Asian Journal of Multidisciplinary Studies Vol. 3, No. 2, (2020)
ISSN 2651-6691 (Print)
ISSN 2651-6705 (Online)

Implementation of School-Based Feeding Program and Its Effect on the Physical Growth and Academic Performance

Mark Joseph M. Lu[1], Ramil L. Dacal[2]
Sta. Crus Integrated School, Sta. Maria
Pangasinan State University- School of Advanced Studies
markjosephlu20@gmail.com , ramildacal@yahoo.com

Abstract *– This study entitled "Implementation of School-Based Feeding Program and Its Effect on Physical Growth and Academic Performance" of the beneficiaries who were enrolled in the public schools of Sta. Maria, District, Province of Pangasinan for the school years 2018-2019 and 2019-2020 across the following variables: sex, age, body mass index before and after the implementation, and general weighted average before and after its implementation. The study employed the survey research design and obtained its data from both primary and secondary sources wherein the primary data was obtained through structured questionnaire administered to seventy-five (75) beneficiaries which were utilized as main instruments in gathering data and supported by related literature and studies. The data gathered were properly recorded, tallied, tabulated, interpreted, and further analyzed using statistical tools namely frequency, percentages, mean, standard deviation, coefficient of variation, mean difference, degrees of freedom, standard error, and p-value. In order for accomplish the goals of school-based feeding programs, it is recommended that students do not skip their meals offered by the coordinators; that coordinators should unceasingly evaluate what needs be done and enhanced to better know the challenges and problems affecting the level of physical growth and academic performance of the beneficiaries under the implementation of the program, school heads should also tap the social workers, stakeholders, donors and community at large in participating in the program, and that future researchers include other variables such as level of quality education, instructional media, family follow-ups, educational facilities of the school, health status, and factors that may affect the program participation of the beneficiaries.*

Keywords – *School-based Feeding Program, Physical Growth, Academic Performance, Body Mass Index, Nutritional Status.*

INTRODUCTION

Education is seen as the country's resource for developing its economy, but how the government will produce quality education if the students suffer from malnutrition and nutrient deficiencies.

Nutrient and health problems in the Philippines are no longer new especially among children in both public and private elementary and secondary schools. Many government and non-governmental organizations have initiated numerous feeding projects that can help reduce pupil hunger and nutritional deprivation.

The Philippines is a middle-income country in South East Asia, and is one of ten (10) South East Asian Nations Association (ASEAN) member countries. The country has experienced rapid economic growth over the last 10 years; a 7 percent increase in its Gross Domestic Product (GDP) in 2016, and is projected to have a 7–8 percent GDP growth in 2017[1].

Given the rosy picture painted in the economic sector, child feeding remains a problem for the Philippines, however. The nation ranks amongst the top ten for stunted infants worldwide [2]. For many decades the Department of Education (DepEd) has been implementing public health programs such as community-based eating and school gardens nationally. However, 3 out of 10 school children aged 6 – 12 years old remain short for their age (stunted) and have not attained the optimum weight for their heights (wasted).

The government launched feeding program to selected public schools around the country, they call it School-Based Feeding Program also known as SBFP. Moreover, the government has developed feeding programs to reduce hunger, to aid in the development of learners, to improve nutritional status and to promote good health, as well as to reduce inequities by encouraging families to send their learners to school given the incentive of being provided school feeding. The DepEd SBFP, lasting for 100 to 120 days for beneficiary schools, aims to restore at least 70% of beneficiaries (from severely wasted) to normal nutritional status. The DepEd also works with LGUs, NGOs and partners in the private sector, for other feeding programs outside of the SBFP. Proceeds of incomes from operations of school canteens are also allowed for school feeding [3] (Albert, 2015).

The first Food for Education (FFE) program launched by the DepEd in 1997 was a breakfast feeding program intended to address short-term hunger among public school children. Short-term hunger is a period of hunger experienced by children who have inadequate breakfast and/or walk long distances to school. Through the years DepEd's feeding program underwent changes in target beneficiaries, coverage, and service delivery mode and eventually shifted focus from merely addressing short-term hunger to that of addressing under nutrition among children enrolled in public elementary schools.

Food for education (FFE) programs had received renewed interest in developing countries in Asia, Africa and Latin America as a means for achieving Millennium Development Goals (MDG) and reducing hunger. School-feeding programs, in particular, emerged in many countries as a social safety net response to the 2008 global food and fuel crises [4]. In developing countries, these programs provide undernourished children or children from the poorer or poorest families with nutritious food in exchange for school participation. Many of the programs are implemented with a view to improving both education outcomes (e.g., school participation, school retention, learning achievement or cognitive development) and nutrition outcomes (e.g., food, energy consumption, anthropometry or micronutrient status).

In the Philippines, the feeding program of the DepEd was first launched in 1997 to address short-term hunger among public school children. Through the years, the program underwent changes in target beneficiaries, coverage, delivery mode, and focus (i.e., from addressing short-term hunger to that of addressing undernutrition). In 2006 the program, then called the Malusog na Simula, Yaman ng Bansa program and also known as the Food for School (FSP) program, had families as beneficiaries; it was addressing severe hunger among families in selected geographic areas. Each beneficiary family received a kilo of rice for each day that the family's pre-school or Grade 1 child attended class or attended the Day Care Center (DCC); the rice was given to the pupil after class to ensure school attendance. DepEd implemented the FSP for the beneficiaries enrolled in preschool or Grade1 in public elementary schools, while the Department of Social Welfare and development (DSWD) took charge of rice distribution in the DCCs.

The researcher, who also serves as the School-Based Feeding Program Coordinator for the pupils of at Sta. Cruz Integrated School, must prepare the pupils for their future which includes their physical health and academic performance. Hence, knowing the physical growth and academic performance of the students would greatly help the researcher in catering their needs in learning in all subject areas. This

prompted the researcher to identify the physical growth and academic performance of beneficiaries of School-Based Feeding Program in Sta. Maria District, Pangasinan.

OBJECTIVES OF THE STUDY

General:

The research aimed to achieve a better way of understanding the effectiveness of School-based Feeding Program in Sta. Maria, Pangasinan.

Specific:

To have capability in administering effective school-based feeding program in Sta. Maria, Pangasinan, to determine the level of academic performance and physical growth rate of the beneficiaries before and after the implementation and to provide an alternative methods or interventions on how to decrease the number of underweight beneficiaries.

THEORETICAL FRAMEWORK

According to Kazianga, Dewalque, & Alderman [5] there are three ways School Feeding Program can contribute to educational improvements for children. First, SFPs can increase children's enrollment and regular attendance at school by initiating parents to regularly send their children to school. Second, SFP can improve cognitive functions by increasing children's attention and concentration, by giving them access to better nutrition and reducing the prevalence of short-term hunger, which is also a major factor in the deterioration of a child's cognitive function. Third, SFPs will boost academic performance by achieving the above two goals.

First, school meals enhance nutrition by allowing kids to get more nutrients. Second, improved nutrition leads to improved educational results. The authors also disclose that since child nutrition, child health and schooling represent household preferences in the investment of human capital in the infant; they can correlate with each other without any direct causal association [6]. According to Neeser [7], children that don't eat don't learn. He also discusses that SFP can improve health by reducing morbidity and illness and hence attract children to school.

There are also arguments that stressed the impact of food determinants in Maslow's hierarchy of needs, the need or motivation for success will not influence a person's thoughts and actions before needs at the lower levels are fulfilled. According to Maslow, If their basic nutritional need is fulfilled, people cannot relax and pay attention to achieving academic achievement. He argues that "for the chronically and extremely hungry man as life itself, eating tends to be defined as such. Anything else is considered unimportant" Consequently, the cognitive mechanisms and behaviors associated with the more complex hierarchical tiers cannot be achieved; great academic success cannot be anticipated from students with lack of basic needs [8].

Woodhouse & Lamport [9], discussed that Improvements in the nutritional quality of student diets are associated with academically beneficial gains, but have not been linked to increased academic achievement repeatedly and causally. In general, however, it is clear that consistently eating sufficient quantities and varieties of nutrient-dense foods will improve the quality of children's diets and thus reduce the potential for malnutrition-related cognitive impairments.

The above discussions can establish a theoretical framework for the relationship of food with physical growth and academic performance.

This further indicates the existence of a causal relationship or at least a concomitant relationship between food with physical growth and academic performance. Abraham Maslow's need hierarchy also emphasized the contribution of food for the school performance of children such as achievement, concentration and paying attention.

.

MATERIALS AND METHODS

Descriptive research was used which includes grouping the data according to purposes based on a particular research methodologies & procedures. Observations, surveys & tests. The three parameters of research will help understand how descriptive research in general is similar to and its differences from others types of research. Unlike qualitative research, descriptive research may be more analytic. It often focuses on a particular variable or factor. Descriptive research may also operate on the basis of hypothesis often generated through previous, qualitative continuum. Finally, like qualitative research, descriptive research aims to gather data w/out any manipulation of the research context. In other words, descriptive research is also low on the control or manipulation of research context scale.

Sources of Data

Structured instruments were adopted and developed in order to accomplish this research study. A covering letter with a description of the purpose and the importance of the study was attached to the instruments. Respondents were assured of their anonymity all throughout the conduct of this research work.

The instruments used in this study were both created and adopted by the researcher himself.

Moreover, the instrument that gathered the profile of the respondents in terms of sex, age, body mass index before and after the implementation, and general weighted average before and after its implementation, frequency and percentage were used and was created by the researcher.

Additionally, the instrument that gathered the physical growth rate of the beneficiaries in the implementation of the School-Based Feeding Program has been adopted by the researcher from [10] Magic Foundation (2019) which included data such as height, weight and body mass index that were needed in the conduct of this study.

Clear instructions were directed to the respondents both orally and in writing of which the respondents have abided.

Data Gathering Procedure

Permission from the School Principals was sought to administer the instruments to the selected beneficiaries of School-based Feeding program for the past two school years.

Data such as names of the respondents and academic performance was also requested from the registrar of the schools in Sta. Maria District when the permission was granted.

Clear instructions were also given to the respondents both orally and in writing of which the respondents should abide.

All the data gathered using the different research instruments were analysed and interpreted using appropriate statistical tools.

Statistical Tool

Various modes of data treatment were employed to analyse all the data which were needed in this research study.

To answer the specific questions, the data derived from the research instruments comprised of the questionnaire that gathered the profile of the respondents and their level of physical growth and academic performance were properly collected, recorded tallied, and tabulated and were analysed and interpreted based on the guideline for interpretation. The statistical tools that were used in the treatment of the data gathered were the following:

For question number 1, that contained the profile of the respondents namely: sex, age, body mass index before and after the implementation, and general weighted average before and after its implementation, frequency and percent were used.

For question number 2, that entailed the physical growth rate of the beneficiaries, frequency, percent, mean, standard deviation and coefficient of variation were used.

For question number 3, that focused on the level of academic performance of the beneficiaries frequency, percent, mean, standard deviation and coefficient of variation were used.

For question number 4, that dealt on the significant difference in the physical growth and academic performance of the beneficiaries before and after the implementation of School-Based Feeding Program, mean, mean difference, degrees of freedom, standard error and p-value were used

For question number 5, that dispensed information about significant difference in the physical growth and academic performance of the beneficiaries according to sex and age, mean, mean difference, degrees of freedom standard error and p-value (significance) were used.

RESULTS AND DISCUSSION

This part dealt with the presentation of data gathered, their analyses and interpretation. It presents the answers to the specific questions posited in the investigation. Moreover, the data were presented in tables showing the profile of the respondents, the level of physical growth of the beneficiaries in the implementation of the School-Based Feeding Program, the level of academic performance of the beneficiaries before and after the implementation of the School-Based Feeding Program, the significant effect in the physical growth and academic performance of the beneficiaries after the implementation of School-Based Feeding Program, and the significant difference in the physical growth and academic performance of the beneficiaries according to sex and age.

Table 1 offers the frequency counts and percentage distribution of the profile of the SBFP beneficiaries in terms of sex, age, Body Mass Index before and after the implementation, and General Weighted Average before and after its implementation.

Sex. The table above shows that out of 75 respondents of this study, there were 41 or 54.7 percent male respondents and 34 or 45.3 percent female respondents.

Overall, the table shows that most of the respondents were male.

This corroborates with the study of [11]Arcelo (2013) when he found out that the Philippines is very accommodating of male students wherein 59.03 percent of enrollees in public higher education was male during the years 1996-1997.

Age. The table also reflects that out of 75 respondents, 34 or 45.3 percent were aged 9 to 10 years old, 22 or 29.3 percent were aged 11 to 12 years old, 16 or 21.3 percent were aged 8 and below, while 3 or 4.0 percent were aged 13-14 years old.

Overall, the table displays that most of the respondents were aged 9 to 10 years old.

Body Mass Index (Before). The table highlights that 75 or 100.0 percent of the respondents were all underweight before the implementation of school-based feeding program.

This finding is in line with the report of [12] Department of Education (DepEd) Nutrition Status Baseline Report for School Year (SY) 2015–2016, that there were about 1,845,687 severely wasted and wasted students from Kindergarten to Grade 6.

Body Mass Index (After). It can be observed from the table that 72 or 96.0 percent of the respondents were still underweight after the implementation of school-based feeding program. Meanwhile, 3 or 4.0 percent were already considered normal after the program's implementation.

Largely, most of the respondents were still considered underweight even after the implementation of the School-Based Feeding Program.

The result of this current study corroborates with the study conducted by [13] Yamaguchi and Takagi (2018) that the status of undernourished children remains unchanged.

General Weighted Average (Before). The table on the preceding page also shows that 90 and above (Oustanding) have 1 or 1.3 percent student in each grading scale, 14 or 18.7 percent attained an average ranging from 85 to 89 (Very Satisfactory), 30 or 40.0 percent of the students have grade between 80 and 84 (Satisfactory), 29 or 38.7 percent of the students obtained grade between 75 to 79 (Fairly Satisfactory), while both Below 75 (Did Not Meet Expectations).

Largely, most of the students were rated between 80 and 84 or Satisfactory Level.

General Weighted Average (After). Table 2 also clearly states that after the implementation of school-based feeding program, 35 or 46.7 percent of the students have grade between 80 and 84 (Satisfactory), 22 or 29.3 percent of the students obtained grade between 85 to 89 (Very Satisfactory), 12 or 16.0 percent attained an average ranging from 75 to 79 (Fairly Satisfactory), while 6 or 8.0 percent of the respondents had an average extending from 90 and above (Outstanding).

Overall, received grades between 80 and 84 or Satisfactory Level

Table 1. Profile of the School-Based Feeding Program Beneficiaries

Profile Variable	Category	Frequency	Percentage
Sex	Male	41	54.7
	Female	34	45.3
	Total	75	100.0
Age	8 and Below	16	21.3
	9 – 10	34	45.3
	11 – 12	22	29.3
	13 – 14	3	4.0
	Total	75	100.0
Body Mass Index (Before)	Underweight	75	100.0
	Normal	0	0.0
	Total	75	100.0
Body Mass Index (After)	Underweight	72	96.0
	Normal	3	4.0
	Total	75	100.0
General Weighted	90 and above	1	1.3

Average (Before)	85 – 89	14	18.7
	80 – 84	30	40.0
	75 – 79	29	38.7
	Below 75	1	1.3
	Total	75	100.0
General Weighted Average (After)	90 and Above	6	8.0
	85 – 89	22	29.3
	80 – 84	35	46.7
	75 – 79	12	16.0
	Below 75	0	0.0
	Total	75	100.0

.

LEVELS OF PHYSICAL GROWTH RATE AND ACADEMIC PERFORMANCE OF THE SCHOOL-BASED FEEDING PROGRAM BENEFICIARIES

The levels of physical growth rate and academic performance of the School-Based Feeding Program Beneficiaries in Sta. Maria District, Pangasinan were described in terms of their descriptive equivalent.

Under physical growth rate, there were three indicators which included height, weight and body mass index which were determined using an instrument adopted from Magic Foundation (2019). Meanwhile, for academic performance of the respondents, the Department of Education K to 12 Grading System was adopted as it was employed in the schools where the respondents were studying during the conduct of this study.

The results of the physical growth rate and academic performance of the beneficiaries in the implementation of the School-Based Feeding Program during the school years 2018-2019 and 2019-2020 were reported.

Table 2 reports the level of physical growth of the school-based feeding program beneficiaries.

Table 2. Level of Physical Growth of the SBFP Beneficiaries

Indicator	Category	Frequency	Percent	Mean	Stdv	CV
Height	.010 and below	11	14.7	0.02	.008	40
	.011 - .020	26	34.7			
	.021 - .030	34	45.3			
	.031 - .040	2	2.7			
	.041 and above	2	2.7			
Weight	0 - .10	13	17.3	0.18	0.08	44.44
	.11 - .20	41	54.7			
	.21 - .30	16	21.3			
	.31 - .40	4	5.3			

	.41 - .50	1	1.3			
Body Mass Index	0 - 5.0%	9	12.0	0.13	0.08	61.5
	5.1% - 10.0%	24	32.0			
	10.1% - 15.0%	15	20.0			
	15.1% - 20.0%	16	21.3			
	20.1% - 25.0%	6	8.0			
	25.1% - 30.0%	1	1.3			
	30.1% and above	4	5.3			

Height. It can be gleaned from the table on the previous page, that the level of physical growth of the SBFP beneficiaries in terms of height, 34 or 45.3 percent of the respondents increased height between 0.21 to 0.30 m, 26 or 34.7 percent got an increase of .011 to .020 m, 11 or 14.7 percent had an increase of 0.10 and below, while both increases of 0.31 to 0.40 m, and 0.41 and above were well received by 2 or 2.7 percent respondents. Meanwhile, the mean of the physical growth rate of the respondents was at 0.02, with a standard deviation of 0.008 and a coefficient variation of 40 percent.

Largely, most of the respondents augmented .021 - .030 meter in terms of height.

Weight. The table also discloses that in terms of weight, 41 or 54.7 percent got an increase of .11 to .20 kilogram,16 or 21.3 percent got an increase of .21 to .30, 13 or 17.3 percent had an increase in their weight at 0 - .10 kilogram, 4 or 5.3 percent increased their weight between .31 to .40 kilogram, while 1 or 1.3 percent augmented in terms of their weight between .41 to .50 kilogram. Consequently, the mean for the increase of weight of the respondents was at 0.18, with a standard deviation of 0.008 and a coefficient variation of 44.44 percent.

Overall, most of the students increased .11 to .20 kilogram with regards to their age.

Body Mass Index. It can be also inferred from the table that 24 or 32.0 percent of the respondents received an increase in terms of the body mass index between 5.1% to 10.0%, 16 or 21.3 percent increased between 15.1% to 20.0%, 15 or 20% augmented 10.1% to 15.0 % rate, 9 or 12.0 percent increased between 0 to 5.0% rate, 6 or 8.0 percent of the respondents increased their body mass index at the rate of 20.1% to 25.0%, 4 or 5.3 percent amplified their BMI between 30.1% and above, while 1 or 1.3 percent had an increase between 25.1% to 30.0%. Generally, most of the students received an increase in terms of the body mass index between 5.1% to 10.0%.

The figure below shows the Graph of the Body Mass Index of the Beneficiaries before and after the implementation of SBFP. The solid red dot are BMI of the respondents before the implementation and the solid black dot are the BMI after the implementation of SBFP.

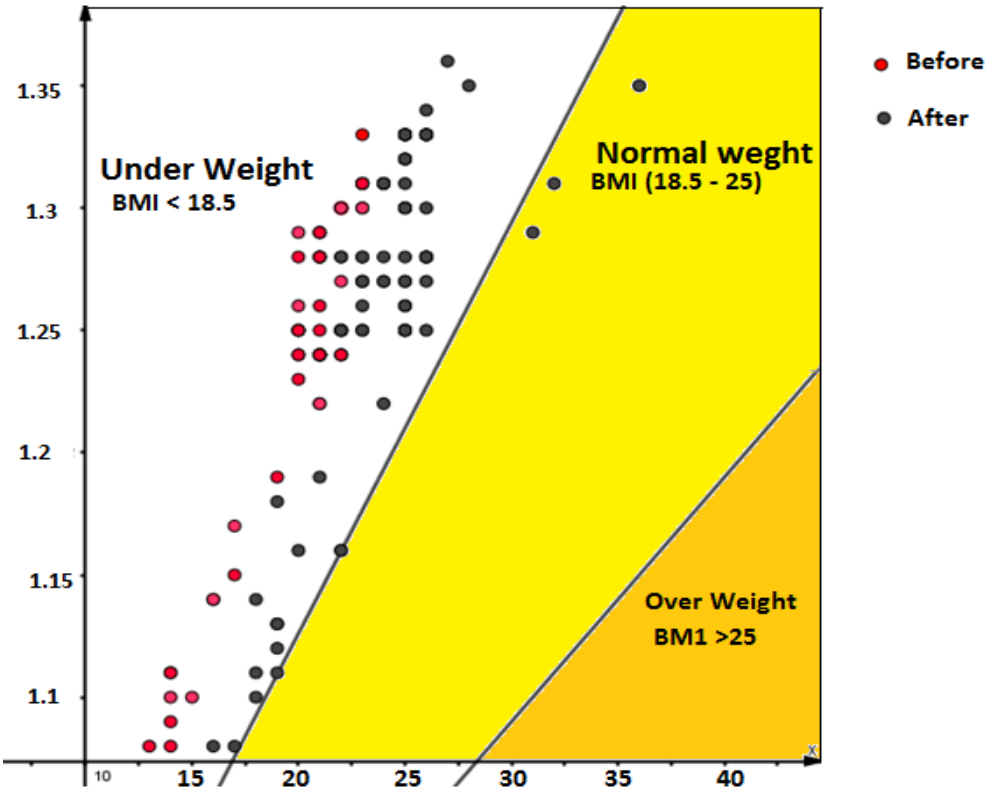

Figure 1. Graph of the Body Mass Index of the Beneficiaries

It could be gleaned on the figure that all the respondents are considered underweight before the implementation of SBFP as evident by the position of the red dots. However, after the implementation of SBFP, the dots were shifted to the right and there are some dots were went on the yellow region (Normal Weight) and they are slightly goes upward. This implies majority of the respondents were gained weight and they are became slightly taller than before. It also shows that students under 5.1 % to 10.0 % has the greatest increase when it comes to body mass index.

The succeeding table discusses the academic performance levels of the respondents of the study.

Table 3. Level of Academic Performance of the Beneficiaries

Indicators	Category	Frequency	Percent	Mean	Standard Deviation	Coefficient of Variation
General Weighted Average (Before)	90 and above (Outstanding)	1	1.3	81.35 (Satisfactory)	3.77	4.63
	85 – 89 (Very Satisfactory)	14	18.7			
	80 – 84 (Satisfactory)	30	40.0			
	75 – 79 (Fair)	29	38.7			
	Below 75 (Poor)	1	1.3			
	Total	75	100.0			
General Weighted Average (After)	90 and above (Outstanding)	6	8.0	83.24 (Satisfactory)	3.73	4.49
	85 – 89 (Very	22	29.3			

	Satisfactory)					
	80 – 84 (Satisfactory)	35	46.7			
	75 – 79 (Fair)	12	16.0			
	Total	75	100.0			

General Weighted Average (Before). The table explicates that 30 or 40.0 percent of the students received a rating between 80 and 84 (Satisfactory), 29 or 38.7 percent of the students obtained grade between 75 to 79 (Fairly Satisfactory), 14 or 18.7 percent attained an average ranging from 85 to 89 (Very Satisfactory), while both Below 75 (Did Not Meet Expectations) and 90 and above (Outstanding) have 1 or 1.3 percent student in each grading scale. Moreover, the mean of the respondents was satisfactory level of 81.35, with a standard deviation of 3.77 and coefficient variation of 4.63.

Largely, most of the students were rated between 80 and 84 or Satisfactory level.

General Weighted Average (After). Table 3 also reiterates that after the implementation of school-based feeding program, 35 or 46.7 percent of the students were graded between 80 and 84 (Satisfactory), 22 or 29.3 percent of the students obtained a rating between 85 to 89 (Very Satisfactory), 12 or 16.0 percent accomplished an average ranging from 75 to 79 (Fairly Satisfactory), while 6 or 8.0 percent of the respondents received an average extending from 90 and above (Outstanding). Consequently, the mean general weighted average of the respondents after the implementation of SBFP was at Satisfactory level of 83.24, with a standard deviation of 3.73 and coefficient variation of 4.49.

Overall, received grades between 80 and 84 or Satisfactory level.

TEST OF DIFFERENCE BETWEEN THE PHYSICAL GROWTH RATE AND ACADEMIC PERFORMANCE OF THE SCHOOL-BASED FEEDING PROGRAM BENEFICIARIES ACROSS THEIR PROFILE

The succeeding tables show the test of difference between the physical growth rate and academic performance of the school-based feeding program beneficiaries across their profile namely sex, age, body mass index before and after the implementation, and general weighted average before and after its implementation.

This was done to determine whether the abovementioned profile variables are significant with the indicators to physical growth rate namely height, weight and body mass index, and academic performance.

Table 4

Test of Difference in the Physical Growth and Academic Performance of the Beneficiaries

Indicator	Category	Mean	Mean Difference	Df	t	p-value
Height	Before	1.23	-0.02	74	-23.10	.000
	After	1.26				
Weight	Before	20.55	-3.43	74	-25.48	.000
	After	23.97				
BMI	Before	13.41	-1.70	74	-16.30	.000

	After	15.10				
Academic Performance	Before	81.3467	-1.89	74	-15.11	.000
	After	83.2400				

The table above shows that in terms of height, the mean before the implementation was at 1.23 and after its employment was at a mean of 1.26, with a mean difference of -0.02. Moreover, the computed t-value is -23.10 and p-value of .000, which entails that there is a significant difference between the height of the respondent before and after the implementation of SBFP.

Meanwhile, in terms of the weight of the respondents, it reflected a mean of 20.55 before the program's implementation and a mean of 23.97 after the respondents finished the program, a mean difference of -3.43, t- value of -25.48 and a p-value of 0.000, which means that there is significant difference on the weight of the respondents before and after the implementation.

On the other hand, the test of difference for the body mass index of the respondents projected a mean of 13.41 before the implementation and a mean of 15.10 after the program, with a mean difference of -1.70, t- value of -23.10 and p-value of .000, that projects to significant difference for both variables.

Lastly, in terms of the general weighted average, it employed a test of difference with a mean 81.3467 before implementing SBFP and a mean on 83.2400 after the joining the program, it also reflects a mean difference of -1.89, 74 degree of freedom, standard error of -15.11 and a p-value of 0.000, which reflects to significance at all.

Meanwhile, the succeeding tables reveal the test of difference in the physical growth and academic performance of the beneficiaries when group according to their sex.

The table below indicates the test of difference in the physical growth and academic performance of the beneficiaries when group according to their sex.

Table 5

Test of Difference in the Physical Growth and Academic Performance of the Beneficiaries when Group according to their Sex

Indicators		Sex	Mean	Mean Difference	Df	t	Sig.
Physical Growth	**Height**	Male	.0210	.002	73	1.716	.243
		Female	.0188				
	Weight	Male	.1801	.009	73	.501	.618
		Female	.1708				
	BMI	Male	.1320	.004	73	.222	.825
		Female	.1281				
Academic Performance	**GWA**	Male	83.5610	.70803	73	.816	.417
		Female	82.8529				

In terms of test of difference in the physical growth and academic performance of the beneficiaries when group according to the respondents' sex. In terms of physical grown, specifically height, males projected a mean of .0210 while females anticipated a mean of .0188, the mean difference for this indicator was at .002, t- value of 1.716 and a significance of .243, which is not significant at all.

On the other hand, still under physical growth, males showed a mean of .1801, females at .1708 mean for weight, with a mean difference of .009, 73 degree of freedom, .501 t- value and a significance of .618.

While for the Body Mass Index of the respondents, the male students estimated a mean of .1320 while females were at .1281, with a mean difference of .004, degree of freedom at 73, t- value of .222, and .825 level of significance.

Meanwhile, for the Grade Weight Average of the students, the males showed a higher mean of 83.5610 compared to females with a mean of 82.8529, the mean difference between the GWA of the students was very low at .70803, degree of freedom of 73, t- value of .816, and low significant value of .417.

This result corroborates with the study conducted by [14] Reyes (2018) when he proved that there was no significant difference on the perception of the respondents on the benefits under the School-Based Feeding Program at Holy Spirit Elementary School whey they are grouped according to age and sex

The table below indicates the test of difference in the physical growth and academic performance of the beneficiaries when group according to their age.

Table 8
Test of Difference in the Physical Growth and Academic Performance of the Beneficiaries when Group according to their Age

Indicators	Categories		Sum of Squares	Df	Mean Square	F	Sig.
Physical Growth	**Height**	Between Groups	.000	3	.000	.704	.553
		Within Groups	.005	71	.000		
		Total	.005	74			
	Weight	Between Groups	.197	3	.066	16.81**	.000
		Within Groups	.277	71	.004		
		Total	.474	74			
	BMI	Between Groups	.163	3	.054	14.658**	.000
		Within Groups	.264	71	.004		
		Total	.427	74			
Academic Performance	**GWA**	Between Groups	10.728	3	3.576	.249	.862
		Within Groups	1020.952	71	14.380		
		Total	1031.680	74			

**. The mean difference is significant at the 0.05 level.

It can be observed in table 8 that the significant values on the physical growth along weight and BMI is 0.000. This implies that the respondents weight and BMI are significant by different from each other when they are grouped according to their age. Table 9 reveals the age bracket which shows significantly higher in terms of physical growth along weight and BMI. However, the computed significant value along the Height is .553 which is obviously greater than 0.05. This implies that there is no significant difference on the Physical Growth along height when they are grouped according to their age.

It could be gleaned also in the table that there is no significant difference on the academic performance of the beneficiaries when they are grouped according to their age as supported by the computed significant value of .862 which is obviously greater than .05.

Table 6
Proposed Interventions that can help to improve the Feeding Program

Physical Growth Rate and

Academic Performance Intervention Plan
This plan provides strategies for improving the effectiveness of Feeding Program

			Evaluation	
Specific Goal	**Proposed Intervention(s)**	**Person(s) Responsible**	**Method (s)**	**Outcome (s)**
1.To improve the effectiveness of feeding program	1. Individual monitoring and follow up to all the beneficiaries 2.Connect with other agencies/ LGU's to ask support in conducting effective feeding program 3. Strict implementation of the program especially with age 8 and below to minimize the number of underweight on the higher level 4. Increase the budgetary allotment per beneficiary	1. Teacher 2. Beneficiaries 3. Parent 1.Government workers 2. Teacher 3. Principal 1. Teacher 2. Beneficiaries 3. Parent 1.Department of Budget and Management /Division	- Contract forms - Discipline -PROMOTE (e.g. health promotion) -MODIFY/ ADAPT (e.g. Environmental modification)	- Meet goal - Increase the weight, height and body mass index of the beneficiaries

Improving the effectiveness of the program. The following interventions may apply before, during and after the implementation of the program. We can ask a support to the LGU's or agencies in conducting effective feeding program. It is important to involve the community outside the school to fully implement the program. Strictly implementation especially with aged 8 and below to minimize the number of the underweight in both lower and higher level is confide. Individual monitoring and follow up regularly is highly recommended to keep an eye on the nutritional status of the beneficiaries.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the merits of the findings, the following conclusions are drawn:

1. Most of the respondents were male; prior the implementations of the school-based feeding program, all respondents were considered underweight, after its implementation most of the beneficiaries remained underweight.

2. There is poor physical growth rate in all variables namely: height, weight and body mass index (BMI).

3. Majority of the beneficiaries was at satisfactory level before and after the implementation of the school-based feeding program when it comes to the level of academic performance.

4. Feeding program has an effect on the physical growth and academic performance however it doesn't show big significant difference.

5. The level of physical growth and academic performance of the respondents are varied and not comparable across their profile variables which include sex and age.

Recommendations

Based on the conclusions drawn from the significant findings and conclusions of the study, the following recommendations are offered:

1.Individual monitoring and follow up should be done at home with the family support to extend the feeding program.

2. For the SBFP Coordinators, they should connect with other agencies/ linkages. Tap the support from the Rural Health Units and LGU's Participation of different stakeholders. Conducting of seminars to the parents of the beneficiaries for them to in light about the importance of having a good nutrition.

3. Schools-based feeding beneficiaries must undergo individual monitoring and strictly implementation of the school-based feeding program for better results especially to the students with age of 8 and below to minimize the number of underweight on the higher level.

4. For the School Heads, they should involve professional social workers at different levels of steps and structure to get technical support for further effect and quality of the service delivery of the program, they could also tap the help of stakeholders, donors and the community at large so as to enhance the efficiency and effectiveness of the program.

5. Budgetary allotment for School-Based Feeding Program must increase for at least 25 pesos per beneficiaries to support more nutritious food.

6. For future researchers, it is highly suggested that they include other variables that may have an impact on the level of physical growth and academic performance of the beneficiaries like level of quality education, instructional media, family follow-ups, educational facilities of the school, health status, and factors that may affect the program participation of the beneficiaries.

REFERENCES

[1] National Economic Development Authority (2017). The Philippines is a middle-income country in South East Asia, and is one of ten (10) South East Asian Nations Association (ASEAN) member countries

[2] Global Nutrition Report (2016). Improving nutrition, improving potential: Leaving no-one behind in the fight against malnutrition in all its forms. A Side event to the High Level Political Forum on July 19, 2016. Conference Room 5 at United Nations Headquarters, New York, USA.

[3] Albert (2015). The DepEd SBFP: Lasting for 100 to 120 days for beneficiary schools, aims to restore at least 70% of beneficiaries (from severely wasted) to normal nutritional status.

[4] Global Food and Fuel Crises (Bundy et al. 2009). Developing countries in Asia, Africa and Latin America as a means for achieving Millennium Development Goals (MDG) and reducing hunger.

[5] Kazianga, Dewalque, & Alderman (2009). Three ways School Feeding Program (SBFP) can contribute to educational improvements for children.

[6] Vermeersch and Kremer (2004). Improving children's nutrition through two links, school meals increase school attendance.

[7] Neeser (2012). Emphasize the Importance of Food for learning.

[8] Woodhouse & Lamport, (2012). Great academic success of students with lack of basic needs.

[9] Woodhouse, A. & Lamport, M. (2012). The relationship of food and academic performance: A preliminary examination of the factors of nutritional neuroscience, malnutrition and diet adequacy. Christian Perspectives in Education. Retrieved from: http://digitalcommons.liberty.edu/cpe/vol5/iss1/1.

[10] Magic Foundation (2019). Is Your Child Growing Normally? Retrieved from: https://www.magicfoundation.org/Is-My-Child-Growing/.

[11] Arcelo (2013). Philippines is very accommodating of male students wherein 59.03 percent of enrollees in public higher education was male during the years 1996-1997.

[12] Department of Education (DepEd) Nutrition Status Baseline Report for School Year (SY) 2015–2016.

[13] Yamaguchi, M. & Takagi, A. (2018). School-based Feeding Program for Undernourished Children in the Philippines. Japan Nutritional Diet. 76 (01).

[14] Reyes (2018) Perception of the respondents on the benefits under the School-Based Feeding Program at Holy Spirit Elementary School.