Nutritional Status and Its Impact on Academic Performance of Selected Grade 8 Students

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Abstract. This study aimed to determine the nutritional status, causes of malnutrition and its impact on the academic performance of Grade 8 Students with wasted and severely wasted BMI. The researcher used the descriptive – correlational research method which described the relationship between variables. Four (4) variables were used in this study such as poverty, health condition, eating habits, and illiteracy. The results showed that sometimes health condition and illiteracy are the contributing factors for malnutrition as evidenced by the average mean of 3.06 and 3.58 respectively. While most often, poverty and eating habits contributed to the causes of malnutrition. A negligible negative correlation existed between weight and academic performance based on the computed r value which was less than the tabular value of 0.349 at 5% level of significance. The obtained chi-square value between nutritional status and academic performance was found to be insignificant since the obtained chi-square value was less than the tabular value of 9.488 at 5% level of significance. Thus, the researcher recommends that continuing School-Based feeding program be strengthened. Further, it is also recommended to encourage the active involvement of parents, communities and local government in the implementation of intensified school nutrition program.

1. Introduction
Malnutrition is the largest health problem of children in developing countries. The Global Nutrition Report said every country except China had crossed a "malnutrition red line," suffering from too much or too little nutrition. In India, approximately 60 million children are underweight, and malnutrition is responsible for 22% of the country’s burden of disease [1]. A recent survey says that around a third of school children in the Philippines are undernourished, according to the Food and Nutrition Research Institute (FNRI). The charity Save the Children found that one in every four Filipino children sometimes skip meals and as many as 1.5 million children live a whole day without even a single meal. The Department of Education also reveals that as many as 1.8 million children in the country suffer from "severe malnourishment." The prevalence of malnutrition among the poor and the vulnerable is extremely high. These findings reflect the number of Filipino Families who live in extreme poverty [2].

During the first quarter of the School Year 2017 - 2018, Pag-asa National High School analyzed student's health status to identify who among the students are undernourished. Based on the Body Mass Index of eight hundred seventy-nine (879) students from Grade 7 to Grade 10, ninety-seven (97) of them are categorized wasted/severely wasted or below normal BMI, out of which are thirty-six (36) Grade 8 Students. Based on the interview and upon studying their profile, most of them belong to...
low-income families [3]. The School Feeding Program based from the previous school records improves the nutritional status of the students after several months of implementation, where most students from Grade 7 to 10 with wasted/severely wasted BMI were escalated to normal, but it is still very relevant to determine the causes of malnutrition to minimize its effects, suggest possible solutions, and to assess its impact on the academic performance of the students [4]. "Undernutrition is behind the high drop-out rates in elementary and high schools," said Jun Arajo, Health, and Nutrition Center, Department of Education. “If the trend continues in the coming years, then it will have a great impact on employment rates in the country, and the economy will suffer.” In response, the Philippine government intensified a feeding programme to address the problem of undernutrition among public school students and translate this to a better learning outcome, reduced drop - out and improved school retention rate [5]. Through DepEd Order no. 43 s. 2011 entitled Strengthening the School Health and Nutrition Programs for the Achievement of the Education for All (EFA) and Millennium Development Goals (MDGs), former Education Secretary Armin Luistro said that the department is strengthening its school health and nutrition programs, aligning it with other existing activities to come up with one seamless whole [6]. As revealed by various researches, when it comes to the learning process, well-nourished students perform better or doing an excellent performance in reading and arithmetic as compared to undernourished children. Thus, nutritional status may affect the academic standing of the students [7]. With these concepts, this study was conducted to determine the nutritional status, causes of malnutrition and its impact on the academic performance of selected Grade 8 students with wasted and severely wasted BMI.

2. Literature Review

Wanjohi (2010) in his study revealed that the main cause of malnutrition among children in the zone was the lack of enough food and a balanced diet. Poverty also was found to be one root cause of malnutrition among children [1]. On the effects, the study revealed that malnutrition had a negative impact on the academic performance and growth and development rate of children. Malnutrition is generally defined as a chronic condition which is a consequence of over- or under-consumption of any or several essential macros- or micronutrients relative to the individual's physiological and pathological requirements according to Ecker and Nene 2012 [2]. Malnutrition is also a dangerous condition that develops when your body does not get enough nutrients to function properly. Poor nutrition can be caused by a lack of food or an unbalanced diet that's missing or insufficient in one or more nutrients (Chinyoka and Naidu, 2013) [3]. A study by Connell (2010:127) revealed that 34 percent of low birth weight children were either repeating grades or placed in special education classrooms while only 14 percent of normal-birth-weight children experienced the same outcomes [4]. Knowing more about what nutritional deficiencies can lead to, regarding academic performance, parents should help their children feed adequately to succeed in class as mentioned by Santanu Ghosh and Haradhan Saha (2010) [5]. This shows that nutrition is of paramount importance in the academic performance of the students. In order to develop a thorough understanding and deeper insights relevant to this proposed study, the proponent considered the K to 12 Health Curriculum which aims to assist the Filipino Learner in attaining, sustaining, and promoting life-long health and wellness wherein the learning experience through the program provides opportunities for the development of health literacy competencies among students and to enhance their over-all well-being [6]. The researcher also considered the DO No. 51, s. 2016 - Implementation of the School-Based Feeding Program for School Year 2016 - 2017, which states that the Department of Education (DepEd), through the School Health Division-Bureau of Learner Support Services (SHD-BLSS), shall implement the School-Based Feeding Program (SBFP) for School Year (SY) 2016 - 2017 to address undernutrition and short-term hunger among public school children. The program primarily aims to improve the nutritional status of the beneficiaries and secondarily, it aims to increase classroom attendance by 85% and improve the children's health and nutritional values and behavior [7]. High school students who belong to low - income families failed to attend classes regularly because of hunger or poor nutritional status. This situation affects the academic performance of those students because of not having the ability to give focus and concentration in their studies. Thus
from the above study and analysis of the data generated, it revealed that the nutritional status of the student has a definite relationship with his/her academic achievement.

3. Research Methodology
The theoretical framework for this study was anchored on Motivation Theory by Abraham Maslow. Maslow’s theory of needs was based on a hierarchical model where basic needs at the bottom and higher needs at the top (physiological, safety, love, esteem, cognitive, aesthetic, self – actualization and transcendence needs). The main point in Maslow’s Hierarchy of Needs is that people need to satisfy their needs systematically starting with the basic needs of moving up the hierarchy. He believed that the higher level needs could only be achieved if the lower order needs have been satisfied first. For example, a student who is hungry is not likely to be motivated to self-actualize until his hunger is satisfied.

3.1. Conceptual Framework

![Diagram of Conceptual Framework]

Figure 1 Hypothesized Relationship between and among the Variables of the Study

3.2. Research Questions
1. What is the profile of the students regarding the following: weight, nutritional status, socioeconomic status, the source of livelihood, and educational attainment of parents,
2. What are the causes of wasted/severely wasted Body Mass Index of the thirty-six (36) Grade 8 students?
3. What is the academic performance of the Grade 8 students during the First and Second Grading period?
4. What is the significant relationship between the profile and academic performance of Grade 8 students with wasted/severely wasted BMI?
5. What is the significant relationship between the causes of malnutrition and academic performance of Grade 8 students with wasted/severely wasted BMI?
6. What intervention can be proposed to improve the nutritional status and enhance the academic performance of the students?

3.3 Hypotheses
There is no significant relationship between the profile and academic performance of the Grade 8 students with wasted/severely wasted Nutritional Status. There is no significant relationship between the causes of malnutrition and academic performance of the Grade 8 students with wasted/severely wasted Nutritional Status.

3.4. Data Collection
The researcher used the descriptive – correlational research method, employing a questionnaire in gathering data. Purposive sampling was employed in this study. The researcher used the test-retest method to test the reliability of the questionnaire. The questionnaire was administered to ten (10) non-respondents of the study. After a week's interval, the same set of questionnaire was administered again to the same respondents.

3.4.1. Anthropometric Test
The instrument I was used in gathering the student's nutritional status based on the format given by the Department of Education DepEd Order no. 37 Series 2014. It is calculated as the weight in kilograms divided by the square of the height in meters (kg/m²). BMI is age-independent and the same for both sexes:

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\text{Body Mass Index} = \frac{\text{Body weight in kg}}{\text{Body height in m}^2}
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3.4.2. Administration of the Questionnaire
Instrument 2 was the questionnaire formulated by the researcher, composed of two parts. Part I includes the profile of the selected Grade 8 Students regarding weight, nutritional status, socioeconomic status, the source of livelihood, and educational attainment of parents. Part II includes the factors determining the causes of malnutrition. The researcher considered the following scale:

| Range    | Scale | Interpretation |
|----------|-------|----------------|
| 4.50 – 5.00 | 5     | Very Often    |
| 3.50 – 4.49 | 4     | Often         |
| 2.50 – 3.49 | 3     | Sometimes     |
| 1.50 – 2.49 | 2     | Seldom        |
| 1.00 – 1.49 | 1     | Never         |

3.4.3 Academic Performance Review
Instrument 3 was the students' report cards. The academic record of the students during the first and second grading was obtained from their respective class advisers. The average grades in the report cards for the two grading periods would determine the academic performance with the following classification.

90-100 Outstanding
85-89 Very satisfactory
80-84 Satisfactory
75-79 Fairly Satisfactory  
below 75 Did not meet expectations  

3.5 Statistical Treatment of Data  
The data were treated statistically using descriptive statistics such as frequency and weighted mean. To test the significance of the relationship, Pearson's Product Moment Correlation was used. Results were analyzed and interpreted.  

4. Conclusion  
Majority of the respondents' are categorized as wasted and belong to low – income families. More than half of the respondents’ family are engaged in farming. Almost only 16% of the parents pursued their education in college, most of them are high school graduate. Four (4) variables were used in this area such as poverty, health condition, eating habits, and illiteracy or lack of education about proper nutrition. This implies that sometimes health condition and illiteracy are the contributing factors for malnutrition as evidenced by the average mean rating of 3.06 and 3.58 respectively. While most often, poverty and eating habits contributed to the cases and causes of malnutrition. A negligible negative correlation existed between weight and academic performance. The obtained chi-square value of 37.1 between socioeconomic status and academic performance was found to be significant at 5% level of significance since the computed value was higher than the tabular value. Based on the result, socioeconomic status has a significant relationship in the academic performance of the students. Thus, the null hypothesis was rejected. The computed chi-square value of 14.5 between the source of livelihood and academic performance was higher than the tabular value of 7.344 at 5% level of significance. The results indicate that the source of livelihood may affect the academic performance of the students. Thus, the null hypothesis was rejected. The obtained chi-square value of 25.4 between the educational attainment of parents and academic performance was found to be significant at 5% level of significance, and this means that the educational attainment of parents may affect the academic performance of the students. Based on the result, educational attainment of parents has a significant relationship in the academic performance of the students. Thus, the null hypothesis was rejected. There was a negligible positive correlation between poverty, health condition and academic performance as revealed by the computed value of 0.06. This means that poverty and health condition was found to be insignificant in the academic performance since the obtained value was less than the tabular value at 5% level of significance. The negligible negative correlation existed between eating habits, illiteracy, and academic performance. The computed r value between academic performance and poverty, health condition, eating habits, and illiteracy was less than the tabular value of 0.349 at 5% level of significance with 5 % degrees of freedom. Thus, the null hypothesis was accepted.

High school students are suffering from malnutrition, and its prevalence was high. Income of families was not sufficient to support the education of their children since other basic needs would be primarily their priority. There are other basic needs to be prioritized, other than vitamins and regular medical checkup. Skipping a meal and eating food lack in nutrients like soda and junk foods are responsible to a great extent for malnutrition. Lack of adequate food leads to malnutrition, but other causes may either be from lack of education about proper nutrition. Most often, poverty and eating habits contributed to the cases and causes of malnutrition. Majority of the respondents have met the requirements of the Department of Education to pass a particular learning area while some reasons for satisfactory performance are specific to the students, others may be attributed to other factors. Socioeconomic status, a source of livelihood and educational attainment of parents are the strongest correlating factors in the academic performance of the students. Poverty and health condition was found to be insignificant in the academic performance of the students. Eating habits and illiteracy inversely affected the academic performance of the students. Interventions must be proposed to improve the nutritional status and enhance the academic performance of the students.
The parent/guardian should pay more attention to the nutritional status of the child by giving nutritious and adequate foods. As parents and teachers, we must teach our children the meaning and importance of good nutrition so they can develop good eating habits that will support a lifetime of maximizing their full potential. Proper nutrition is essential for students to achieve their full academic potential. Schools need to educate parents and children about the value of proper nutrition. Constant monitoring of the academic performance of students with wasted and severely wasted BMI must be done. The school and its stakeholders must work hard together to minimize the causes of malnutrition. Strengthen and monitor the School-Based Feeding Program to ensure its effectiveness. Promote Gulayan sa Paaralan and Backyard Gardening at home and coordinate with the health sectors in conducting an orientation on proper nutrition. Awareness campaigns and programs should be created focusing on the value of good nutrition. Further, it is recommended to encourage the active involvement of parents, communities and local government to improve the student's health and educational status.

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