practice of mother such as family type ($r = 0.334, p = 0.000$), family role ($r = 0.425, p = 0.000$), family stressor ($r = 0.386, p = 0.000$), coping in family system ($r = 0.419, p = 0.000$), family social support ($r = 0.472, p = 0.000$), family attainment ($r = 0.376, p = 0.000$), social economy ($r = 0.358, p = 0.000$). Healthcare system factor showed a significant positive correlation with nutritional practice of mother give complementary feeding.

The multiple factors as major variables are shown in Table 2. From Table 2 shown that 47% factors significantly related to nutritional practice on mother with stunted children (p value = 0.000) so that the equation can be arranged with $Y = 86.890 + 5.370 X_1$.

Table 2. Factors Influencing Nutritional Practice of Mother with Stunted Children in Malang Regency, East Java, Indonesia

Factors	Variable	B	SE	β	t	p
Constant		86.89	1.71		1.943	0.045
Individual	Age	5.370	2.551	1.736	2.105	.037
	Occupation	-.909	2.505	-.044	-.363	.717
	Educational level	-11.79	4.411	-.470	-2.67	.008
	Motivation	-2.240	1.516	-.682	-1.47	.142
	Mobility	-6.974	4.112	-.359	-1.69	.092
	Decision making	-1.654	3.001	-.123	-.551	.582
	Knowledge	4.620	3.273	.554	1.412	.160
	Self- esteem	-1.274	2.124	-.366	-6.00	.550
	Self- efficacy	-.254	.812	-.115	-.312	.755
Family	Family type	3.001	3.340	.068	.899	.370
	Family role	.188	.276	.076	.679	.498
	Family stressor	.459	.401	.098	1.146	.254
	Coping in family system	2.697	1.055	.209	2.556	.012
	Family social support	.120	.241	.057	.500	.618
	Family attainment	-.126	.245	-.047	-.514	.608
	Social and economy	-.266	.754	-.035	-.353	.725
Healthcare system	Healthcare resource	.335	1.160	.065	.289	.773
	Role of cadre	.049	1.226	.012	.040	.968
	Role of nurse	1.306	1.575	.195	.829	.408
	Activity in public health center	-5.721	4.560	-.113	-1.25	.212
	F (<i>p</i>)	6.937 (0.000)				
	R ²	0.552				
	Adjusted R ²	0.472				

4 Discussion

The present study showed that individual factors in mothers who had stunted children must be giving up because this research shows that mothers lack of motivation, self-esteem, self-efficacy, and low mobility. Dependency level from mother into family and role of family is higher. As a specific- intervention, especially nutrition- specific intervention. Some of the examples of nutrition- specific interventions are: support for exclusive breastfeeding and complementary feeding, micronutrient supplementation. It can optimally role of mothers with women empowerment. Women are empowered to be leaders

in the nutrition approach. The nutrition-specific intervention will contribute more to the reduction of malnutrition and lead to a sharper decline in the proportion of stunted children which can improve the nutrition status directly [7–9].

In practice, mothers provide food to children based on the hunger response expressed by the child; besides that, the food menu is prepared based on the wishes of the child and the use of instant complementary foods is considered more practical [1, 2, 10].

Mothers are part of the family who have autonomy and a nurturing role in feeding infants and children and are able to make decisions, especially regarding the health of children. Mother's knowledge and skills are very necessary as a basis for fulfilling child nutrition, mothers must be able to apply parenting in terms of providing food to children (responsive feeding) which includes feeding according to the child's age, mother's sensitivity regarding the child's eating time, creating a good child's eating atmosphere and comfortable. Infant and Child Feeding (IPM) requires a variety of food variations, gradually increasing portions, food consistency, and balanced proportions of macro-micro nutrients including vegetables, fruits, side dishes (sources of animal and vegetable protein) and staple foods. as a source of energy [7, 9].

Empowering women or practical of mothers with stunted children and it has a positive impact on children. Study before find that women's empowerment in the household is generally associated with children nutritional well-being and focus on mothers who have role to fulfillment in nutritional status in stunted children [11, 12]. Contribution of mother ability to access of information, mobility, ability to decision making about child care, child health. For mother who have children under six years especially in infant and toddler can screening risk of stunting, so it can be prevented by providing intake adequate from quantity and quality of food and maintain the health of toddlers from infectious disease especially in Gastrointestinal tract infectious so that toddlers can achieve a catch-up grow [13–15]. Then, planning the public strategies can help to control childhood undernutrition according to underlying factors. Health promotion about nutritional adequacy, especially responsive feeding, supplementary feeding, or practical feeding from mother to child, may improve children's nutritional status.

5 Conclusion

Individual factors from mothers showed a significant positive correlation with nutritional practice of mother such as age ($r = 0.391, p = 0.000$), occupation ($r = 0.305, p = 0.000$), educational level ($r = 0.297, p = 0.000$), motivation ($r = 0.339, p = 0.000$), mobility ($r = 0.368, p = 0.000$), decision making ($r = 0.361, p = 0.000$), knowledge ($r = 0.340, p = 0.000$), self-esteem ($r = 0.401, p = 0.000$), self-efficacy ($r = 0.311, p = 0.000$). Family factors from mother showed a significant positive correlation with nutritional practice of mother such as family type ($r = 0.334, p = 0.000$), family role ($r = 0.425, p = 0.000$), family stressor ($r = 0.386, p = 0.000$), coping in family system ($r = 0.419, p = 0.000$), family social support ($r = 0.472, p = 0.000$), family attainment ($r = 0.376, p = 0.000$), social economy ($r = 0.358, p = 0.000$). Healthcare system factor showed a significant positive correlation with nutritional practice of mother give supplementary breastfeeding.

Multiple factors in this research showed that 47% of factors significantly related to nutritional practice on mothers with stunted children (p value = 0.000). Factors influencing the nutritional practice of mothers with stunted children that have related to mother's ability which can affect nutritional status. There is a direct impact of women's empowerment on children's nutritional status by improving children's health. It is recommended to design comprehensive interventions based on women's empowerment to enhance child nutrition status through involvement in decision-making in family activities, especially on produce and processed food.

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