

Factors influencing the nutritional status of primary school children in the Estate sector

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Abstract - The real wealth of a nation is its people. The well-being of a nation is decided by the nutritional status of the people. Yet, one of the main concerns, the developing world faces is malnutrition. The prevalence of malnutrition is high among the estate children in Sri Lanka, therefore it is very much important to study the factors of malnutrition in the estate sector in order to initiate appropriate effective strategies to minimize the malnutrition status of children. Thus, this study was designed to determine the factors influencing the nutritional status of primary children in the estate sector with reference to the Nuwara Eliya Medical Officer Area (MOH). As the target population, estate primary school children of the Nuwara Eliya MOH were considered. A sample of 125 estate school children was selected by using the simple random sampling method. Interviews, direct observations and a structured questionnaire were used to collect data. Data were presented by using descriptive statistical tools. Binary logistic regression models were applied to identify the factors associated with nutritional status. 40.45%, 38.57% and 25.7% of school children were suffering from underweight, stunting and wasting respectively. Gender, low birth weight, parent's occupation, childhood diseases, food habits and parent's awareness significantly influence the underweight. Gender, father's height, family income and food habits significantly influence the stunting. Low birth weight, father's education and occupation, father's BMI, mother's occupation, water source, childhood diseases, maternity diseases, healthy behavior, school influence and parent's awareness significantly influence the wasting. The only factor that affects all the three nutritional status is the age. The Government need to focus its attention more on this regard and should initiate more workshops and programs to make the parents aware of the health of the children. Schools can take the initiation and launch programs.

Keywords - Estate children, Stunting, Underweight, Wasting

I. INTRODUCTION

The real wealth of a nation is its people. A nation is obliged to satisfy the requirements of its people. Then only, the development will create an enabling environment for people to enjoy long, healthy and creative lives [1]. The well-being of a nation is decided by the nutritional status of the people. It influences the development and the improvement of the nation. Yet, one of the main concerns, the developing world faces is malnutrition. Sri Lanka has focused its attention on undernutrition by holding national public health programs and policies and national-level research on children. According to

the statistics in Sri Lanka, 22 percent of children are suffering from underweight, 18 percent of children have stunting and about 15 percent of children suffer from underweight [2]. Many studies have been conducted across Sri Lanka regarding the prevailing undernutrition of the school children. Through those studies, the researchers have found that poor sanitation and personal hygiene, low socio-economic status, overcrowding and low educated parents are the main factors which associates with the undernutrition among children [3]. The Sri Lankan estate population has their own ethno-social beliefs and practices that influence nutrition. According to the Demographic and Health Survey which was conducted in 2006, reported that of the estate children, 30 percent were suffered from underweight while 42 percent and 13 percent were stunted and 13 percent were wasted accordingly. Comparably, the existence of malnutrition is high among the estate children, therefore it is very much important to study the factors of malnutrition in the estate sector in order to initiate appropriate effective strategies to minimize the malnutrition status of children. Thus, this study was designed to determine the factors influencing the nutritional status of primary children in the estate sector with reference to the Nuwara Eliya MOH.

II. MATERIALS AND METHODS

Study Design and Sampling Procedure

As the target population, estate primary school children of the Nuwara Eliya MOH is considered. A List of names of all primary school children in selected MOH was made with the help of regional administrative and health officers and 125 children were selected randomly using a random number table. As the sampling unit, a primary school child was considered while his or her guardian was considered as the response unit.

Data Collection Methods

Holding personal interviews, direct observations and a structured questionnaire were used as the primary data collection methods.

Statistical Analysis

Data were presented by using descriptive statistical tools. Since the Anthropometric measurements are cost-effective and reliable methods to evaluate the health and nutrition status of the individuals and in a society [4], WHO2 AnthroPlus was used to calculate the Weight-for-age (WFA), Height-for-age (HFG) and BMI-for-age (BFA) Z score. According to the WHO, children with Z scores below 2.00 for WFA, HFG and BFA are recognized as underweight, stunted and wasted respectively.

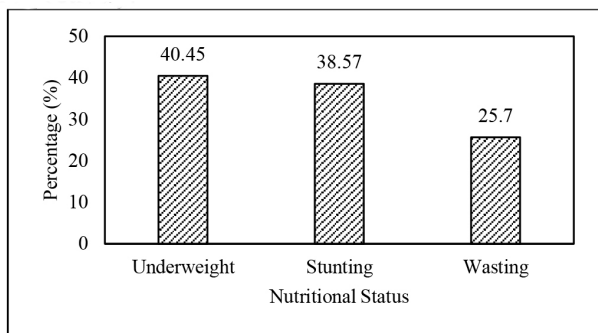


Fig. 1: Prevalence of Undernutrition

In order to reduce the items of behavioral aspects which were monitored through Likert scale statements, a factor analysis was performed. Three binary logistic regression models with the Forward Likelihood Ratio method was applied to identify the factors associated with nutritional status of the estate primary school children, in terms of stunting, wasting and underweight.

II. RESULTS

Conforming to the Fig. 1, 40.45%, 38.57% and 25.7% of primary school children were suffering from underweight, stunting and wasting respectively. It is obvious that as per the previous studies underweight was the most common under-nutritional indicator among these children.

Table 1: Results of Binary Logistic Regression Model of Nutritional Status

Variable	ODD Ratio		
	Underweight	Stunting	Wasting
Age	3.519**	.698**	1.799*
Gender (Female)	0.336***	.256**	1.145
LBW	2.748*	.871	16.48**
Father's Education (Low*)	0.739	1.339	.462*
Father's Occupation (Low*)	.800**	.956	.613**
Father's Height	1.028	.001**	1.029
Father's BMI	1.161	2.328	.009**
Mother's Education (Low*)	.759	1.177	.521
Mother's Occupation (Low*)	1.447***	.961	2.26***
Mother's BMI	2.011	1.942	4.341
Family Income	.744	.295**	2.221
Water Source (Bad*)	1.007	1.096	.559*
Sanitary Type (Bad*)	.549	1.606	1.007
Childhood Diseases (Absence*)	5.708**	.886	.033***
Maternity Diseases (Absence*)	1.796	2.056	17.758*
Food Habits	.448*	1.549*	.095
Healthy Behavior	2.563	1.419	51.971**
Influence of School	1.185	.000	344.96**
Parent's Awareness	0.007**	.328	1.801**
Parent's Caring	1.87	1.96	.014

() Reference Group

*Statistically significant association at 10%

** Statistically significant association at 5%

*** Statistically significant association 1%

An ODD ratio which (OR) is a measure of association between an exposure and an outcome is used to assess the effect of each associated factor on malnutritional status. Three significance levels (α) are considered as high ($\alpha = 0.01$) moderate ($\alpha = 0.05$) and slight ($\alpha = 0.1$). According to Table 1, association of underweight with gender and education level of mothers are highly significant while occupation of father, childhood diseases, parents' awareness on nutrition are moderately significant and low birth weight and food habits are slightly significant. When considering the association between stunting and age, gender, father's height, and family income, they are highly significant and only food habits are moderately significant. Low birth weight, occupation of the mother, childhood diseases, parent's awareness about the nutrition are highly significantly associate with wasting while age, father's occupation, father's BMI, healthy behavior of the child, influence of school on nutrition are moderately significantly associate with wasting. Furthermore, there is a slightly significant association between father's education, drinking water source and maternity diseases and wasting.

This study shows that primary school female children have significantly higher rates of being underweight and stunting than males. When considering the low birth rates, with the LBW increasing, there is a risk of being subject to under-weight and there is a high risk of being subject to wasting. When the father's education status is high, there is a low risk for the child being subject to wasting. When the father's occupation level is high, there is a low risk for the child being subjected to under-weight and wasting. With the increasing height of the farther, there is no risk associated with the child being subject to stunting. Having a low BMI over having a normal BMI level of father, makes the child expose more to the risk of subject to wasting. Of mother's occupation, having a high occupational level makes a child exposure more to the risk of being subject to under-weight and wasting.

Having a high family income has no risk of being subject to stunting. Of the water resources, having consuming good water resources over bad water resources makes child expose to a less risk of being subject to wasting. If the child had suffered from any childhood diseases, there is high risk of being subject to under-weight and a less risk of being subjected to wasting. Of the maternity diseases, if mother had suffered from any maternity diseases during her pregnancy, there is a high risk for the child being subject to wasting. Having an healthy food habits makes child less expose to the risk of having being subject to the under-weight and a high risk of having being subjected to stunting. Having a bad healthy behavior over good healthy behavior makes the child expose highly to the risk of subjecting to stunting. Negative influence of the school makes the child expose high to the risk of being subjected to wasting.

Parents' awareness has a very low risk for the child, being subjected to the under-weight and a high risk of being subjected to the wasting.

IV. DISCUSSION

Malnutrition exposes children to many infections^[5]. Having being subjected to infections affect the children's both mental and physical well-being. This study demonstrates the fact that malnutrition is a significant health problem prevailing in the estate sector of Sri Lanka. Significantly, in the estate sector prevalence of all three under nutritional status are high. Here it is very much needed to stress the fact that estate population are the most under privileged community in Sri Lanka. So, many are uneducated and they are unaware of the malnutrition condition. When a household is considered, both the parents go to work because of the uncertainty in their job. So parents have less amount of time to be with their children and to take a good care of them. So, the children spend most of the day alone or with their relatives, which makes them expose to the unhealthy habits and malnutrition. Generally, when the parents are educated, they concern about their children's health and education. Here the complete opposite is happening. Parents are uneducated and they do not tend to make their children educated.

As a result of these, many children are subjected to diseases, which make their physical condition even worse. Not only the children, but the pregnant mothers are also subject to maternity diseases during their pregnancy period, because though they are pregnant, they have to go to work since they cannot afford to live with one salary. These affects the nutritional level of the children.

V. Conclusions

Malnutrition is a prevailing concern in the estate sector of Sri Lanka. Gender, low birth weight, parent's occupation, childhood diseases, food habits and parent's awareness are the attributes to the underweight of the estate children. Gender, father's height, family income and food habits have significant association with the stunting. Low birth weight, father's education and occupation, father's BMI, mother's

occupation, water source, childhood diseases, maternity diseases, healthy behavior, influence of school and parent's awareness about the nutrition have significant associate with wasting. The only factor that affects all the three models is the age.

VI. RECOMMENDATIONS

Nutrition is not a recognized right of a child. It is a responsibility of the parents. Parents should be more aware of their children's nutrition. This aspect is not visibly seen in the estate sector of Sri Lanka. So, in order to lift up the prevailing malnutrition in the estate sector many steps can be initiated. The government need to focus its attention more on this regard and should initiate more workshops and programs to make the parents aware of the health of the children. Many awareness programs can be initiated through the school. Schools can take the initiation and launch programs.

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References

1. United Nations Development Programme [UNDP]. Human Development Report, New York, Oxford University Press; p9. 1990.
2. Department of Census and Statistics, Demographic and Health Survey 2006/07. 2009a.
3. Silva, D., Liyanarachchi, N., Madarasingha, M., Gunawardena, T. P. J., Jayawardena, P. P. "Rice cunjee water: the curse of under nutrition in Sri Lanka". Proceedings of the 31st Annual Scientific Congress of the Sri Lanka Paediatric Association, Sri Lanka. 1996.
4. Asfaw, M., Wondaferash, M., Taha, M., Dube, L. "Prevalence of undernutrition and associated factors among children aged between six to fifty ninemonths in Bule Hora district, South Ethiopia". BMC Pub Health.15:41. 2015
5. Galgamuwa, L.S., Iddawela, D., Dharmaratne, S.D., and Galgamuwa, G.L.S. "Nutritional status and correlated socio-economic factors among preschool and school children in plantation communities, Sri Lanka". BMC Public Health. 17:377. pp.15. 2017.