Cases of Undernutrition among Children in a Selected Elementary School

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ABSTRACT

The study was conducted to assess the factors affecting undernutrition in undernourished children in a selected elementary school in Laguna. The researchers aimed to determine the relationship between the causes of undernutrition and the demographic profile of the respondents. Among the 729 students in the school, 51 children were undernourished, according to the list given by their nutrition office. The researchers found that most of the undernourished children were male, and the age where undernutrition occurred most was 5 years of age. The socioeconomic status directly affects the diet and lifestyle of the respondents. The study was done by the researchers to have better knowledge and understanding of the occurrence of undernutrition in the said community. This research provided relevant information and data for further implementation of effective actions to this issue.

Keywords: *Undernutrition, elementary school, effects*

INTRODUCTION

Undernutrition has been a major problem in the Philippines. In 2017, National Nutrition Council reported that more than 3.8 million (33.4 percent) Filipino children are stunted or short for their age. On the other hand, 807, 587 (7.1 percent) are wasted or underweight. The current rate of chronic malnutrition rate among Filipino in children aged 0 to 2 is at 26.2 percent which is the highest in ten years according to a recent study by the Food and Nutrition Research Institute (FNRI) in 2019. Moreover, according to a report of UNICEF (2018), more than 29 000 children were dying annually due to the high prevalence of under nutrition in the Philippines. The leading nutritional problems in the Philippines were Protein-energy Malnutrition (PEM) and micronutrient deficiency. Moreover, about four million (31.8 percent) of the preschool population were underweight for age, three million (19.8 percent) adolescents and five million (13.2 %) adults, were underweight and chronically energy deficient (2010).

Despite of numerous feeding programs by the government and private organizations around the country there is still an increase in the rate of under nutrition, which suggests that those programs were solely not enough to reduce the rate of malnutrition. Thus, there is still a need to educate parents and communities about proper care of the children because parents are often uncooperative and inconsistent in their support to their children due to poverty. Causes of malnutrition in the Philippines have many interrelated factors such as health, physical, social, economic, and others. The distribution and consumption of food supply also have a direct impact in children nutritional status. According to Blossner et al., (2012), malnutrition is defined as the deficiencies, excesses, or imbalances of a person's intake of energy and nutrients. It covers two conditions which are "under nutrition" and "overweight, obesity, and diet related non communicable diseases".

Under nutrition is a type of malnutrition in which a person does not get enough food to eat which consequently leads to "acute malnutrition"; a person's appearance is too thin for his or her height. On the other hand, "chronic malnutrition" is a classification of under nutrition in which a person's height is not appropriate with his or her age. Undernourished people are most likely to develop infectious diseases like diarrhea, measles, malaria, and pneumonia, and can also lead to the impairment of a child's physical or mental development. On the other hand, over nutrition are often related with the unbalanced and unhealthy diet that usually leads to consuming too many calories and lack of exercise. This condition might lead to non-communicable diseases such as heart diseases, high blood pressure, stroke, diabetes, and cancer

(Blossner et al., 2012). Every country was affected of malnutrition according to World Health Organization (2018). Around 1.9 billion adults worldwide were overweight, while 462 million are underweight. On the other hand, an estimated 4.1 million children ages 5 years old and below were overweight or obese, while 159 million were undernourished, and fifty million were wasted or also referred to as "acute malnutrition".

This study was conducted by the researchers to identify the prevalence and status of malnutrition specifically under nourishment and underweight in children aged 4 to 12 years old in a selected elementary school in Laguna and also to determine whether variables such as socioeconomic status, lifestyle, and diet affects the respondents' current nutrition status.

Review of Literature

Malnutrition in the Philippines

Generally, half of the deaths among children of 5 years old can be connected directly or indirectly linked to malnutrition (WHO, 2019). According to WHO, seventeen million children under age 5 in the world are seriously malnourished; it increases their death rate risk. Malnutrition still an observable public health issue in the Philippines with surprisingly 3.4 million children who are stunted (lack of height in their age) and more than 300 000 children 5 years old are underweight of their age. This continues to be serious child health problem, as Philippines being highly disaster-prone. The risk of malnutrition rises in the aftermath of emergencies. Montano states (2017) that children in poor communities have access to food, but they are not eating right because of their parents lacking basic knowledge on proper nutrition. There is a long-term effect when a child does not eat right, their motor development can be slowed. In addition, her study included the Food and Nutrition Research's report stating that there are 26% children of up to 2 years old are suffering from chronic malnutrition. Because of this problem, the National Nutrition Council (NNC) under the Health Department launched a plan for nutrition of every child. The NNC reminded parents that as a rule of thumb, children past the breastfeeding age should always have four things on their plate: carbohydrates, protein, vegetables, and plenty of fruit.

According to a study conducted Capanzana (2018), it focused and analyzed the condition of households headed by fisher folks (HHF) with respect to the nutritional 7 situation by assessing the nutritional status of children ages 0–60 months (0–5.0 years old) and 61–120 months (5.08–10.0 years old), using the 8th National Nutrition Survey data. Factors affecting the nutritional status of the children in HHF were analyzed to better understand the nutrition situation in the fishing communities in the Philippines. They also included that the study was initiated to estimate the prevalence of malnutrition among young and school among young and school-aged children among fishing community as basis in planning and developing nutrition programs that will improve the nutritional situation of this occupational group. The study provided significant information that can serve as basis for policy makers and program planners in the nutrition and fishery sectors among private or public organizations in drawing future strategies for improving the nutritional situation of the fisher folks in the Philippines.

According to the National Nutrition Council (NNC) with the Food and Nutrition Research Institute (FNRI) through the Department of Science and Technology (DOST) IV-A (2014), Region IV-A "CALABARZON" is currently facing a double burden of malnutrition with high under nutrition prevalence and with high over nutrition prevalence exists at the same time. The survey results conveyed that about nine in every 100 (8.7 %) pre-school children in Region IV-A were underweight for their age. When it was compared to national prevalence of 7.9%, the region of CALABARZON shows higher prevalence. In addition, the survey shows that the underweight prevalence among lactating mothers in Region IV-A is higher than the national prevalence having 1.6% and as well as the occurrence of nutritionally-at-risk pregnant women in CALABARZON with 28.7% and was higher than that of the national level with 24.8 percent (NNC, 2014).

Factors to consider on Malnutrition

According to Mocon-Ciriaco (2019), the Food and Nutrition Research Institute or the FNRI concluded from their recent study that Filipino children among the age of 0 up to 2 has a chronic malnutrition rate of 26.2 percent, and that current rate is the 8 highest for 10 years. Under nutrition in the Philippines remains a serious problem, significant numbers of children go to bed hungry, and they also eat meals less than three times a day. Stunting, iron, and iodine deficiencies affect learning abilities and intelligence of children. Studies show that populations affected by iodine deficiency have 10 to 15 IQ points less than those not affected.

The FAO further discussed that women are at greater risk of malnutrition than men who are in households in which are vulnerable to food security and more girls die of malnutrition than boys. Malnutrition in mothers, especially those who are pregnant, or breastfeeding can set up a cycle of deprivation that increases the number of low birth weight, child mortality, serious disease, poor classroom, and low work productivity. In addition, women require two and a half percent more of dietary iron than men, and women need more protein as usual when they are pregnant and lactating. Women often eat a lower quantity and a variety of nutritious foods than their male counterparts. In rural, developing communities, a woman's nutritional needs are worsened by multiple responsibilities in which she has in the field and at home as a worker, mother, and caretaker.

According to Khan, et al. (2018), proper amount of food plays a vital role in the complete health of an individual. The food which we provide to the body is having more nutrient content. The food contains energy, protein, essential fats, vitamins, and minerals to live, grow and function properly. We need a wide variety of different foods to provide the right amounts of nutrients for good health. Enjoyment of a healthy diet can also be one of the great cultural pleasures of life. The foods and dietary patterns that promote good nutrition are outlined in the Infant Feeding Guidelines and Australian Dietary Guidelines. An unhealthy diet increases the risk of many diet-related diseases.

According to Streit, "malnutrition is a worldwide problem that can result from environmental, economic and medical conditions" (2018). Some common causes of malnutrition include lack of access to sufficient and affordable food, and digestive problems and issues with nutrient absorption. Conditions that cause malabsorption, such as Crohn's disease, celiac disease, and bacterial overgrowth in the intestines, can cause malnutrition. Excessive alcohol consumption can lead to inadequate amount of protein, calories, and micronutrients. Mental health disorders such as depression can increase malnutrition risk. Another cause of malnutrition includes inability to obtain and prepare foods. Being frail, having poor mobility and lack of muscle strength are risk factors for malnutrition. These issues impair food preparation skills. Based on Kristicevic et al. (2018), sleep duration and sleep quality have effects on the nutrition status of a person. Specifically, both long and short duration spent in bed and poor sleep quality leads on obesity and undernourishment. Referring to Adult Vaccine Access Coalition (2017) continued contact to vaccination to children is essential on prevention against diseases and promotes better health status of children. Albashtawy (2015), stated that personal hygiene on children is the most appropriate tool to void and prevent both communicable and preventable diseases. Poor personal hygiene is one of the main public health issues which affects institutions and communities. It increases the risk of exposure to different illnesses and diseases such as respiratory and gastrointestinal diseases dermatitis and other related infections also.

In the Philippines income distribution is divided into seven classes: the poor, the lower income class (but not poor), the lower middle class, the middle class, the upper middle class, the upper income class (but not rich) and the rich. Population included on the lower income class (but not poor) are large in number. The lower middle class, middle class and upper class have a combined strength of 45.8 percent of total households and two-thirds (65.6 percent) of total household income. According to Konttinen et al. (2012) lower level of socioeconomic status is an indicator and related to little dietary practices. And depending on the socioeconomic status of a population their vegetable-fruit and energy-dense foods have disparities. Higher educated individuals and higher income individuals have higher tendency of planning and choosing the type of food they will intake. While socio-economically disadvantaged individuals have less consideration of vegetable-fruits and energy-dense foods in terms of the food type familiarity and price.

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Conceptual Framework

Figure 1 summarizes the variables that will be measured and evaluated in the study. The relationship of the causes will be measured from the respondents' age, gender, socioeconomic status, lifestyle, and their diet with the guide of the objectives of the study, determining the profile deliberation. In addition, the independent variable is identified to find a significant relationship between the causes and prevalence of malnutrition and the demographic profile of the respondents.

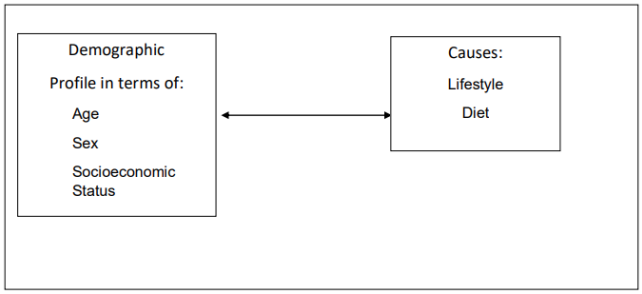

Figure 1. Conceptual Framework of the Study

Objectives of the Study

This study aims to describe the respondents' children's age, sex, socioeconomic status, lifestyle, and diet; determine the causes of malnutrition based on their profile; and identify relationship between the respondent's profile and the causes of malnutrition.

METHODOLOGY

The researchers used descriptive-correlational research design to identify the existing causes of malnutrition within the chosen locale and to identify the relationship of malnutrition and factors, such as socioeconomic status, lifestyle, and diet. The chosen elementary school has a total population of 729, 51 of which are undernourished. The researchers used purposive non-probability sampling technique among the parents of the children. The survey questionnaire has three parts. The first part seeks to ask for the respondent's demographic profile, the second part contains questions relevant to their lifestyle in relation to their health status. The third part contains statements in assessing the food consumption. The researchers used the Body Mass Index standard to identify lack or excess body weight of the children. Frequency distribution was used to summarized data on demographic profile. A 4-point Likert Scale was used to analyze data on lifestyle and diet while Pearson chi-square was used in identifying significant relationships between variables.

RESULTS AND DISCUSSIONS

Table 1 shows the distribution of the respondents according to their profile. The 51 total number of respondents for the study conducted which composed of parents with children ages 4 years old to 12 years old. Most of the respondents has a 5-year-old child (21.60%). There are also more male children with 54.90% than female children with 45.10 %. It shows that more male children are affected by undernutrition

than female. In the selected elementary school, the socioeconomic status revolves on three classes namely poor, low income, and lower middle income. Most of them have low income but not poor (60.80%).

Table 1. Demographic profile of respondents

Profile	Frequency	Percent
Children's Age		
4	0	0
5	11	21.60
6	6	11.80
7	9	17.60
8	8	15.70
9	6	11.80
10	5	9.80
11	5	9.80
12	1	2.00
Children's Sex		
Male	28	54.90
Female	23	45.10
Socioeconomic status		
Less than 7,890 php	18	35.30
Between 7890 – 15,780 php	31	60.80
Between 15,780 – 31,560 php	2	3.90

Table 2 shows that the respondents have a well-maintained lifestyle having a composite mean of 3.76. For example, most of the respondents does not visit dentist when needed. According to Dujister D., et al., tooth decay and infections were highest in underweight children.

Table 2. Lifestyle factor of undernourishment

	Weighted Mean	Verbal Interpretation
My child sleeps at least eight hours a night.	3.31	Sometimes
I see a dentist or pediatrician if my child feels sick.	3.00	Sometimes
I seek a dentist's help when my child has toothache.	3.00	Sometimes
My child is vaccinated based on the pediatrician's prescription.	3.76	Sometimes
My child gets at least thirty minutes of exercise or activity each day.	3.55	Sometimes
My child practices personal hygiene.	4.00	Always
My child uses technology such as iPads, phones, TV, gaming console, etc. every day.	2.71	Rarely
My child is exposed from secondhand smoke.	2.94	Rarely
Composite Mean	3.76	Sometimes

Legend: 1.00-1.49 Never; 1.50-2.49 Rarely; 2.50-3.49 Sometimes; 3.50- 4.00 Always

Table 3 shows that the respondents comply or observe a good diet sometimes only. Significant part on the diet variable is "My child eats fruits and vegetables everyday" wherein according to Khan (2018) adequate amount of food such fruits and vegetable is important as sources of energy, vitamins, proteins and

minerals in order for a body to function, to grow and develop properly. As well as respondents rarely consume milk products.

Table 3. Diet factor of undernourishment

	Weighted Mean	Verbal Interpretation
My child eats three times a day.	4.00	Always
My child eats fruits and vegetables each day.	2.90	Rarely
My child drinks at least eight glasses of water a day.	3.55	Sometimes
My child drinks milk regularly.	2.47	Rarely
My child eats snack (sandwiches, biscuits, rice cakes) every day.	3.41	Sometimes
I give my child food supplements or vitamins regularly.	3.00	Sometimes
Composite Mean	3.23	Sometimes

Legend: 1.00-1.49 Never; 1.50-2.49 Rarely; 2.50-3.49 Sometimes; 3.50- 4.00 Always

Table 5 shows that there is no significant relationship between lifestyle factor between both age and sex having significant values of 0.14 for Lifestyle vs Age and Lifestyle vs Sex having a significant value of 0.10. Then Diet vs Sex is also not significant having a significant value of 0.14. The significant relationships which exist on the study are Lifestyle vs socioeconomic status having a significant value of 0.001, also Diet vs Age shows a significant relationship with a significant value of 0.001. Lastly, it represents also that Diet vs socioeconomic status has a relationship with each other having a significant value of 0.002. Only lifestyle, socioeconomic status, diet and age have a relationship with each other, but strength of their relationship was not determined.

Table 5. Correlation of undernourishment factors to demographic profile

	Pearson Chi-square	Sig.	Interpretation
Lifestyle vs. Age	11.04	.14	Not significant
Lifestyle vs. Sex	14.74	.10	Not significant
Lifestyle vs. Socioeconomic Status	42.27	.001	Significant
Diet vs. Age	103.29	.001	Significant
Diet vs. Sex	11.04	.14	Not significant
Diet vs. Socioeconomic Status	34.33	.002	Significant

According to Wang and Geng (2019) lifestyle and socioeconomic status is closely related to each other. The type of lifestyle in relation to health status will rely on the socioeconomic status of an individual. Since the respondents socioeconomic standing can be found on the categories of poor, low-income level and lower middle income their type of lifestyle in connection to health will be on the low quality. Low quality of lifestyle resulting to lower quality of health status increases the vulnerability of children to diseases and illnesses (Albashtawy, 2015), leading to undernourishment. Consuming healthy foods are essential for children for their growth and development, as well as to their immunity. The 2015-2020 Dietary Guidelines for Americans provide a recommended list for ages 2 year and above for a healthy eating pattern such as fruits and vegetables, whole grains, fat-free and low-fat dairy products, protein, and oils to reduce their consumption of solid fats, excess sugar, and sodium intake. Stated by Konttinen et al. (2012) the diet and socioeconomic status of individuals are related with each other. Since the respondents are made

up individuals from socioeconomic levels of poor, low income and lower middle income they select their dietary intakes are mostly based on price and familiarity of present type of food.

CONCLUSIONS

In the study conducted in a selected elementary school in Laguna with a reported 51 children who are undernourished. Most of the undernourished children are aged five. In addition to this, most of the undernourished children have socioeconomic status of low income but not poor, wherein the family salary per month was Php 7890- Php 15 780. The study also proves that the diet varies according to the age of the children. During childhood, children are recommended to eat fruits and vegetables to prevent consumption of solid fats, excess sugar, and sodium intake (2015-2020 Dietary Guidelines of Americans). On the other hand, healthy lifestyle and diet varies according to the socioeconomic status of the family where the child belongs. Low income but not poor family only have low quality food to eat, since they only have limited budget (Konttinen et al, 2012). It was also found out that lifestyle especially personal hygiene plays a role in the nourishment of children. Moreover, diet was also important to maintain the health and wellness of the children, thus, eating meal three times a day is vital.

Recommendations

The study benefits the nutrition department of the elementary school through the evaluation whether their feeding program was effective and to raise awareness that undernourishment have other factors like socioeconomic status, lifestyle, and diet. Second, the study will benefit the parents because they will be informed about the factor where their children were deficient. Lastly, the study is beneficial to other institutions and organizations because the study 23 can be a basis of the prevalence of undernutrition in a certain place and in turn, they can provide essential vitamins that are needed by children to improve their nutritional status.

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