Factors affecting Malnutrition among Under Five Children in a Remote Community: A Case of Cabucgayan Municipality

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Abstract - *Proper nutrition for children is every parent's priority. In most continents, malnutrition comes in two guises such as under nutrition and over nutrition. In line with this, the researcher sought to identify the possible factors affecting malnutrition among the under-five children. The study was conducted in a remote community specifically in the Municipality of Cabucgayan, Biliran among the Top 3 barangays with the highest number of malnourished children. The data were gathered using the survey research design. Result shows that majority of the malnourished children were preschoolers, male children of Roman Catholic families, with 4-5 number of siblings, underweight and with family monthly income of 600Php-1000Php. Mostly usually ate rice, fish and junk foods except vegetables and the water used for drinking is untreated. Furthermore, the malnourished children had 8-12 number of hours of sleep per day, napped 3-4 hours a day and were not able to avail the scheduled immunizations and deworming. Moreover, environmental factors such as the source of drinking water is not safe and proper disposal of garbage is not observed by the households. The results of the study highlight the need to conduct information dissemination campaign on how to decrease the prevalence of malnutrition in remote communities.*

Keywords – Body mass index, Obesity, Under nutrition, Over nutrition, Nutrition

INTRODUCTION

Malnutrition remains to be one of the major issues faced by many developing countries (Mengistu, Alemu, & Destaw, 2013). Malnutrition is a term which covers problems of both under nutrition and over nutrition which arises because of insufficient or too much nutrient intake. Moreover, malnutrition is one of the most common cause of deaths in children (Muller & Krawinkel, 2005). This may also occur in a remote community where, for example, there is a population growth which may lead to insufficient food supply for part of the population. (Charchuk, Houston, & Hawkes, 2015)

Proper nutrition contributes significantly to declines in under-five mortality rates. Ensuring proper nutrition among children is very essential for healthy growth, proper organ formation, and function, strong immune system, neurological and cognitive development.

However, the prevalence of malnutrition still continue up to the present despite the continues effort of government authorities from countries of high burden of malnutrition to achieve the Millennium Development Goals particularly those related to the reduction of extreme poverty and hunger (MDG 1) and child survival (MDG 4). (Mulholland, Smith, Carneiro, Becher, & Lehmann, 2008)

Based from the premise cited above, the researcher's interest to undergo the study has been tickled. The researchers chose the study in order to determine the possible factors affecting the malnutrition rate in a rural community specifically at the Municipality of Cabucgayan, Biliran and from the results gathered, interventions were formulated in order to decrease the number of malnourished children in the area as well as the whole country.

OBJECTIVES OF THE STUDY

This study aimed to determine the prevalence of malnourished children in Cabucgayan, Biliran. Specifically, the study aimed to:

1. Determine the socio-demographic profile of the malnourished children;
2. Identify possible factors that led to malnutrition of the under-five children in Cabucgayan, Biliran

MATERIALS AND METHOD

Design

This study used the descriptive type of research. In order to gather data from respondents, a researcher-made questionnaire was utilized.

Research Locale

The study was conducted at Cabucgayan, Biliran specifically in Brgy. Looc, Pawikan and Langgao. The three mentioned areas were identified as the Top 3 barangays with the highest number of malnourished children in the Municipality of Cabucgayan, Biliran as reported by the Rural Health Unit in Cabucgayan, Biliran.

Research Subject

The study used random sampling in the selection of the respondents. The researchers first gathered the list of malnourished children from the top three barangay with the highest malnutrition rate and from that the primary caretakers or the mothers of the under five children were chosen as the respondents of the study. A total of Ninety –two (92) respondents were interviewed and asked to answer the questionnaires given by the researchers.

Research Instrument

A researcher – made questionnaire was used during the data gathering. The questionnaire was divided into two parts: the first part included questions about the profile of the respondents' malnourished child as to the age, gender, religion, number of siblings and the body mass index. The second part consisted of questions that were related to the factors which might have led to the malnourishment of the child as to the child's quality, quantity of food, food preferences, healthcare services available in the area, sleeping pattern, the illnesses suffered and environmental factors. Before the questionnaires were distributed, a pilot study was conducted at Sitio Tacung, Naval, Biliran.

Data Gathering Procedure

Before the data gathering procedure, permission was secured from different authorities such as from the University President, Dean of the College of Arts and Sciences and the Chairman of the Nursing and Health Sciences Department, Municipal Mayor, Municipal Health Officer of Cabucgayan and the respective Barangay Chairman of the three barangays. Upon the approval of the request, consent from the selected respondents was sought before the distribution of the research questionnaires. In addition, personal interviews were conducted to ensure accuracy of the information and data. After the data gathering, data analysis and interpretation followed. The results were then presented in tables or graphs and narrative descriptions were also provided based on the variables of the study.

Statistical Treatment of Data

After the distribution, collection and completion of distributed questionnaires, the researchers tallied the gathered data and used frequency, percentage, average mean, weighted mean, and interpretation and ranking.

RESULTS AND DISCUSSION

Profile. Table 1 presents the profile of the respondents as to the age, sex, religion, number of siblings, monthly family income and the body mass index evaluatio of the respondents' malnourished child.

Table 1.

Profile of the Respondents

Variables		*F*	%
Age			
4-5 years old		48	52.2%
2-3 years old		29	31.5%
Sex			58.7%
Male		54	
Female		38	41.3%
	Total	92	100%
Religion			
Roman Catholic		64	69.6%
7th Day Adventist		20	21.7%
Iglesia ni Cristo		8	8.7%
	Total	92	100%
No. of Siblings			
4-5		48	52.2%
2-3		42	45.7%
6 up		2	2.1%
	Total	92	100%
Monthly Income			
600Php-1,000Php		38	42.4%
1,000Php-4,999Php		37	40.2%
500Php below		16	17.4%
	Total	92	100%
Body Mass Index			
Underweight		64	69.6 %
Severe Underweight		27	29.3 %
Overweight		1	1.09 %
	Total	92	100%

Age. Out of 92 malnourished children, majority were at the age ranging from 4-5 years old old with the frequency of 48 or 52.2%. The rest of the malnourished children were ages 2-3 years old with a frequency of 29 or 31.5%. The ages ranging 1 year old and below old got the lowest percentage with a frequency of 15 or 16.3%.

Results evidently imply that most of the malnourished children were preschoolers ages 37-71 months old. This stage is more at risk of becoming malnourished because during this age they are engaged to outdoor activities.

Sex. More than half or 58.7% of the total malnourished children were male and only 41.3% were female. The results show that there is higher number of males who are malnourished compared to females.

Religion. Based from the results, most of the malnourished children were Roman Catholic with a frequency of 64 or 69.6% and 20 or 2.7 % were 7th day Adventist. Other religions of the respondents that correspond relatively to 8 or 8.7% were Iglesia ni Cristo. Based on the result, the data indicates that majority of the

respondents were Roman Catholic which could be a factor influencing malnutrition.

Number of siblings of the respondents' malnourished child. Most of the malnourished children have 4-5 number of siblings. The relatively big family of 2-5 children would imply that the parents may not be able to provide their children with adequate and nutritious foods and other needs especially if the income does not suffice to the size of the family.

Family monthly income of the respondents. Results showed that their income ranged from Php600 to Php 10,000. Results also indicated that most of the malnourished children might belong to a family with low monthly income. Therefore, parents of the malnourished children might not be able to financially sustain the nutritious food needed and other basic needs of the children. This scenario would aggravate the occurrence of malnourishment in the communities.

Body Mass Index of the malnourished child. Out of 92 malnourished children, there were 64 or 69.6% underweight, 27 or 29.3% severely underweight and only 1 or 1.09% is overweight. The above results implied that most respondents are underweight. There is a need to provide further information about the factors contributing to inadequate nutrition, content of balanced diet, ways to increase calorie intake and discuss ways to manage, minimize or alter the factors contributing to malnourishment.

Usual Food Eaten.

Figure 1 shows that majority of the malnourished children ate rice, fish and junk foods. However, vegetables, fruits, meat and seashells were seldom eaten by the under-five children.

This implies that the food usually eaten by the malnourished children do not provide an optimum nutrition which the children need. Good nutrition means getting the calories needed for energy and the nutrients for proper growth. Variety, balance and moderation are keys to good nutrition. When young children are given a balanced variety of healthy foods, with moderate amounts of fat, sugar and salt, they are learning good nutrition habits that can help lower the risk of overweight, heart disease and even diabetes. A variety of foods including vegetables, fruits, grain and protein, is essential to make sure the children get the full range of nutrients for good health. The right balance of calories, protein, fat, carbohydrates, vitamins and minerals provides energy and the variety of nutrients growing children need. It is suggested that children younger than 2 years old need calories and fat to support rapid growth while children over the age of 2 can be served low fat milk and by the age of 5, children should get no more than 30 percent of their daily calories from fat. Children should be served with tasty, fresh vegetables and fruits as snacks. (American Heart Association, 2018)

Junk food plays a major role in the obesity epidemic. By the year 2050, the rate of obesity in the U. S is expected to reach 42 percent, according to researchers at Harvard University. Junk food is food that is calorie dense and nutrient poor. In recent decades, junk foods food consumption in the United States has increased dramatically, with 25 percent of people now consuming predominantly junk food diets. This trend has occurred concurrently with rising epidemics of numerous chronic diseases and accounts for a list of reasons why eating junk food is bad. (Roizman, 2018)
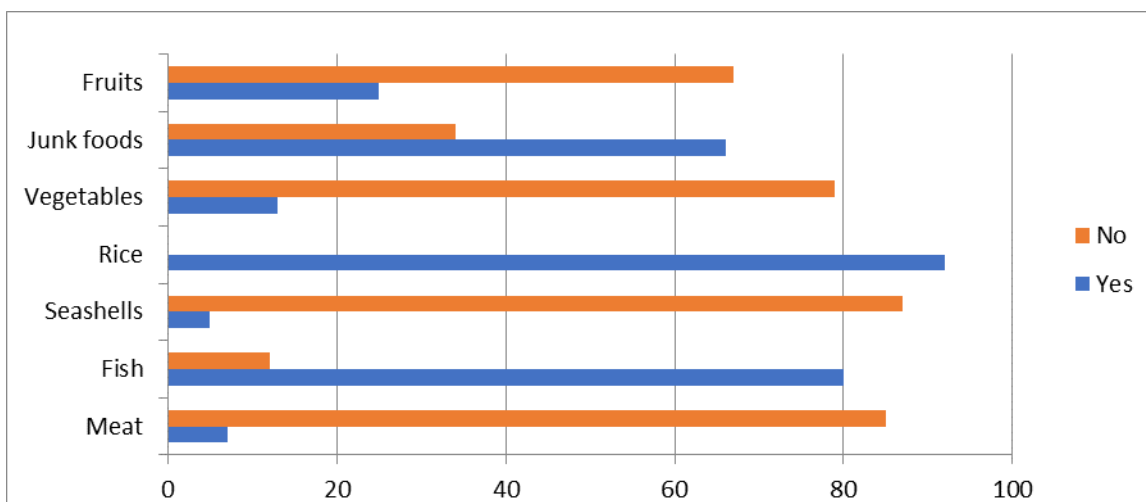
Figure 1. Usual Foods Eaten

Dietary Supplements / Vitamin Intake

Table 2 shows that majority of the malnourished children do not take vitamins or dietary supplements.

The result implies that most of the mothers do not use dietary supplements or vitamins to improve the nutritional status of their children. The American Academy of Pediatrics does not recommend multivitamins for healthy children. According to a 2012 report, children who take multivitamins are at greater risk than non-users of getting too much iron , zinc, copper, selenium , folic acid, Vitamin A and C. However, multivitamins maybe needed for those who do not eat a varied diet, and those children who do not take vitamins were found to have low levels of vitamins D, E and Calcium. It is important that parents talk with their child's health care provider about any complementary health approach that is being used. (National Institutes of Health, 2015)

Table 2. Food Supplement / Vitamin Intake

Intake of Dietary Supplements/ vitamins	*F*	%
Yes	35	38
No	57	62
Total	92	100

Deworming Schedule

The RHU has scheduled its own deworming services for the malnourished children (Table 2). The deworming services were usually done every 3 and 6 months. Based on the results, not all malnourished children were able to avail the deworming services provided by the barangay health workers.

This implies that majority of the malnourished children were not submitted by their mothers or primary caregivers to undergo deworming. It is recommended that periodic treatment with anthelminthic (deworming) medicines, without previous individual diagnoses to all –risk people living in endemic

areas such as the preschool aged children and school- aged children. Hilminths are a group of parasites commonly referred as worms and include schistosomes and soil transmitted helminthes. Schistosome and soil transmitted helminth infection are among the most common infection in developing countries and can impair the nutritional status by causing internal bleeding, malabsorption, diarrhea and loss of

appetite. The treatment should be done once a year when the prevalence of soil transmitted helminth infection in the community exceeds 50%. The intervention reduces morbidity by reducing the worm burden. (World Health Organization, 2018)

Table 3. Deworming schedule

Schedule		*f*	**%**
Deworming schedule			
Yes		92	100
No		0	0
	Total	92	100%
How Often			
Every 6 months		60	65%
Every 3 months		25	27%
Every year		0	0%
Others		7	7.61%
	Total	100	100

Sleeping hours

Table 3 shows that more than half of the malnourished children slept 8-12 hours per day. Also, half of the malnourished children slept 3-4 siesta hours per day.

Based on the result, a big proportion of the malnourished children slept for about 8-12 hours per day and sleeps 3-4 hours as their nap and this is a good indicator because this is just a normal sleeping hour for children for them to gain rest and energy.

According to the National Sleep Foundation, toddlers (1-2 years) need about 11-14 hours of sleep in a 24- hour period. When they reach about 18 months of age their naptimes will decrease to once a day lasting about one to three hours. Naps should occur too close to bed time as they may delay sleep at night. Many toddlers experience sleep problems including resisting going to bed and nighttime awakenings. Nighttime fears and nightmares are also common. Many factors can cause sleep

problems. Toddlers' drive for independence and an increase in their motor, cognitive and social abilities can interfere with sleep. Moreover, for preschoolers (3-5 years old) typically sleep 11-13 hours each night and most do not nap after five years of age. As with toddlers, difficulty falling asleep and waking up at night are also common.

Furthermore, sleep deprivation impairs many physiological functions, including immune regulation and metabolic control. Hormone levels change to mimic a state of extreme stress. These changes are linked to eating and body weight and as the time of deprivation continues, appetite increases, weight loss continues, and body temperature continues to fall even if they try to keep themselves warm. Humans deprived of sleep in laboratory conditions report, even after one night, feeling cold and hungry. It is worth noting during the Rapid Eye Movement stage of normal sleep, the body does not thermally regulate. Scientists have determined that in human sleep deprivation the decline in

body temperature is 0.5 degree Celsius. There is an increase in white cell counts and general slowing bodily functions. (National Institute of Neurological Disorders and Stroke, 2018)

Table 4. Sleeping Hours

No. of Hours of sleep		f	%
Numbers of sleeping hours			
8-12 hours		53	58%
5-7 hours		39	42%
	Total	92	100%
Nap per day			
3-4 hours		54	59%
1-2 hours		38	41%
	Total	92	100%

Compliance on Immunization

Table 4 shows that more than half of the respondents were completely immunized.

The high percentage of malnourished children were completely immunized implies that even if they were completely immunized, there are still chances of being malnourished. Hence, complete immunization is not a guarantee of absence of malnutrition.

The Expanded Program on Immunization was established in 1976 to ensure that infants/ children and mothers have access to routinely recommended infant/ childhood vaccines. Six vaccine preventable diseases where initially included in the EPI: tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus and measles. In 1986, 21.3% "fully immunized" children less than fourteen months of age based on the EPI comprehensive Program review. In 2002, WHO estimates that 1.4 million of deaths among children under five years due to disease that could have been prevented by routine vaccination. This represents 14% of global mortality in children under 5 years of age. Moreover, Republic Act. 10152 also called the "Mandatory Infants and Children Health Immunization Act of 2011" signed by President Benigno Aquino III in July 26, 2010. The mandatory includes basic immunization for children under 5 including other types that will be determined by the Secretary of Health. (Department of Health, 2017)

Environmental Factors

Majority of the respondents' source of drinking water is public (65%) and most of the household require more than 15 minutes to fetch water from the sources. Moreover, more than half of the respondents' water were not treated making it unsafe for drinking. Furthermore, almost all the respondents do not have their own toilets and mostly washes their hand after toilet using soap and water. Lastly, most of them disposes garbage at the sea.

Table 5. Compliance on Immunization

Immunization Compliance		*f*	%
Immunization			
Complete		87	95%
Incomplete		5	5.4%
	Total	92	100

Summary of Findings

More than half of the respondents were preschoolers' ages ranging from 4-5 years old months old. With regards to the gender, most of the malnourished children are males. The religion of most of the respondents is Roman Catholic. As to the number of siblings of the families of malnourished children, majority of them had 4-5 siblings with family monthly income of Php 600- Php 1000. In terms of the body mass index, most of the children were underweight. Most of the children ate rice, fish and junk foods except for fruits, vegetables and meat. Majority of the malnourished children were not given dietary supplements or vitamins. Moreover, the malnourished children had a usual sleep of 8-12 hours and nap of 3-4 hours daily. Not all malnourished children were provided with immunization and deworming services. Moreover, the drinking water of the household is not safe and needs to be treated. Proper disposal of garbage must also be done.

Conclusion and Recommendation

From the findings of this study, it is concluded that the possible causes of malnutrition are the following: the intake or the amount or type of food usually eaten by the child, the number of hours of sleep, non-compliance on the deworming and immunization schedule and environmental factors such as the source of drinking water, untreated water, no toilets of their own and garbage disposal.

It is therefore recommended that health care providers should boost the campaign on proper nutrition. Mothers should be taught on how to provide good nutrition among their children in order to decrease the prevalence of malnutrition among under five children. Moreover, community-based nutrition program must be established to focus on the problem on malnutrition and continues nutrition surveillance must be done and special attention should be provided to vulnerable groups such as the poorest and severely malnourished children.

It is further recommended that further research will be conducted. This will include other factors related to health seeking behaviors of mothers with malnourished children.

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