

**THE IMPACT OF SCHOOL FEEDING PROGRAM VIS A VIS ACADEMIC  
PERFROMANCE AMONG SEVERELY WASTED GRADE IV PUPILS OF IBA  
DISTRICT, PHILIPPINES**

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**ABSTRACT**

This study aimed to determine the impact of feeding program and the academic performance of severely wasted Grade IV pupils in Iba District, Division of Zambales. The study is a quantitative descriptive research design with questionnaire as the main instrument in gathering data from forty-five severely wasted students. The study revealed that majority of the student-respondents were male in their middle age and who are members of the Roman Catholic. The respondents “always” eat their lunch and dinner at home and “sometimes” for breakfast. Base on the summary of the investigations conducted, the researcher had concluded that the respondent is a typical male, very young elementary school children and Roman Catholic. The student-respondents eat breakfast “ Sometimes while lunch and dinner “ always”. The respondents were assessed “severely wasted’ during opening of the baseline nutritional status and has improved to “normal” in endline nutritional status after the school feeding program has been implemented. The student-respondents rated “ fairly satisfactory” in their academic performance. There is a moderate relationship between the academic performance and nutritional status in the first and third grading period respectively while weak relationship in the second grading period. There is significant difference on the baseline nutritional status when group according to age and no difference on the endline when grouped according to profile variables, age, sex and religion profile variables.

**Key Words:** Nutritional Status; severely wasted; baseline;endline; academic performance.

**1. INTRODUCTION**

Children are considered the greatest national resource of any country who will build the future of the nation. Education is an instrument of individual and social change, increasing the probabilities of general well-being (UNESCO, 2004). Primary Education is a vital stage development of the consciousness and personality of the child as it is at the at this juncture that a whole new world of bright ideas and knowledge open up in front of their eyes. At this stage are extremely inquisitive and elementary education must encourage this tendency among the children.

Nutrition is an endogenous factor that affects the learning ability and skills before and after the child is in school. Several studies conducted by them shows the relationship between nutrition,

wasting, stunting and academic achievements that have been published and all of them have reported significant association between nutritional status indicators and cognitive test scored on their school performance (The United Nations Educational, Scientific and Cultural Organization, 2004).

Every individual aims to have good health before any other wealth, when person is healthy he is energetic at work of which he can acquire wealth. In the same way, socioeconomic development of a country will fall behind.

The nutritional status of a population is a relevant indicator of the quality of life of the people. Like any other developing countries, the Philippines has a big share along the malnutrition side. A great number of our people especially the children are suffering from malnutrition which is a serious problem that our country is facing today.

Nutritional status of pupil has the powerful impact on learning and how well a child performs in school. A pupil who lacks certain nutrients in their diet or who suffers from malnutrition and hunger does not have the same potential for learning as healthy and well-nourished children. Poor nutrition among pupils reduces their cognitive development to participate in learning experiences or both.

Pupils who are severely wasted are more likely to repeat grades and to drop out of school than children who are not. The irregular school attendance of severely wasted pupils is one of the key issues in poor academic performance. Even temporary hunger, common in children who are not fed before going to school, can have an adverse effect on learning. It can lead into difficulty in concentrating and performing complex tasks.

The development is done because there has been an increasing awareness of concern that malnutrition may adversely affect the health status of the growing children. The inadequate service and facilities in health have been redirected so as to serve the growing sector of the Philippines society with emphasis on the concern, Presidential Decree No. 941, the nutritional act of the Philippines designated July of every year as nutrition month.

School feeding programs can therefore be a powerful instrument for improving the academic performance of the pupils. The school feeding program provides the process calls for gathering information on: what “food-related” and “education-related” problems exist in the severely wasted grade 4 pupils in Iba District of Zambales which could be addressed by school feeding programs; where, geographically the problems are located; and which school feeding are available; or could be developed, for addressing the problems.

In order for a school to achieve its vision one factor that must be given preference and attention is the nutritional or health status of learners and how it affects their academic performance. Hence, the researcher feels the need for this study which shows that health condition is one of the major factors that affects the increasing number of perennial absentee or even drop out. She feels

the need of improving the nutritional status of the pupils with the help of feeding program towards their academic performance.

## 2. RESEARCH METHODOLOGY

### 2.1 Research Design

The study used the descriptive and documentary research design in order to arrive at the answer to the problems address by this study. Likewise, said method used questionnaire information and describe the existing condition.

### 2.2 Respondents and Sampling Technique

The researcher concentrated mainly on the 45 grade IV Severely Wasted Pupils In The Public Elementary Schools in Iba District. Table 1 shows the frequency distribution of the Student-Respondents.

A probability sampling was used in the selection of respondents. As such, the researcher utilized random selection in identifying respondents from selected secondary schools in Schools Division of Zambales.

### 2.3 Location of the Study

The study was conducted in 17 elementary schools in Iba District, Iba Zambales, Philippines. Figure 1 shows the location of the location of the study. Iba Zambales is divided into 14 barangays.



## 2.4 Instruments

This study used a survey-questionnaire as the main instrument in gathering data. The survey questionnaire dealt with profile of the student respondents as to their age sex, religion. The next part is the nutritional status of the pupil before and after the feeding program. The academic performance of the pupils was taken during the first, second and third grading periods respectively. During the first grading period no feeding program was conducted. The department Order 39, series of 2017- operational Guidelines on the implementation of the School based feeding program was adopted using the intervention program of 20 days cycle menu for severely wasted pupils.

An unstructured interview was likewise conducted to strengthen the discussion, interpretation and analysis of data and further conclusion and recommendation that improved the quality of academic performance. Personal observations were also considered to find out if the respondents gave their honest responses.

The information on this tool was adapted from UNESCO in collaboration with Health and Human Development Programs at Education Development Center, Inc.

## 2.5 Data Collection

The researcher sought permission from the Schools Division Superintendent through the Public School District Supervisor to allow her to conduct the study and collect the documents such as grades related to nutritional status.

The researcher personally administered the data gathering.

## 2.6 Data Analysis

After the data gathering, the researcher tabulated and processed the data both the current and proposed system. The result of the evaluated tabulation and the computation to be formulated was shown in chapter 4.

Data gathered were collected, tallied, tabulated, analyzed and interpreted accordingly.

To interpret the data effectively, the researcher will employ the following statistical treatment using the SPSS Version 20.

The following statistical techniques used in analyzing the data were:

1. **Percentage** was used to interpret the different profile variables of the respondents in this study.
2. **Weighted Mean.** It is a mean where there are some variations in the relative contribution of individual data values to the mean. Each data value has a weight assigned to it. Data values with larger weights contribute more to the weighted mean and data values with smaller weights contribute less to the weighted mean. Weighted mean was used in this study because each individual data value might actually represent a value that is used by multiple people in the sample. The weight, then, is the number of people associated with the particular value.
3. **Analysis of Variance (ANOVA)** It is use to measure the significant difference on the level of perceptions when grouped according to the profile of the respondents. Whenever

the t-test is not the appropriate tool to use, as in cases where there are three (3) or more groups of variables to be tested, the ANOVA or F will be resorted to. This tool is considered appropriate because Downie and Heath as mentioned by Ballares (1999), stressed that the Analysis of Variance or F is one of the most widely used and highly developed statistical method in the modern research. The Analysis of Variance was computed using the Data XL Version 1.0 excel software add in by Neil Weiss. Decision Criteria: The computed value was compared against the tabular value at 0.05 level of significance and the decision on whether to accept or reject the null hypothesis was based on the following criteria:

- a. Reject the null hypothesis (Ho) if computed value is equal or greater than the absolute tabular value.
  - b. Accept the null hypothesis (Ho) if computed value is less than the absolute tabular value.
4. **Pearson R** This was utilized to test the significant relationship nutritional status and academic performance. It is very helpful statistical formula that measures the strength between variables and relationship. The paired two sample t-test was used.

**Interpretation of Correlation Coefficient Value (C)**

- An r from  $\pm 0.00$  to  $\pm 0.20$  denotes negligible correlation
- An r from  $\pm 0.21$  to  $\pm 0.40$  denotes low or slight correlation
- An r from  $\pm 0.41$  to  $\pm 0.70$  denotes marked or moderate relationship
- An r from  $\pm 0.71$  to  $\pm 0.90$  denotes high relationship
- An r from  $\pm 0.91$  to  $\pm 0.99$  denotes very high relationship
- An r from  $\pm 1.00$  denotes perfect correlation

5. **Likert Scale** was used to describe the frequency of taking the following meals at home

Rating	Point Scale Value	Qualitative Interpretation
4	3.4 – 4.20	Always
3	2.6 – 3.33	Sometimes
2	1.8 – 2.55	Seldom
1	1 – 1.75	Never

**Table 1 Academic Performance**

Grading Scale	Descriptors
90-100	Outstanding
85-89	Very Satisfactory
80-84	Satisfactory
75-79	Fairly Satisfactory
Below 75	Did Not meet the Expectation

**3. RESULTS AND DISCUSSIONS**

This chapter presents the gathered and processed data in a tabular form, analyzed and provide interpretation for better understanding on the problems asked in earlier Chapter 1.

### 3.1 Profile of the Student-Respondents

Table 2 shows the frequency, percentage and mean distribution on the respondents' profile variables of age, sex, and religion.

**Table 2 Frequency and Percentage Distribution on the Respondents' Profile Variables**

Profile Variables		(f)	(%)
Age Mean=11.66 years old	8-9 years old	13	28.90
	10-11 years old	25	55.60
	12-13 years old	4	8.90
	14-15 years old	3	6.70
	Total	45	100.00
Sex	Female	19	42.20
	Male	26	57.80
	Total	45	100.00
Religion	Catholic	36	80.00
	Iglesiani Cristo	3	6.70
	Baptist	1	2.20
	Born Again	3	6.70
	Islam	2	4.40
	Total	45	100.00

- 1.1. **Age.** Majority of the student –respondents with 25 or equivalent to 55.60% from age group of 10-11 years old; 13 or 28.90%, from 8-9 years old; 4 or equivalent to 8.90% from age group of 12-13 and 3 or 6.70% from 14-15 years old. The computed mean age of the respondents was **10.13** years old. The data clearly manifest that the respondents were indeed very young school children.
- 1.2. **Sex.** Majority of the student–respondents with 26 or equivalent to 57.80% are males and 19 or equivalent to 42.20% are females. The data clearly manifest on the dominance of the male respondents. This scenario is similarly observed on the study of Dalit (2018) where the student-respondent is dominated by male students.
- 1.3. **Religion.** Majority of the student –respondents with 36 or equivalent to 80.00% are members of the Roman Catholic; 3 or 6.70%, are Iglesiasiani Cristo; 1 or 2.20%, is a Baptist; 3 or 6.70%, Born Again; 2 or equivalent to 4.40% are Islam believers. The data clearly demonstrate on the number of the respondents who were members of the Roman Catholic and this could be ascribed on the existence of the religion for more than four hundred years in the country. The religion has been part of the people's culture, and beliefs. The noted small number of members into other denomination is accounted on the by-product of indoctrination and ministering of pastors, evangelists, ministers and elders that leads to their conversion.

**4. FREQUENCY OF EATING MEALS**

Table 3 shows the student- respondents on the frequency of food taken at home for breakfast, lunch and dinner.

**Table 3 Student- Respondents’ on the Frequency of Food Taken at Home**

Frequency of Food Taken at Home		Weighted Mean	Qualitative Interpretation		Rank
1	Breakfast	<b>2.91</b>	<b>Always</b>		<b>3</b>
2	Lunch	<b>3.60</b>	<b>Always</b>		<b>1</b>
3	Dinner	<b>3.56</b>	<b>Always</b>		<b>2</b>
<b>Overall Weighted Mean</b>			<b>3.36</b>	<b>Always</b>	

The student-respondents assessed “sometimes” eating at home for breakfast with weighted mean of 2.91 and ranked 3<sup>rd</sup>; for lunch, 3.60 and ranked 1<sup>st</sup> while for dinner, 3.56 and ranked 2<sup>nd</sup>. The computed overall weighted mean was 3.36 interpreted as “always” eating for lunch and dinner at home and “sometimes” for breakfast because the school provides daily morning feeding program.

Clearly gleaned from the Table 3 that the student respondents always eat lunch at home while least on eating breakfast.

The high percentage of underweight children is alarming stated by Ravanera et al. (2012). Ravanera states that this under consumption is reflected in high number of underweight children among 0-5 years old and 6-10 years old reaching as high as 34%. In the last 20 years, the percentage of underweight children in these has not gone down usually below 20%. In a study targeting conflict-affected communities in central Mindanao, 40.9% of the children were considered underweight.

Amirat Ali El-Sabely (2010) averred that the nutritional status of school aged children impacts their health, cognition and subsequently their educational achievement. Based on the World Health Organization (WHO) standard mean of Body Mass Index (BMI), obesity and overweight constituted higher percentage among students in the private school than in the public school, while underweight was high among students in the public school (18.7%) compared to students in private school (7.5%). More than half of the public school students (52.7%) complaining of short stature compared to 27.4% of the private school students. A statistically significant difference between the two studied groups regarding taking lunch meal (p-value = 0.03) and the students’ preference of eating fried food (p-value = 0.00) were detected. In

conclusion, there were statistically significant differences between the two studied groups regarding their Body Mass Index and daily food consumption.

## 5. NUTRITIONAL STATUS OF STUDENTS BEFORE AND AFTER THE FEEDING PROGRAMS

Table 4 shows the Frequency and Percentage Distribution on the Respondents Nutritional Status Before and After the Feeding Program.

**Table 4 Frequency and Percentage Distribution on the Respondents Nutritional Status Before and After the Intervention Feeding Program**

Nutritional Status	Before		After		Percentage change in nutritional status
	Baseline N=45		Endline N=45		
	(f)	(%)	(f)	(%)	
Severely Wasted	45	100.00	3	6.67	6.67%
Total	45	100.00	45	100.00	

Out of forty-five (45) student respondents under “severely wasted” nutritional status; there were 3 or equivalent to 6.70% retain the severely wasted status; 9 or 20.00% elevated to wasted status and 33 or equivalent to 73.30% in the “normal” nutritional status.

The data clearly demonstrate on the improvement of the school children nutritional status from June 2018 school opening to March 2019 school year end. There were 6.67% retained under the severely wasted status; 20.00% were improved under wasted status and a total of 73.33% increase to “normal” status.

The food served for the 100-day intervention program was noted to be nutritious and healthful. The meal is balanced with components of go, glow and grows food value. Based on the menu plan (see Appendix B, p. 57) Malunggay was noted to dominate in the meal preparation because it is proven to be effective as anti-oxidant and contains so many vitamins needed by our body. The malunggay young leaves are edible and are commonly cooked and eaten like spinach or used to make soups and salads. They are exceptionally good source of provitamin A, Vitamin B and C, minerals particularly iron, sulphur-containing amino-acids. Methioninrsnf cysteine.

Squash is one of the most delicious vegetable and have the ability to improve eyesight, boost skins health, strengthen immunity system, prevent cancer, manage system of diabetes, build strong bones, protect heart health, recue symptoms of insomnia, prevent inflammatory conditions, eliminate ulcers, boost respiratory health and reduces blood pressure. Squash is an important source of many nutrients including Vitamin C, magnesium and other antioxidant compounds. It also contains high level of Vitamin A including carotenoid phytonutrients like lutein and zeaxanthin.

For Alugbati, it is a good source for calories, folate or folic acid or Vitmain B-9 which is needed for healthy brain function and important maintaining overall mental and emotional



health. It is needed to produce DNA and as a B vitamin helps with the breakdown and use of carbohydrates by our body. Hendricks (2015).

For shrimps can be source of the antioxidant and anti-inflammatory carotenoids nutrient astaxanthin. It decreased risk of colon cancer as well as diabetes related problems. The shrimps are a good source of copper and selenium which helps control heart failure and other form of cardiovascular diseases.

For banana flower offers nutrients such as protein, fat, calcium, fiber, phosphorous, iron, copper, potassium, magnesium and Vitamin E. It also reduces free radical activity, reduces menstrual blessing, manages diabetes and anemia, and wards off infections.

Camote tops are excellent sources of ant oxidative compounds, mainly polyphenolics, which may protect the human body from oxidative stress that is associated with many diseases including cancer and cardiovascular diseases. It contains protein, potassium, sulphur, iron, copper, zinc, aluminum and boron which are good to lower blood sugar and cholesterol, regulates good bowel movements and boosts the immune system and thus helping to preen infections and diseases such as cancer (colon and stomach), heart diseases, diabetes (Type 2), kidney stones, boils, acne, high blood pressure and destroys bacteria and inhibit fungi.

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## 6. ACADEMIC PERFORMANCE OF THE STUDENT-RESPONDENTS

Table 5 shows the Frequency, Percentage and Mean Distribution on the student Respondents' Academic Performance obtained in the first, second and third grading period

In the first grading period, the student-respondents obtained a general weighted mean of 77.73 interpreted as "fairly satisfactory"; in the second grading period with mean of 79.20, interpreted as "fairly satisfactory" and in the third grading period with mean of 80.15 interpreted as "satisfactory". Overall, the academic performance of the student was rated manifested on the overall weighted mean of 19.02 interpreted as "fairly satisfactory".

**Table 5 Frequency, Percentage and Mean Distribution on the Respondents' Academic Performance**

Grading Scale	Descriptors	First Grading N=45		Second Grading N=45		Third Grading N=45	
		(f)	(%)	(f)	(%)	(f)	(%)
90-100	Outstanding	1	2.2	3	6.7	4	8.9
85-89	Very Satisfactory	3	6.7	1	2.2	1	2.2
80-84	Satisfactory	5	11.1	9	20.0	13	28.9
75-79	Fairly Satisfactory	28	62.2	30	66.7	26	57.8
Below 75	Did Not meet the Expectation	8	17.8	2	4.4	1	2.2
<b>Total</b>		<b>45</b>	<b>100.00</b>	<b>45</b>	<b>100.0</b>	<b>45</b>	<b>100.0</b>
<b>Weighted Mean</b>		<b>77.73</b>		<b>79.20</b>		<b>80.15</b>	
<b>Interpretation</b>		<b>Fairly Satisfactory</b>		<b>Fairly Satisfactory</b>		<b>Satisfactory</b>	
<b>Overall Weighted Mean</b>		<b>79.02</b>		<b>Fairly Satisfactory</b>			

The fairly satisfactory academic performance could be accounted on the interest and motivation of the pupils to come to school and endure all the activities which requires mental and physical strengths. The whole daily activity requires physical strengths and needs to eat food in order to sustain physical stamina. Trajeco (2012) stated that the low grades in school can be attributed to poor study habits, lack of concentration and poor memory which may be caused by poor health. Students belonging to the low-income level group suffer from lack of nutrition which renders the mind incapable of satisfactory intellectual performance.

**7. TEST OF RELATIONSHIP**

Table 6 shows the Pearson Product Moment Coefficient of Correlation to test relationship between the academic performance and the end line nutritional status.

**Table 6 Pearson Product Moment Coefficient of Correlation to test relationship between the academic performance and the end line nutritional status**

Sources of Correlations		Academic Performance		
		First	Second	Third
End Line	Pearson Correlation	0.434**	0.381**	0.414**
	Sig. (2-tailed)	0.003	0.010	0.005
	N	45	45	45

The computed Pearson r- values of 0.434\*, and 0.414 in the first, and third grading respectively which denotes moderate relationship while on the second grading period, the R-value of 0.381\*\* which denotes low or slight relationship. . The computed p-values of 0.003, 0.101 and 0.005 which all are lower than (<) 0.05 Alpha Level of Significance, therefore the Null Hypothesis is rejected, hence there is high significant relationship between the nutritional status and the academic performances in the first, second and third grading period respectively.

According to the study of Akinyemi&Ibraheem (2009), averred that the consumption of inadequate quantity of food over an extended period of time resulting to the severe state of under-nutrition. The effects of under-nutrition include among many others, weight loss and wasting. Indices of under-nutrition are: C stunting, Poor growth in the height of children, i.e., linear growth that failed to reach genetic potential as a result of sub optimal health or nutrition conditions. It is measured via height with respect to age C wasting, describes a recent and severe process that has produced a substantial weight loss, usually as a consequence of acute shortage of food or severe sickness. It reflects weight relative to height C underweight, a composite of stunting and wasting which is measuring weight with respect to age i.e., body mass relative to age as influenced by the height and weight of the person. Weight 10% below average for height and sex of the individual is said to be underweight.

Likewise, Lahey& Rosen (2010) furthered the research that nutrition affects learning and behaviour and suggested that diet can influence cognition and behaviour in many ways, which include the condition of not enough nutrition or the condition of the lack of certain nutrients. About one-third of children who completed a food-habit questionnaire had inadequate fruit and vegetable intake. These students also showed poor school performance as compared to those students who had an adequate intake of fruits and vegetables (Lahey& Rosen, 2010).

According to Arnold (2000), the mechanisms which link under nutrition and poor development in children are not well understood, although children who were moderately to severely malnourished during their early childhood show delayed development. Studies of nutrition and academic performance have typically focused on hunger, malnutrition and micronutrient deficiency. The predominant approach to studying diet has focused on the role of individual nutrients or foods. However, individuals do not consume single nutrients but combinations of foods.

**8. TEST OF DIFFERENCES**

Table 7 shows the t-test to determine differences between the baseline and end line nutritional status.

**Table 7 T-test to determine differences between the baseline and end line nutritional status**

One-Sample Statistics				
Nutritional Status	N	Mean	Std. Deviation	Std. Error Mean
Baseline	45	1.0000	.00000 <sup>a</sup>	.00000
End line	45	2.6667	.60302	.08989

Sources of Variations	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Baseline Endline	29.665	88	.000	2.66667	2.4855	2.8478

The computed Significant 2-tailed t-test value of 0.000 which is lower than (<) 0.05 Alpha Level of Significance, therefore the Null Hypothesis is rejected, hence there is significant difference between the result of the baseline and end line nutritional status of the respondents.

The feeding program is intended to improve health condition of the indigenous child and avoid malnutrition. 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& Naidu, 2013).

Nutrition is an essential component of health and development. This is so because nutrition from food is significant for both physical and mental growth. Children need to be well nourished to cultivate learning while at school. Improved nutritional status among children contributes to high enrolment, better school attendance, lower rates of dropout and improved performance in academics. The brain continues to develop during childhood and through into the mid-teens, particularly in the area of the brain that is thought to be responsible for higher order cognitive activities such as focusing attention, blocking out irrelevant stimulation, testing questions in problem solving and planning. In school going children, malnutrition and ill health act as impediments to overall performance in school, as well as severely impairing psychomotor and intellectual development (GOK, 2004).

**9. Test of Differences on Nutritional Status when grouped according to profile variables.**

**9.1 Base Line**

Table 8 shows the Analysis of Variance to test difference on the baseline nutritional status when grouped according to profile variables

**Table 8 Analysis of Variance to test difference on the baseline nutritional status when grouped according to profile variables**

Sources of Variations		SS	df	MS	F	Sig.	Decision
Age	Between Groups	10.552	3	3.517	3.692	0.019	Reject Ho
	Within Groups	39.059	41	0.953			Significant
	Total	49.611	44				
Sex	Between Groups	0.000	1	0.000	0.000	0.988	Accept Ho

	Within Groups	49.611	43	1.154			Not Significant
	Total	49.611	44				
Religion	Between Groups	1.582	4	0.395	0.329	0.857	Accept Ho
	Within Groups	48.030	40	1.201			Not Significant
	Total	49.611	44				

There is no significant difference on the nutritional status of the student respondents in the baseline manifested on the computed P-values of **0.988**, and **0.857** which are higher (>) than 0.05 Alpha Level of Significance, therefore the Null Hypothesis is Accepted, hence there is no significant difference when grouped according to sex, and religion profile variable respectively. On the other hand, the computed P-value of 0.019 which lower than (<).05 Alpha Level of Significance, therefore the Null Hypothesis is Rejected, hence there is significant difference when grouped according to age profile variables.

The data clearly demonstrate on the dissimilarity of nutritional when grouped according to age profile variable and this could be ascribed that those with older age are deviated to some activities where sometimes forget to eat. They are preoccupied with activities such as computers and sports game where eating on time is neglected. The feeding program is intended to improve health condition of the indigenous child and avoid malnutrition. 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).

**9.2 End line**

Table 9 shows the Analysis of Variance to test difference on the end line nutritional status when grouped according to profile variables

There is no significant difference on the nutritional status of the student respondents in the end line manifested on the computed P-values of **0.230**, **0.688**, and **0.724** which all are higher (>) than 0.05 Alpha Level of Significance, therefore the Null Hypothesis is Accepted, hence there is no significant difference when grouped according to age, sex, and religion profile variable respectively.

**Table 9 Analysis of Variance to test difference on the end line nutritional status when grouped according to profile variables**

Sources of Variations		SS	df	MS	F	Sig.	Decision
Age	Between Groups	12.413	3	4.138	1.496	0.230	Accept Ho
	Within Groups	113.434	41	2.767			Not Significant

	Total	125.84 7	44				
Sex	Between Groups	0.476	1	0.476	0.163	0.688	Accept Ho
	Within Groups	125.37 1	43	2.916			Not Significant
	Total	125.84 7	44				
Religion	Between Groups	12.452	4	3.113	1.098	0.724	Accept Ho
	Within Groups	113.39 5	40	2.835			Not Significant
	Total	125.84 7	44				

The data clearly demonstrate on the similarity of health status and eating meal experiences of the respondents after the feed intervention program. Every has gain weights and increase in their heights. The food provides rich in vitamins and nutrients needed for growth and physical development.

Mohammed (2011) recommended for children nutrition to get beyond “getting enough” to include healthy eating to reduce the risk of chronic disease at adolescent and adult age. This study were to examine the nutritional status and reveal any gender differences among school aged children 6-12 years old from low income households in Jordan.

## 10. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the investigations conducted, the conclusions arrived at and the recommendations offered by the researcher.

### 10.1 Summary of Findings

#### 1. Profile of the Student-Respondents.

**1.1. Age.** Majority of the student –respondents with 25 or equivalent to 55.60% from age group of 10-11 years old; 13 or 28-90%, from 8-9 years old; 4 or equivalent to 8.90% from age group of 12-13 and 3 or 6.70% from 14-15 years old. The computed mean age of the respondents was **10.13** years old.

**1.2. Sex.** Majority of the student–respondents with 26 or equivalent to 57.80% are males and 19 or equivalent to 42.20% are females.

**1.3. Religion.** Majority of the student –respondents with 36 or equivalent to 80.00% are members of the Roman Catholic; 3 or 6.70%, are Iglesiasani Cristo; 1 or 2.20%, is a Baptist; 3 or 6.70%, Born Again; 2 or equivalent to 4.40% are Islam believers.

**2. Frequency of Taking Meals.** The student-respondents assessed “always” eating at home for breakfast with weighted mean of 2.91 and ranked 3<sup>rd</sup>; for lunch, 3.60 and ranked 1<sup>st</sup> while for dinner, 3.56 and ranked 2<sup>nd</sup>. The computed overall weighted mean was 3.36 interpreted as “always” eating for lunch and dinner at home and “sometimes” for breakfast.

3. **Nutritional Status of Students Before and After the Feeding Programs.** Out of forty five (45) student respondents under “severely wasted” nutritional status, there were 3 or equivalent to 6.70% retain the severely wasted status; 9 or 20.00% elevated to wasted status and 33 or equivalent to 73.30% in the “normal” nutritional status.
4. **Academic Performance of the Student-Respondents.** In the first grading period, the student-respondents obtained a general weighted mean of 77.73 interpreted as “fairly satisfactory”; in the second grading period with mean of 79.20, interpreted as “fairly satisfactory” and in the third grading period with mean of 80.15 interpreted as “satisfactory”. Overall, the academic performance of the student was rated manifested on the overall weighted mean of 79.02 interpreted as “fairly satisfactory”.
5. **Test of Relationship between academic performance and the end line nutritional status.** The computed Pearson r- values of 0.434\*, and 0.414 in the first, and third grading respectively which denotes moderate relationship while on the second grading period, the r-value of 0.381\* which denotes low or slight relationship.. The computed p-values of 0.003, 0.101 and 0.005 which all are lower than ( $<$ ) 0.05 Alpha Level of Significance, therefore the Null Hypothesis is rejected, hence there is high significant relationship between the nutritional status and the academic performances in the first, second and third grading period respectively.
6. **Test of Differences between the baseline and end line nutritional status.** The computed Significant 2-tailed t-test value of 0.000 which is lower than ( $<$ ) 0.05 Alpha Level of Significance, therefore the Null Hypothesis is rejected, hence there is significant difference between the result of the baseline and end line nutritional status of the respondents.
7. **Test of Differences on Nutritional Status when grouped according to profile variables.**
  - 7.1. **Base Line.** There is no significant difference on the nutritional status of the student respondents in the baseline manifested on the computed P-values of **0.988**, and **0.857** which are higher ( $>$ ) than 0.05 Alpha Level of Significance, therefore the Null Hypothesis is Accepted, hence there is no significant difference when grouped according to sex, and religion profile variable respectively. On the other hand, the computed P-value of 0.019 which lower than ( $<$ ).05 Alpha Level of Significance, therefore the Null Hypothesis is Rejected, hence there is significant difference when grouped according to age profile variables.
  - 7.2. **End line.** There is no significant difference on the nutritional status of the student respondents in the end line manifested on the computed P-values of **0.230**, **0.688**, and **0.724** which all are higher ( $>$ ) than 0.05 Alpha Level of Significance, therefore the Null Hypothesis is Accepted, hence there is no significant difference when grouped according to age, sex, and religion profile variable respectively.

## 10.2 Conclusions

Based on the summary of the investigations conducted, the researcher have concluded that:

1. The respondent is a typical male, very young elementary school children and Roman Catholic.

2. The pupil-respondents eat breakfast “sometimes” while lunch and dinner “always” at home.
3. The pupil-respondents assessed “severely wasted” in the baseline nutritional status while improved to “normal” nutritional status in the end line.
4. The pupil-respondents rated “fairly satisfactory” in their academic performance.
5. There is a moderate relationship between the academic performance and nutritional status in the first and third grading period respectively while weak relationship in the second grading period.
6. There is significant difference nutritional status of the students before and after the feeding intervention.
7. There is significant difference on the baseline nutritional status when grouped according to age and no difference on the endline when grouped according to profile variables of age, sex and religion profile variables.

### 10.3 Recommendations

Based on the summary of the investigations and the conclusions arrived at, the following recommendation are hereby recommended:

1. In order to improve the nutritional status of severely wasted school children, communication in terms of nutritional awareness and appropriate feeding practices needs to be strengthened by both government and NGO activities.
2. The school is encouraged to have action plan to school children noted to be severely wasted.
3. The school should call for an extension in order to provide five months continuous program.
4. Seeks support of non-government agencies and religious group for additional funding for feeding program so as to include breakfast for the children who are severely wasted.
5. A follow-up or replication of the study is recommended in order to validate and confirm the findings obtained in the study.

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