NUTRITIONAL STATUS: ITS RELATIONSHIP TO THE ACADEMIC PERFORMANCE IN ENGLISH AND MATHEMATICS OF GRADE 2 PUPILS IN BULUA CENTRAL SCHOOL

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Abstract - One of the unending concerns and in fact, the unresolved problem of the Department of Education in the Philippines is the significant effect of nutrition among students' performances in various academic strands. As presented in many educational surveys, the development among Filipino students when put into a scale is extremely different. However, Crosnoe (2007) noted that there are other noted societal "epidemics" which has been regarded to draw broad public attention: the failure in the Philippine educational system in sustaining the student's interest throughout the school year and poor performance of students are sometimes connected to the underlying problem which is poor nutrition among students.
Amidst the constant effort of the Department of Education with its Feeding Program campaign, Gulayansa Paaralan program and the like which aim to aid the detrimental effect to the performance of students, Filipinos are still facing a serious public health problem or the health condition of the students although DepEd has provided a set of well-defined expectancies and competencies, and teachers are trained to become competent teachers in the classroom.
This research paper examined the nutrition status and its academic achievement in Mathematics and English of Grade 2 pupils in Bulua Central School, Cagayan de Oro City. Moreover, descriptive method of research was employed. It is believed that no learning takes place with an empty stomach. In other words, poor health condition greatly affects the academic performance of students.

Keywords - Nutritional Status, Academic Performance, Feeding Program, Health Condition, Public Health

I. INTRODUCTION

Education and health play a significant role in the development of a country. The country's growth is always propelled and supported by individuals who are gifted with intellectual, physical, and social capacities. People, therefore, are of paramount importance in this newly industrialized country.
Relative to this, there are pressing issues, which are levied towards the school considered an organization whose mission involves the total development of an individual in holistic aspects. It aims in developing the human qualities into useful and productive individuals in the realm of life. These qualities can be formed and shaped through the guidelines and standards set by the Department of Education.
However, Crosnoe (2007) stressed that there are other noted societal "epidemics" which has been regarded to draw broad public attention: the failure in the Philippine educational system in sustaining the student's interest throughout the school year and poor performance of students are sometimes connected to the underlying problem which is poor nutrition among students.

Amidst the constant effort of the Department of Education with its Feeding Program campaign, Gulayansa Paaralan program and the like which aim to aid the detrimental effect to the performance of students, Filipinos are still facing a serious public health problem or the health condition of the students although DepEd has provided a set of well-defined expectancies and competencies, and teachers are trained to become competent teachers in the classroom. Schafft (2009) noted that it is important to note that one's success is largely affected by the students' drive and motivation to learn. Children are not eating healthy, well-balanced diets and, as a result, there is a rising incidence of malnutrition.
This has posted a challenge to education stakeholders as manifested in the 6th National Nutrition Surveys in the Philippines. Accordingly, the country has adopted the Millennium Declaration in 2000 and committed to build a better world in the 21st century. Among the strategies towards "building a better world" is by focusing on children and childhood, and their nutrition situation.

It is in this premise that learning will not take place with an empty stomach. In other words, poor health condition greatly affects the academic performance of the pupils. The nutritional records as well as the academic records of the elementary pupils of Bulua Central School showed that nutritional status has a tremendous effect on the academic performance of students. Records show that students with normal nutritional status have higher grades in Mathematics and English than those students who are severely wasted.

As cited in the study of Schmunck (2010), malnutrition has significant and enduring effects on the neurological development and behavioral capacity of children. Children who do not eat a balanced diet, even for a short time, can develop problems with their physical, emotional, and cognitive development. Research (The Hunger Site 1999) indicates that even mild malnutrition experienced by children during

critical periods of growth can impair their behavior and school performance.

Children who consume insufficient, excessive, or imbalanced quantities of nutrients are more likely to struggle in an academic setting. They are at an educational disadvantage which compounds through the years of childhood and adolescence and can conceivably cause children to have lower levels of aspiration, accomplishment, and even intelligence.

Thus, it is the desire of the study to deeply unravel the facts of the present nutritional condition of the elementary pupils and open ways to help malnourished pupils perform well in their classes. The view of this study is further premised on the principle that "no learning takes place with an empty stomach."

II. OBJECTIVES

The study intended to:

1. Find out the nutritional status of the pupils—wasted, severely wasted and normal—of the Grade 2 pupils of Bulua Central School;
2. Identify the academic performance of the pupils specifically in English and Mathematics as tested in every grading period;
3. Identify the relationship between nutritional status and academic performance of pupils; and
4. Suggest areas of interventions to aid pupils who are severely wasted uplift their academic performance.

III. METHODOLOGY

Respondents of the Study

The respondents of this study are the Grade 2 pupils of Bulua Central School. There are 15 heterogeneous sections with approximately 45 students per class thus giving a total of 623 Grade 2 pupils possessing different body mass index and status towards nutrition with different perceptions.

Bulua Central School conducted School-Based Feeding Program as part of the programs of Department of Education. The Feeding Program is conducted every morning from Monday to Friday. The School Feeding Coordinator monitors the attendance of the beneficiaries, likewise the coordinator prepares the daily menu. A list of menu or the cycle menu is prepared ahead of time for the in-charge to identify the needed ingredients before the feeding day.

Thus, the School Based Feeding Program of Bulua Central School officially started on September 14, 2015 for the SY 2015-2016 with 120 feeding days.

15 Sections	
Grade 2	**Number of Respondents**
1	43
2	46
3	46
4	45
5	44
6	45
7	45
8	44
9	45
10	45
11	46
12	45
13	43
14	44
15	43

Sampling Procedure

Bulua Central School has 15 sections which vary in class size and characteristics of its pupils. From the master list, the names were identified using the stratified sampling procedure that belong to severely wasted individuals.

The Instrument

There were two research instruments used during the study: Instrument A was used in gathering the pupils nutritional status based on the format given by the Department of Education DepEd Order no. 37 Series 2014 (see Appendix E) and Instrument B was their report cards. The academic record of the pupils' before the feeding program (first grading) and after the feeding program (third grading) was taken from their respective class advisers. The grades in the report cards for the 2 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

Statistical Treatment

The statistical analyses of the data in this study involved the following tools:

Descriptive and inferential statistics such as mean, percentages and standard deviation in describing the respondents according to the variables embedded in this study.

The variables suggest qualitative and meaningful analysis, thus they required use of techniques to come up with a desirable and intended interpretation. The relationship of the aforementioned variables were supported by Pearson's r to determine the relationship

of the Independent Variable and Dependent Variable. This was tested at .05 probability level.

RESULTS AND DISCUSSIONS

Problem # 1:

1. What is the profile of Grade 2 pupils according to gender, grades in Math and English, and Body Mass Index?

Gender	Count	Percentage
Male	20	57.14
Female	15	42.86
Total	35	100.00

Table 1.1 Distribution of Pupils by Gender

Table 1.1 indicates that the most of the respondents are males with 57.17%, while females are only 42.86%

	Before Feeding Count	Before feeding Percentage	After Feeding Count	After Feeding Percentage
English				
74 & below	6	17.14	0	0.00
75–79	15	42.86	14	40.00
80–84	7	20.00	14	40.00
85–89	6	17.14	6	17.14
90–94	1	2.86	1	2.86
Total	35	100.00	35	100.00
Mathematics				
74 & below	3	8.57	0	0.00
75–79	18	51.43	17	48.57
80–84	7	20.00	11	31.43
85–89	7	20.00	4	11.43
90–94	0	0.00	3	8.57
Total	35	100.00	35	100.00

Table1.2 shows a comparison of the performance in English and Mathematics of the respondents, before and after the feeding program.

For their performance in English, it is noticeable that after the feeding program, no student has a failing grade (74 & below), in contrast with the 17.14% inadequacy before the feeding program. Also, it can generally be said that their performance improved after the feeding program, with more students getting grades in the 80–84 range, while for the other intervals, there is not much difference.

On the other hand, for their Mathematics performance, the 8.57% failure before the feeding program was eradicated after the feeding program. There is also a general improvement in their performance after the feeding program in the higher grade intervals. For instance, 8.57% of the respondents already have grades in the 90–94 range. None of the respondents obtained this grade before the feeding program.

Table 1.3 Distribution of BMI

	Count	Percentage
Body Mass Index (Male)		
9.0–9.9	2	10.00
10.0–10.9	5	25.00
11.0–11.9	6	30.00
12.0–12.9	6	30.00
13.0–13.9	1	5.00
Total	20	100.00
Body Mass Index (Female)		
9.0–9.9		
10.0–10.9	0	0.00
11.0–11.9	2	13.33

12.0–12.9	12	80.00
13.0–13.9	1	6.67
	0	0.00
Total	15	100.00

Table 1.2 Distribution of pupil's academic performance before and after feeding program

Table 1.3 indicates that roughly, most of the male respondents' BMI (85%) are evenly distributed in the intervals 10.0–10.9, 11.0–11.9, and 12.0–12.9. On the other hand, most of the female respondents' BMI fall on the 11.0–11.9 range.

Problem # 2:

Is there a significant relationship of the pupil's nutritional status in the academic performance in English and Mathematics before the feeding program?

Male Respondents	Correlation Coefficient, r	p-value	Interpretation
English (before) BMI	–0.238	0.311	Not Significant
Male Respondents	Correlation Coefficient, r	p-value	Interpretation
Mathematics (before) BMI	–0.139	0.560	Not Significant

Table 2.1. Distribution of pupils BMI before feeding program

Table 2.1 above indicates that there is no significant relationship between the male students' nutritional status and academic performance in English and Mathematics. Both correlation coefficients are weak negative correlation.

Female Respondents	Correlation Coefficient, r	p-value	Interpretation
English (before) BMI	0.361	0.186	Not Significant
Female Respondents	Correlation Coefficient, r	p-value	Interpretation
Mathematics (before) BMI	0.474	0.074	Not Significant

Table 2.2. Distribution of pupils BMI before feeding program

In Table 2.2, the female students' nutritional status and academic performance in English and Mathematics are both not significant. It can be noted, however, that the relationships are both moderate positive relationship.

Problem # 3:

Is there a significant difference in the pupils, academic performance in English and Math before and after the feeding program?

English	Mean	Standard Deviation	t-value	p-value	Interpretation
Before	78.77	4.94	–1.54	0.129	Not Significant
After	80.51	4.54			
Mathematics	Mean	Standard Deviation	t-value	p-value	Interpretation
Before	78.94	4.70	–1.10	0.277	Not Significant
After	80.17	4.67			

Table 3.1 Summary of value showing the pupils academic performance in Math and English before and after feeding program

Table 3.1 reveals that there is no significant difference in the respondents' academic performance in both English and Mathematics before and after the feeding program. Although there is a noticeable improvement in their academic performance, but it is not significant enough.

This non-significance may be due to some intervening factors. For example, the topics discussed in both subjects may have already been more difficult after the feeding program, or it could be due to poor study habits of the students, or lack of interest.

CONCLUSION

Based on the analyses and interpretations of the data from the respondents (the Grade II pupils of Bulua Central School), it is therefore concluded that there is no significant relationship between the pupils' academic performance and their Body Mass Index. However, the computed value does not support the claim that there is a significant relationship between the pupils' Body Mass Index and their academic performance. This means that malnutrition is not the sole factor why students have very poor academic performance or failure in studies. There must be some intervening factors that affect their academic performance.

RECOMMENDATION

Based on the abovementioned results, this study recommends the following:

1. It is highly recommended that continuing School-Based feeding program be strengthened to address the severely wasted pupils both boys and girls.
2. Promote GulayansaPaaralan and Backyard Gardening at home to augment the fresh green leafy vegetables at all times.
3. Constant monitoring of Grade 2 pupils must be recorded to continually feed them in their Grade 3 level to get their weight and height according to age.
4. The nutrition knowledge and practices of parents must be taken into consideration so that the school and home will work hand-in-hand in promoting good nutrition considering the recommended daily allowances of children according to age.
5. Teachers handling the severely wasted pupils must take into account the menu served at home by their parents to supplement the needed dietary allowances of their children, particularly in Grades 1 to 3.

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