Maternal Factor and Children's Nutrition Status in Senuro Village, South Sumatera Province, Indonesia

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INTRODUCTION

Approximately half a billion children under the age of five were living in developing countries. Out of these, about 37% are stunted, 11% are wasted and 30% are underweight[1]. Children malnutrition is one of serious health issues in Indonesia. The National Socio-Economic Survey noted that the prevalence of children with lack of nutrition increased from 2002 (18.3%) to 2003 (19.6%) and declined to18.8% in 2004[2]. The prevalence of children with severe nutrition in South sumatera in 2003 is above of the national average of 8.5%[2]. According to the Basic Health Research in 2007, the prevalence of underweight and severely underweight in South Sumatera is high (11.7% and 6.5%, respectively)[3]. There is a strong association between malnutrition and child mortality, that a malnourished child tends to suffer more days of infectious disease. The simultaneous presence of malnutrition and infection greatly increased the child's risk of death. Most of the children in the developing world die, not from starvation or infectious disease alone, but from the simultaneous presence of malnutrition and infection together[4]. The causes of malnutrition are numerous. The proximate determinants of malnutrion are poor diet and illness. Poor diet and illness are themselves caused by underlying factors which include maternal child taking practices. The aims of this study are to asses nutritional status and determine maternal potential risk factors including breastfeeding and weaning practices of mother, mother's education, occupation and nutritional knowledge to malnutrition in children under age five in Senuro Village, South Sumatera Province.

METHODS

This study was a cross sectional descriptive survey. A structured questionnaire was used to collect the data. It consisted of questions related to demographic data (mother's age, educational level, occupation and nutrition knowledge, infant's age and gender) and breast-feeding and weaning practices. The infant's weight was measured in the same day of the interview. Two pairs of trained field assistants measured weight of infants using standardized methods. Weight measurements were taken twice and an average was computed. Infants were weighed with light clothing. Weight was converted into Z-scores using WHO reference data incorporated in WHO anthro 2005. Infants are classified as underweight if weight-for-age Z-score (WAZ) are respectively below minus 2 standard deviation (-2SD) from World Health Organization (WHO) reference data.

The sample was selected in Senuro Village, South Sumatera Province. Senuro village is a rural area where environtmental sanitation was poor. A total of 69 mothers with infants aged 7-60 months participated in this study. They were selected by using random sampling technique. The SPSS version 11.5 was used to descriptive statistics. Correlation between infant's nutritional status and maternal characteristic (breastfeeding and weaning practices of mother, mother's education, occupation and nutrition knowledge) using chi square test. Statistical significance was set at $p<0.05$.

RESULTS

Sociodemographic characteristic and weaning practices of mother:

Table 1 presented the data on sociodemographic and weaning practices of the mothers. Age of mothers ranged from 20-53 years (median 29 years). Over 50% of mother were farmer and had low educational level (88.4%). Most of them had graduated from elementary and junior high school. 92.8% mothers had low level of knowledge concerning infant feeding. Ten questions about infant feeding were asked to the mothers, such as: exclusive breast feeding, benefit of colostrums, negative impact of giving prelacteal feeding, complementary feeding, food source of carbohydrate, protein and vitamin and about balance nutrition. If mother has 70% right answer or above, they will be categorized as mother who has high level of knowledge. Most of children in this study (59.4%) were given a colostrum but only 42.8% were exclusive breastfeeding. 52.2% children was given complementary feeding before 6 months which in most cases are milk formula. Some mothers reported having given water without sugar,coffee, tea, fruit juice, honey, porridge, biscuits and banana.

Table 1 Sociodemographic Characteristic and Weaning Practices of Mother

Variable	N	%
Mother's age (years)		
≤ median	39	56.5
> median	30	43.5
Mother's occupation		
Farmer	45	65.2
Non farmer	24	34.8
Mother's level of education		
Basic level	61	88.4
Middle level	8	11.6
Mother's level of infant feeding knowledge		
Low	64	92.8
High	5	7.2
Giving of Colostrum		
No	28	40.6
Yes	41	59.4
Exclussive Breastfeeding		
No	36	52.2
Yes	33	47.8
Complementary feeding before 6 months		
No	33	47.8
Yes	36	52.2

Nutritional status of children:

WHO standards may be used for all children up to five years of age, since the influence of ethnic or genetic factors on young children is considered insignificant[5]. The International Pediatric Association (IPA) has officially endorsed the use of the WHO standards as an effective tool for detecting and monitoring both undernutrition and overweight[6]. A sample consisted 69 children aged 7-60 months. Of the studied children, 53.6% were boys and 46.5% were girls. The median age was 29 months. At the time of study, there were 20.3% cases of underweight. The highest proportion of underweight was found in girls (21.9%) and in the age group 12-36 months (23.3%).

Table 2 Characteristic and Nutritional Status of Children

Variable	N	%
Age		
7-11 months	13	18.8
12-36 months	30	43.5
37-60 months	26	37.7
Gender		
Girls	32	46.4
Boys	37	53.6
Children nutritional status		
Underweight	14	20.3
Normalweight	55	79.7

Table 3 Nutritional Status (Weight-for-Age) of Children

Characteristic	Nutritional status (Weight-for-Age)			
	Under weight		Normal weight	
	N	%	N	%
Age				
7-11 months	2	15.4	11	84.6
12-36 months	7	23.3	23	76.7
37-60 months	5	19.2	21	80.8

Gender				
Girls	7	21.9	25	78.1
Boys	7	18.9	30	81.1

Determinants of child nutritional status:
The results in Table 4 indicated that the risk factors found significantly related to underweight was mother's level of education (p= 0.0048). Mother's age, occupation, knowledge, breastfeeding and weaning practice were not significantly related to underweight.

Table 4 Children Nutritional Status By Maternal Factor

Variable	Nutritional status				OR		Pv
	underweight		normalweight				
	N	%	N	%	OR	CI	
Mother's age							
≤ median	10	25.6	29	74.4	2.241	(0.627-8.018)	0.338
> median	4	13.3	26	86.7	1		
Mother's occupation						(0.092-1.030)	
Farmer	6	13.3	39	86.7	0.308		0.064
Non farmer	8	33.3	16	66.7	1		
Mother's level of education							
Basic level							
Middle level	10	16.4	51	83.6	0.196	(0.042-0.917)	0.048
	4	50	4	50	1		
Mother's level of knowledge							
Low							
High	14	21.9	50	78.1	0.781	(0.686-0.889)	0.575
	0	0	5	100	1		
Giving of Colostrum							
No	6	21.4	22	78.6	1.125	(0.343-3.691)	1.000
Yes	8	19.5	33	80.5	1		
Exclussive Breastfeeding							
No	7	19.4	29	80.6	0.857	(0.277-2.900)	0.855
Yes	7	21.2	26	78.8	1		
Complementary feeding before 6 months							
Yes	7	19.4	29	80.6	0.857	(0.277-2.900)	0.855
No	7	21.2	26	78.8	1		

DISCUSSION

Based on classification for assessing severity of growth deficits by prevalence ranges among children 5 year of age, prevalence of underweight in this study was ranked in high level according to WHO categorization. Prevalence of underweight was 20.3% the highest level was found in age 12-36 months (23.3%). Previous study by Hien et al[7] also reported that the prevalence of underweight children under five in Nghean in Vietnam was high (27.7%). One of the most immediate (proximate) determinants of malnutrition was poor diet. Critical period of growth and development of child happened with a short time, during the first three years of life, which could not be repeated called, windows of opportunity. From nutritional side, mothers should improve her attention to feeding practices which influenced the nutritional intake of child.

Bivariate analysis showed that there was corelation between mother's educational level with children malnutrition. Miller and Rodger[8] also reported similar results, that the children's nutritional status had a relationship with mother's education. Their study showed that low height-for-age (stunting) was only half as common among children of mothers with secondary schooling or more as compared to children with mothers who had no schooling (22 percent and 46 percent,respectively (p<0.01). A case control study on 250 children aged < 36 months in Bangladesh which was reported by Islam et al[9] showed that maternal education was significantly associated with severe malnutrition. This study suggested that mother's education played a significant role in reducing prevalence of stunting. Chronic

malnutrition was highest among children of illiterate mothers. Smith and Haddad[10] drawn on the experience of 63 developing countries over the 25-years period to identify the determinants of child malnutrition for each developing region. Six factors were explored; one of the important factors was women's education. They depicted that improvements in female secondary school enrollment rates were estimated to be responsible for 43 percent of the total 15.5 percent reduction in the child underweight rate of developing countries during the period 1970-95.

Education can enhance someone's intention of adopting new health beliefs, gaining general knowledge, and applying specific knowledge about health and nutritional practices that promote child health[8]. Furthermore, women's education can also affect child health because higher education has correlation with higher household income, which in turn strengthens families' abilities to handle adverse economic or environmental shocks, finance health care needs and afford more nutritious food[11]. Educated mothers are more conscious about their children's health; they tend to look after their children in a better way[12].

The above findings expected to improve a female's access to school. This improvement enhances knowledge and skills to increase the girl's participation and productivity. Educating girls also has important benefits which will influence the proximate determinants of children nutritional status and health. Improving educational and knowledge of mothers lead to a greater attention and focus on feeding practices that is beneficial to the children's nutritional status.

CONCLUSIONS

The result in this study indicates that malnutrition is still an impotant problem in Senuro Village, South Sumatera. Statistical evidence showed us that there was a relationship between mother's education and children's nutritional status. This finding gave us a better understanding that improving mother's level of education is one of the effective channel to reduce undernutrition among children which can lead to profound and long term benefits for children as individuals and for society as a whole.

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