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Breastfeeding practices can potential to prevent stunting for poor family[☆]



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KEYWORDS

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Abstract

Objective: Proper breastfeeding practice is the most effective way to meet the nutritional adequacy of children. Breast milk has a nutrient composition that matches the nutritional needs of children and is believed to be able to have a positive influence on the infant's growth. The purpose of this study was to analyses the effect of breastfeeding on the prevention of stunting in poor families.

Method: This study is cross-sectional. Samples were taken systematically randomly from all mothers who had children aged 0–36 months in Pangkep. This location was chosen because it is included in the height prevalence of stunting (41.9%) in South Sulawesi, Indonesia¹. The sample size was 1038 mother–child pairs. The percent distribution of children, according to weight for age, height/length for age, and weight for height/length as per the standard deviation (SD) classification by World Health Organization (WHO), 2006 was carried out.

Results: short stature (stunting) and normal status about 33.9% and 66.1%. As many as 56% of them occur outside the age period of breastfeeding. On the contrary, it was known that 63.5% of those who were still in the period of breastfeeding. The statistical analyses show⁶ that breastfeeding can prevent stunting ($p=0.039$).

Conclusion: Breastfeeding practice was effective in preventing stunting in poor family children. © 2020 Elsevier España, S.L.U. All rights reserved.

Introduction

About 37% (9 million) of Indonesian children experience stunting, which is spread evenly across regions and across income, not only the poor but also the middle class.¹ In 2018, based on the report monitoring nutritional status by Heath Department Indonesia, in stunting in Indonesia, and South Sulawesi, it was 25.2% and 38.4% respectively² Pangkep

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Regency has a stunting prevalence of 41.9%, based on the results of nutrition surveillance in 2017 by the Indonesian Ministry of Health. The best feeding intervention in the first 1000 days of life is Exclusive Breastfeeding (EBF).^{3,4}

Stunting in developing countries as much as 32% in children less than 5 years, and about 1.4 million die from diseases that could have been prevented by breastfeeding.^{5,6} Many benefits of breastfeeding include reducing the percentage of acute respiratory infections, Sudden Infant Death Syndrome, digestive tract infections, allergies, adolescent obesity, and type I diabetes respectively 2%, 36%, 64%, 15–30% and 30%.⁷ The trends of Exclusive BF from 1995 to 2018 were estimated using a global database of 140 countries from the United Nations Children's Fund, and they found that in spite of the facts known about EBF, it was not widely practiced in many developing countries.⁸ The implementation of the code of ethics for marketing codes for breastmilk substitutes in various countries still needs to be supported, to ensure that breastfeeding is not disturbed by commercial formulas. The legal rules regarding breastfeeding are still weak and because politically it must be included in the national agenda in each country. The failure to increase breastfeeding is due to many things both from the aspect of the mother as well as from the aspects of health workers and marketing of formula milk.^{9–13} The purpose of this study was to analyze the effect of breastfeeding on the prevention of stunting in poor families.

Method

Design

This study is a cross-sectional do to the history of breastfeeding that can be collected at the same time as anthropometric measurements at the time of the study. This method is more feasible due to nutritional status is a reflection of the history of the previous feeding, including breastfeeding. Samples were taken systematically randomly from all mothers who had children aged 0–36 months in Pangkep Regency, South Sulawesi.

Population and study setting

The population is all mothers who have children less than 5 years old and the sample is mothers who are aged 0–36 months from two sub-districts as representatives of urban and rural. The inclusion criteria were willing to have children aged 0–36 months, not being hospitalized. The exclusion criteria are not residents of the study area, not at the location when the sampling process was carried out. Calculation of sample size in this study by setting a high precision that is the difference in population and sample values of 0.04 (d) with the proportion of stunting as an outcome of 0.40. This is consistent with the Indonesian Nutrition Surveillance Data 2017. The sample size formula by Stanley Lemeshow DW (2007)¹² are below:

$$n = Z_{1-\alpha/2}^2 [0.25] / d^2$$

Values for $z = 2.572$ (99% confidence levels) and $d = 0.04$ (based on prevalence stunting in Pangkep district). The sample size was 1038 mother-child pairs.

Variables

The variables in this study were age, gender, mother's education, father's education, nutritional status based on anthropometric indexes. Age is calculated as full age (month) based on birth records, grouped into two namely 0–24 months and 25–36 months. Gender-based on child identity, mother and father education based on the last education achieved. The collection of data above by interviews use questionnaires. Percent distribution of children according to weight for age, height/length for age, and weight for height/length as per the standard deviation (SD) classification by World Health Organization (WHO), 2006 was carried out.¹³ Low and middle income are defined as asset ownership in 1–2 quintiles while upper income is family with asset ownership in 3–4 quintiles. The breastfeeding protection is defined as overall the children who had been breastfeeding full practices during 0–24 mo or above. The opposite of non-breastfeeding protection is defined as overall the children who had been breastfeeding in partial or never to breastfeeding during 0–24 mo or above. Optimal breastfeeding has both short and long-term benefits for the mother-infant.

Data analysis

Statistical analysis conducted SPSS Version 20 with a $p < 0.05$ level of significance. Descriptive statistic was used to summarize participant characteristic. The chi-square test was used to assess related nutritional stunting with breastfeeding protection.

Results

The results of this study can be shown in Table 1.

The aged grouping of children characteristic was majority a 25–36 mo (52%), and sex was male 55.3%. Level education mothers and fathers were majority elementary school a 35.5%, and 33.7% respectively. The occupation mothers and fathers were majority homemakers and labor/driver/part-time jobs a 92.3% and 41.2% respectively. The nutritional status based on anthropometric indexes HAZ, WAZ and WHZ majority normal, normal, and normal about a 20.5%, 66.1%, and 87.4% respectively.

The result for the statistical analysis for short stature and breastfeeding protection are present in Table 2.

The chi-square test was used to analysis breastfeeding protection with nutritional status for the overall anthropometric index. The HAZ were increased significantly with low/not breastfeeding protection p -value a 0.031. However, other indexes were not significant differences with breastfeed protection.

Discussion

Breastfeeding protection and optimal breastfeeding have both short and long-term benefits for the mother-infant.

Table 1 The demographic characteristic.

Characteristics		n (%)	95% CI
Aged	0–24 mo	489 (48.0)	44.96–51.03
	25–36 mo	540 (52.0)	48.96–55.03
Sex	Male	574 (55.3)	52.27–58.32
	Female	464 (44.7)	41.67–47.72
Mothers education	Elementa ⁸ school (not graduate)	49 (4.7)	3.41–5.98
	Elementary school	369 (35.5)	32.58–38.41
	Junior high school	210 (20.2)	17.75–22.64
	Senior high school	239 (23.0)	20.43–25.56
	University	171 (16.5)	14.24–18.75
Fathers education	Elementa ⁸ school (not graduate)	74 (7.10)	7.62–11.17
	Elementary school	350 (33.7)	30.82–36.57
	Junior high school	157 (15.1)	13.48–17.91
	Senior high school	359 (34.6)	31.70–37.49
	University	98 (9.4)	7.62–11.17
Mothers occupation	Civil servant/officials government	29 (2.8)	1.79–3.80
	Trade workers/business	39 (3.8)	2.63–4.96
	Farmer and fisheries	12 (1.2)	0.53–1.86
	Homemaker/not employed	958 (92.3)	90.67–93.92
Fathers occupation	Civil servant/officials government	36 (3.5)	2.38–4.61
	Trade workers/business	329 (31.7)	28.86–34.53
	Farmer and fisheries	244 (23.5)	20.92–26.07
	Labor/driver/part time job	429 (41.2)	38.20–44.19
Nutritional status (HAZ)	Severe stunted	139 (13.4)	11.32–15.47
	Stunted	213 (20.5)	18.04–22.95
	Normal	686 (66.1)	63.22–68.97
Nutritional status (WAZ)	Severe underweight	55 (5.3)	3.93–6.62
	underweight	187 (18.0)	15.66–20.33
	Normal	788 (75.9)	73.29–78.50
	Obesity	8 (0.8)	0.25–1.32
Nutritional status (WHZ)	Severe wasting	24 (2.3)	1.38–3.21
	Wasting	91 (9.8)	7.91–11.60
	normal	907(87.4)	85.38–89.41
	Over	8 (0.8)	0.2–1.34

1

The World Health Organization and the United Nations Children's Fund (WHO/UNICEF) has recommend early initiation of breastfeeding within the first hour of birth and exclusive breastfeeding in the first six months followed by the introduction of safe, age-appropriate and nutritionally adequate complementary foods along with continued breastfeeding until the child is 2 years and beyond. After birth, breastfeeding practices have a direct effect on new-born health. Delayed initiation of breastfeeding, not breastfeeding and non-exclusive breastfeeding all could increase the risk of morbidity, which may compromise growth in disadvantaged populations. Early cessation of breastfeeding could lead to stunted through multiple pathways including inadequate energy intake, nutrient deficiencies, and lack of passive immunity provided by human breast milk.¹⁴

Breastfeeding protection is essential for children to prevent to become stunting in the next aged.¹⁵ It was found that there was a strong reason that the practice of breastfeeding the poor or middle income was very influential in

improving the nutritional status of children. Proper breastfeeding practices provide a greater opportunity to have adequate and appropriate food intake according to his age. The problem faced is the marketing of formula milk could hinder the success of breastfeeding in a critical period. The government of¹³outh Sulawesi has established local regulations on the practice of b¹⁰astfeeding. This Regional Regulation is intended to increase the scope of exclusive breastfeeding. In the long term, it is expected to be able to improve the nutritional status of children.

The facts in this study reveal that the low-income group is strongly supported by their children's nutritional intake from breast milk. Some known reasons are that there is not much effort from this group to replace breast milk with formula milk. This relates to limited purchasing power. In this condition, it is important to state the reason for their consistent breastfeeding because it can be given anytime and anywhere. However, on the other hand, it was found that children who were no longer breastfed because they

Table 2 Distribution nutritional status based on breastfeeding protection by family status.

Family status	Nutritional status	Status of breastfeed-ing protection		Chi square test	
		Breastfeeding protection		p Value	
		n (%)	95%CI	n (%)	95%CI
Low and midle income n = 581	<i>HAZ index</i>				
	Severely stunting	35 (6.1)	4.64–7.55	51 (8.9)	7.16–10.63
	Stunting	53 (9.3)	7.53–11.06	75 (13.1)	11.04–15.15
	Normal	188 (32.9)	30.04–35.75	170 (29.7)	26.92–32.47
	<i>WAZ index</i>				
	Severely underweight	19 (3.3)	02.21–4.38	16 (2.8)	1.79–3.80
	Underweight	43 (7.5)	5.89–9.10	64 (11.2)	9.28–13.11
	Normal	217 (37.2)	34.25–40.14	213 (37.2)	34.25–40.14
	Overweight	1 (0.2)	0.00–0.47	3 (0.5)	0.07–0.92
	<i>WHZ index</i>				
	Severely wasting	11 (1.9)	1.06–2.73	5 (0.9)	0.32–1.47
	Wasting	23 (4.0)	2.80–5.19	28 (4.9)	3.58–6.21
	Normal	240 (42)	38.99–45	258 (45.1)	42.07–48.12
	Obesity	2 (0.3)	0.00–0.63	5 (0.9)	0.32–1.47
Upper income n = 457	<i>HAZ index</i>				
	Severely stunting	30 (6.7)	5.17–8.22	21 (4.7)	3.41–5.98
	Stunting	37 (8.2)	6.53–9.86	48 (10.6)	8.72–12.47
	Normal	155 (34.4)	31.51–37.28	160 (35.5)	32.58–38.41
	<i>WAZ index</i>				
	Severely underweight	6 (1.3)	0.61–1.98	14 (3.1)	2.04–4.15
	Underweight	33 (7.3)	5.71–8.88	44 (9.8)	7.99–11.60
	Normal	180 (39.9)	36.92–42.87	170 (37.7)	34.75–40.64
	Overweight	3 (0.74)	5.80–8.99	1 (0.4)	0.01–0.78
	<i>WHZ index</i>				
	Severely wasting	3 (0.7)	0.19–1.20	5 (1.1)	0.46–1.73
	Wasting	17 (3.8)	2.63–4.96	23 (5.1)	3.76–6.43
	Normal	198 (43.9)	40.88–46.91	196 (43.5)	40.48–46.51
	Obesity	4 (0.9)	0.32–1.47	5 (1.1)	0.46–1.73

were too quick to give other food.¹⁶ In many cases sufficient income, members have more opportunities to buy commercial food, and for working outside the home. This risks reducing the practice of breastfeeding. The choice of parents not to breastfeed their children and prefer commercial food is not wise. The reason is the limited purchasing power and hygiene aspects of limited feeding, giving rise to the risk of infection. Increased income should not be used to buy formula food, especially when the breastfeeding period is still ongoing (0–2 years).¹⁷

Unsurprisingly, insufficient purchasing power and other household wealth indicators were strongly associated with child stunting in several cross-sectional studies throughout Indonesia. The others of systematic reviews had found that households with unemployed fathers were associated with a strong increase in odds of severe stunting in children 0–59 months. The household expenditure on nutrient-rich or nutrient-poor foods—which are more relevant to the category complementary foods for the Indonesian family.^{18,19}

This research area is an area with moderate economic status and works as a housewife. The cultures of South Sulawesi are supporting mothers as caregivers in their main roles. Mothers who work in the formal sector are found to be few, however, the socio-economic conditions are quite good because husbands have permanent jobs as farmers and traders.

These researchers found no significant association between breastfeeding at 9 mo and full- or part-time employment. This finding is in contrast with previous studies in Europe, which showed that women who worked part-time breastfed longer than women who worked full-time particularly for exclusive breastfeeding.²⁰ Promotion of breastfeeding is important to be carried out by various parties, especially health workers, education about breastfeeding for students,²¹ family member,²² Activities carried out by counseling the provision of breast milk to mothers and family members including fathers.²³

Intervention can be done through the mother's class. Performed every month at least once, carried out by

lactation counselors. The purpose of this intervention is to increase understanding and appropriate breastfeeding practices by providing education through group discussions, mothers know and able to practice exclusive breastfeeding and how to make complementary foods.²⁴

Conclusion

Breastfeeding practice was effective in preventing stunting in poor family children because based on this studies the lower percentage of stunting in children who are given full breastfeeding compared to children who are not given full breast milk for 0–24 months. Prevention of stunting needs to be continued by increasing breastfeeding practices. Further research is needed on family support and the social environment through breastfeeding assistance group.

Conflict of interest

The authors declare no conflict of interest.

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