

# Nutritional Status of School-Based Feeding Program Beneficiaries and Their Academic Achievement: A Mixed Methods Study

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## Abstract

The purpose of this explanatory sequential mixed approach was to describe the strong association between learners' nutrition status through the School-Based Feeding Program and academic progress. Using researcher-made test questionnaires and a quantitative approach, their mean test score indicated a substantial association between the academic achievement of 41 SBFP beneficiaries and their nutritional status. In addition, the results of an in-depth interview and a universal sampling were used to choose eight participants for a qualitative inquiry that uncovered their experiences, difficulties, and insights regarding supervising the learners. This study shows that SBFP helped malnourished schoolchildren become more nutrient-dense and advance in their academic performance. The participants did, however, face challenges related to their students' inconsistent attendance, subpar performance, absences from class, reluctance to interact socially with their peers, lack of engagement, inattentiveness and alertness, poor retention, short attention span, low academic performance, and inadequate knowledge of proper nutrition. Overall, the nutritional status and academic achievement of SBFP beneficiaries are significantly related to each other.

*Keywords: nutritional status, school-based feeding program, academic performance, explanatory sequential mixed methods*

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## 1. Introduction

### The Problem and its Background

An important component of schoolchildren's general health and well-being is an appropriate and good diet. It facilitates pupils arriving at school ready to study. Inadequate nutrition is the main factor contributing to poor performance in school, and it also plays a part in other problems arising. According to research, undernourishment in school-age children raises the risk of high absence rates, early school dropouts, low student enrollment, and low achievement in the classroom (Zerga et al., 2022).

In underdeveloped nations like Jamaica, poor performance in education is a serious issue that is particularly prevalent. A significant contributing element to the situation could be poor nutrition, research has linked it to low attendance rates and subpar academic performance. Children who performed worse academically had worse nutrition than those who performed well (Simeon, 1988). Another study in Jamaica, claims that school feeding programs improve the education of SBFP's participants. They found that school lunch programs have enhanced several academic outcomes, such as student enrollment, attendance, dropout rates, attainment levels, repeat of grades, cognitive function, and classroom behavior. The study by Mohammed (2023), presented the relationships between school lunches and grade repetition, learning accomplishment, and school performance.

In Cagayan de Oro City, Philippines, 500 learners from Kindergarten to Grade 6 labeled as severely wasted and wasted pupils, became identified SBFP beneficiaries in Kauswagan Elementary School. They manifested poor nutritional status and low energy levels resulting in poor educational outcomes (Lago and Quirap, 2022).

In New Katipunan Elementary School, District of Maragusan West, Davao de Oro Division, the SBFP beneficiaries from Kindergarten to Grade 6 students demonstrated poor nutritional status, with small appearance, and low-energy actions that could lead to bad academic achievement. Based on the results of the Nutritional Status Report conducted at the beginning of the school year, 14 percent of the learners (55 out 384 pupils) belong to the severely wasted and wasted category, which is entitled to be beneficiaries of the SBFP of the current school year. Likewise, their pupil's poor academic achievement can be associated with pupils' tardiness, absenteeism, inattentiveness, and non-perception during class discussions and school activities. These observations motivated the researcher to examine the nutritional status of the SBFP beneficiaries and its effects on the learners' academic achievement and additionally determine whether the identified respondents' nutritional status significantly affects their academic achievement at school.

### Purpose of the Study

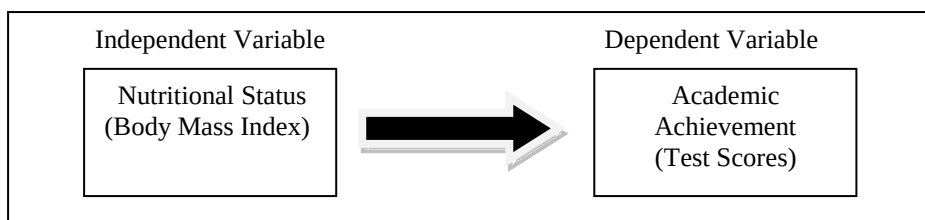
In the advent of the implementation of Department Order No. 31, series of 2021 also known as the Operational Guidelines of the Implementation of the School-Based Feeding Program, the department failed to establish evidence-based researches that somehow support the effects and relationship of the program to the nutritional status and academic achievement of the beneficiaries.

The purpose of this explanatory sequential mixed methods research will determine the significant relationship between the nutritional status of SBFP beneficiaries in terms of their Body Mass Index and their academic achievement in terms of the test scores obtained. This study aims to reveal the participants' lived experiences, challenges, and insights in dealing with the nutritional status and academic achievement of the learners as well as the unknown causes of the nutritional status- academic achievement-related problems of SBFP beneficiaries through an in-depth interview.

### Theoretical/Conceptual Framework

This study is anchored on a well-known theory of motivation- Abraham Maslow's Hierarchy of Needs. The theory states that a person's conduct is determined by a variety of basic to complex physiological and psychological needs. This suggests that people prioritize satisfying their basic needs before concentrating on their more complicated ones. This includes basic needs like nourishment, a place to live, affection, and self-worth. Maslow believed that these needs are similar to the senses and are essential for behavioural drive. Physiological needs are at the foundation of Maslow's hierarchy of needs, which has five levels (Kendra, 2022).

The conceptual framework of this study reflects the interplay of the independent variable, which is the nutritional status in terms of the Body Mass Index through the SBFP, and the dependent variable, the academic performance (test scores) of the learners. The researcher believes that if physiological needs like food are achieved, the learners are well motivated to attend classes and perform better at school. Further, the need for nutritional food will bring good health and high motivation on the part of the learners, thus making them more active participants in the educative process. Through the SBFP, the physical health of the learners improves, which is an advantage on their part as learners. If deprived of the need for nutritional food, the learners cannot perform better at school. They are weak and do not have a high motivation to learn.



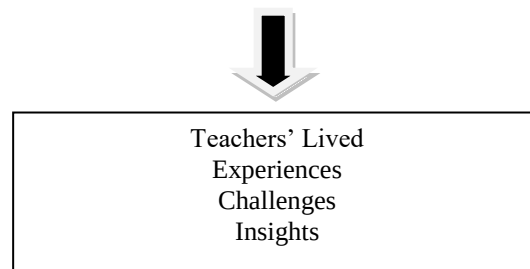


Figure 1. Conceptual Framework

**Statement of the Problem/Research Questions**

This study will aim to answer the following questions.

**Quantitative**

1. What is the nutritional status of the learners who are beneficiaries of the School-Based Feeding Program (SBFP) before the feeding program as reflected in their Body Mass Index (BMI)?
2. What is the nutritional status of the learners who are beneficiaries of SBFP after the feeding program as reflected in their Body Mass Index (BMI)?
3. What is the academic achievement of School-Based Feeding Program beneficiaries as reflected in their pretest?
4. What is the academic achievement of School-Based Feeding Program beneficiaries as reflected in their posttest?
5. Is there a significant difference between the nutritional status of School-Based Feeding Program beneficiaries before and after the SBFP?
6. Is there a significant difference between the pretest and posttest of the School-Based Feeding Program beneficiaries?
7. Is there a significant relationship between the nutritional status of School-Based Feeding Program beneficiaries and their academic achievement?

**The Null Hypotheses**

This study is guided by null hypotheses, which will be tested at a 0.05 level of significance.

HO<sub>1</sub> There is no significant difference between the nutritional status of School-Based Feeding Program beneficiaries before and after the SBFP.

HO<sub>2</sub> There is no significant difference between the pretest and posttest of the School-Based Feeding Program beneficiaries.

HO<sub>3</sub> There is no significant relationship between the nutritional status of School-Based Feeding Program beneficiaries and their academic achievement.

**Qualitative**

1. What are the experiences of the participants in the SBFP of the severely wasted and wasted learners?

2. What are the challenges encountered by the participants in the SBFP of the severely wasted and wasted learners?
3. What are the insights gained from the experiences of the teacher concerning the academic achievement of severely wasted and wasted pupils who are beneficiaries of the SBFP?

### Scope and Delimitation of the Study

For the quantitative phase, the scope of the study will focus on the identified SBFP beneficiaries who are Grade 6 learners from the eight public elementary schools in Maragusan West District for the school year 2023-2024. Concerning the independent variable, the researcher will utilize the individual records of the identified learners about their BMI before and after the feeding program, while in the dependent variable, the researcher will utilize the test scores obtained by the learners.

Furthermore, the qualitative data, universal sampling method is used to identify eight teachers as the informants in the qualitative phase. It likewise will explore the experiences and challenges of the teachers of the learners. It will also explore the insights of these teachers concerning the impact of the SBFP on the nutritional status of their learners and their academic achievement at school. The data for the qualitative phase is taken from the teacher informants through in-depth interviews (IDI).

### Significance of the Study

The following entities will benefit from the results of this study:

**Students.** The results of this study will motivate the students to consider the kind of food they have to take since many of them are not conscious of the right food to take. They will be informed that proper nutrition is not a matter of choosing expensive food. More often, it is less expensive and is abundant in minerals and vitamins essential for growth and development.

**Teachers.** The study's findings act to inspire teachers to continue the school feeding program since it is of great help to the learners who are classified as severely wasted and wasted.

**School.** The findings of this research serve as a guide for the school to continue to support the existing feeding program. Other plans may be introduced to improve the program.

**Parents and Guardians.** The outcome of the study will inform the parents and guardians that they must cooperate with the school authorities to implement the school-based feeding program religiously. Their cooperation and collaboration could inspire teachers and other stakeholders to support the school's feeding program.

**DepEd Officials.** The study's conclusion will encourage DepEd officials to continuously support the SBFP in every public school in the locality. The feeding program's impact on the learners' academic achievement indicates that all stakeholders will support such a program.

**Future Researchers.** The study's findings will provide the researchers with knowledge on how to improve the program's functionality. In addition, they will encourage further research into additional factors that would increase the study's scope.

## II. Methods

### Research Design

This study will utilize the explanatory sequential mixed methods design, a two-phase model (Creswell & Clark, 2011). Explanatory sequential-mixed methods is used in this study wherein the researcher will first conduct the quantitative phase using the individual records of the identified severely wasted and wasted learners, analyze, and interpret the results of the gathered data. The quantitative results are affirmed and explained in detail with the identified informants during the IDI. Because the qualitative data further explains the earlier quantitative data results, it is deemed explanatory. The researcher balances the drawbacks of employing each method by combining quantitative and qualitative research to obtain a wide and deep comprehension and corroboration (Creswell, 2014).

### Research Locale

This study will be conducted in the Municipality of Maragusan, Davao de Oro Province. It is considered a first-class municipality and the farthest municipality in the province. It was composed of 24 barangays. Its original name is San Mariano. Each barangay have a complete elementary school. Maragusan is divided into the Maragusan East District and the Maragusan West District. This study will be conducted in the eight public elementary schools in the Maragusan West District: Maragusan Central Elementary School (MCES), Mauswagon Elementary School (MES), New Panay Integrated School (NPIS), Bagong Silang Elementary School (BSES), New Katipunan Elementary School (NKES), Magcagong Elementary School, Saranga Elementary School (SES), and Mahayahay Elementary School.

### Research Respondents/Participants

For the quantitative study, universal sampling is used to identify the nine severely wasted and 32 wasted Grade 6 learners who are SBFP beneficiaries from the eight public elementary schools in Maragusan West District for the school year 2023-2024. Universal sampling is used to identify teacher informants for the qualitative phase. There is one teacher for each participating school. They are the class adviser or subject teachers of either severely wasted or wasted learners.

### Research Instruments

In this study, two different instruments will be employed. For the quantitative research, a test questionnaire created by the researcher will be used, and for the qualitative aspect of the study, a validated structured interview guide will be employed throughout the interview.

### Data Gathering Procedure

The following steps are followed in gathering the data:

First, the researcher will ensure that the study adhered to proper research protocols and submitted an accomplished application for Ethics Review. The paper undergo the ethics review process in which the ethical aspect of this paper was examined.

Second, the researcher seeks parental consent from the parents of the respondents and informed consent from the informants of the said study.

Third, seek approval from the office of the Schools Division Superintendent of the Department of Education Davao de Oro for conducting this research. The approved letter is promptly given to the office of the Public Schools District Supervisor, informing them that the research will be conducted in the schools under his or her supervision.

Finally, another letter is given to the school principals of Maragusan Central Elementary School, Mauswagon Elementary School, New Panay Integrated School, Bagong Silang Elementary School, New Katipunan Elementary School, Magcagong Elementary School, Saranga Elementary School, and Mahayahay Elementary School.

The distribution and administration of the test to the designated Grade 6 learners who were SBFP beneficiaries is personally assisted by the researcher.

### Data Analysis

The quantitative and the qualitative data were assessed individually in this study. The quantitative and qualitative results have been merged to plan an overall interpretation. The following tools were used for analyzing these two distinct data:

#### *Quantitative Analysis*

These statistical tools were used to identify the nutritional status (Body Mass Index) and academic achievement (Test Results) of the SBFP beneficiaries.

**Mean.** It was used to determine the mean score in the nutritional status and academic achievement of the Grade 6 learners who were beneficiaries of the SBFP in Maragusan West District. The mean score was provided with descriptive rating and interpretation to further identify the level of understanding of the respondents.

**Percentage.** It was used to determine the weighted competency level of the learners' academic achievement.

**Pearson r.** It was used to determine the relationship between the nutritional status of SBFP beneficiaries and their academic achievement.

#### *Qualitative Analysis*

Participants' responses were collected, and documented by writing them down and with the help of an audio recorder and then analyzed. These responses were divided into key themes that indicated the features of the circumstances at hand. In qualitative research, the triangulation approach was established to verify data from numerous sources for descriptions and themes. The researcher dug into every source of data and presented proof to back up a topic. This guarantees the accuracy of the study because the data is derived from multiple sources or persons. It drives the researcher to generate a report that is credible and accurate in this way (Creswell, 2012).

#### **Trustworthiness and Credibility**

The validity of the study was one of the key concerns of the researcher. The researcher assessed the trustworthiness of the research study based on the four requirements which are credibility, transferability, reliability, and confirmability.

**Credibility.** The researcher used an IDI to gather vital information from the teacher informants to support the findings of the quantitative phase of this investigation. The IDI was done with the eight teachers of the Grade 6 learners who are SBFP beneficiaries. To obtain more information, the teacher informants were given ample time to share vital information needed in this study. Furthermore, during the interview, the researcher observed how the participants would respond to the questions asked.

**Transferability.** The findings of the study were applied to a variety of situations and places. As a result, generalization in qualitative research is limited. Universal sampling was used to overcome the issue of transferability since specific information will be maximized to the context in which the collection of data occurred.

**Dependability.** The method that was used in this study is detailed for a future researcher to duplicate the work and obtain the same findings. As a result, the study design might be thought of as a "prototype model." This level of detail also helped readers to examine the extent to which suitable research techniques are followed.

**Confirmability.** The findings of this study were supported by others rather than the researcher's personal biases. While it is true that achieving impartiality is challenging due to the potential to get biased on the outcomes, the researcher will not entertain negative ideas about the information provided by the participants. The researcher's prejudices were avoided to have more accurate information about the study.

#### **Ethical Considerations**

The researcher followed ethical standards in conducting this study. These are as follows:

Respect for the participants is observed by the researcher and not take advantage of their weaknesses. To preserve confidentiality, confidence, and trust between the researcher and the participant, self-sufficiency is discouraged. Before performing the research, the researcher obtained permission from the Schools Division Superintendent in the Division of Davao de Oro, as well as authorization from the school principals of Maragusan Central Elementary School, Mauswagon Elementary School, New Panay Integrated School, Bagong Elementary School, New Katipunan Elementary Elementary School, Magcagong Elementary School, Saranga Elementary School, and Mahayahay Elementary School. The researcher will also obtained

permission from the parents of the respondents through an assent form.

Another key element to show respect for the informants during research is to obtain their informed consent. This is done so that the informants will be informed of the purpose of this study. To agree to participate in this study, they will sign an informed consent form. They are oriented about this study, especially on the purpose of this study. Their participation is recognized.

Privacy and confidentiality are observed and followed about the results and findings, which includes the protection of the informants' names. Their identities are concealed. Data Privacy 2012, completely and rigorously applies privacy regulations, therefore protecting the basic human right to privacy and communication while enabling the free flow of information to support, innovation and progress

The researcher protects the research informants. During the conduct of the study, the researcher see to it that everything is in order and the informants are free to withdraw from the interview if they are not interested.

### Statistical Treatment of Data

The information was correctly totaled and calculated. The statistical instruments were employed to guarantee the precision of the analyses and interpretations of the results:

**Frequency and Mean.** Counting the individual items and determining the frequency and mean of each response was done and organized the data into tabular forms. This tool was used for problems on the difference between the nutritional status of learners before and after the feeding program and the difference between the learners' academic achievement as reflected in their pretest and posttest.

**Percentage.** This was used to determine the weighted competency level of the learners' academic achievement.

**Pearson r.** This was used to determine the relationship between the nutritional status of School-Based Feeding Program beneficiaries and their academic achievement.

### III. Results

The mixed methods results section presents the conclusions drawn from the examination of both quantitative and qualitative databases. It is split into two sections. This section presents the results from a quantitative, descriptive assessment of 41 learners who were classified as SBFP beneficiaries. The assessment was conducted using a 20-item multiple-choice test created by the researcher and records of the learners' BMI from before and after the feeding program. The findings of the qualitative, phenomenological investigation, which included in-depth interviews with eight teachers as informants, are presented in the second section.

#### Quantitative

The researcher conducted an assessment to provide quantitative data on the academic achievement of the 41 Grade 6 SBFP beneficiaries of Maragusan West District through a 20-item multiple-choice researcher-made test questionnaire.

#### SBFP Beneficiaries' Nutritional Status in terms of Body Mass Index Before the Feeding Program

Presented in Table 2 is the mean score of the respondents' Nutritional Status in terms of Body Mass Index before the SBFP.

**Table 2**  
**Mean Score of Respondents BMI before the SBFP**

| Number of Respondents | Mean BMI | Nutritional Status |
|-----------------------|----------|--------------------|
| 41                    | 13.81    | Wasted             |

It shows in Table 2, that the Body Mass Index of nine severely wasted and 32 wasted learners who are the SBFP beneficiaries before the School-Based Feeding Program has a mean of 13.81.

### SBFP Beneficiaries' Nutritional Status in Terms of Body Mass Index after the Feeding Program

Presented in Table 3 is the mean score of the respondents' Body Mass Index after the SBFP.

**Table 3**  
**Mean Score of Respondents BMI after the SBFP**

| Number of Respondents | Mean BMI | Nutritional Status |
|-----------------------|----------|--------------------|
| 41                    | 14.50    | Normal             |

Table 3 shows that the Body Mass Index of nine severely wasted and 32 wasted learners who were SBFP beneficiaries before the School-Based Feeding Program has a mean of 14.50.

### Learners' Academic Achievement as Reflected in Their Pretest

Table 4 shows the mean of the learners' academic achievement as reflected in their pretest.

**Table 4**  
**Mean Test Score of Respondents' Pretest Academic Achievement**

| Academic Achievement | No. of Students | Mean | Class Proficiency | Competency level              |
|----------------------|-----------------|------|-------------------|-------------------------------|
| PRETEST              | 41              | 6.60 | 33%               | Did Not Meet the Expectations |

It is shown in Table 4, that the data that the mean of the learners' academic achievement before the feeding program is 6.60, with a class proficiency of 33%, which implies that they did not meet the expectations.

### Learners' Academic Achievement as Reflected in Their Posttest

Table 5 shows the mean of the learners' academic achievement as reflected in their post-test.

**Table 5**  
**Mean Test Score of Respondents Posttest Academic Achievement**

| Academic Achievement | No. of Students | Mean | Class Proficiency | Competency level              |
|----------------------|-----------------|------|-------------------|-------------------------------|
| POSTTEST             | 41              | 8.65 | 42.5%             | Did Not Meet the Expectations |

Table 5 reveals the mean of the learners' academic achievement after the feeding program is 8.65, with a class proficiency of 42.5 %, which implies that they did not meet the expectations.

### Significant Difference between the Beneficiaries' Nutritional Status in terms of Body Mass Index Before and After the SBFP

Presented in Table 6 is the Independent t-test between the BMI of the SBFP beneficiaries before and after the feeding program.

**Table 6**  
**Significant Difference between the Respondents' BMI before and after the SBFP**



|                                | Mean | t-value | p-value | Remarks     |
|--------------------------------|------|---------|---------|-------------|
| BMI Before the Feeding Program | 13.8 | -4.642  | 0.000   | Significant |
| BMI After the Feeding Program  | 15.0 |         |         |             |

Based on the average scores in Table 6, it can be observed that there is a noteworthy distinction in the students' BMI before and after the SBFP, suggesting that the students' nutritional status has improved. Before the feeding program, the body mass index was 13.8; after the feeding program, the mean was 15.0, with a t-value of -4.642. Significantly, the p-value is 0.000.

### **Significant Difference between the Learners' Academic Achievement as Reflected in their Pretest and Posttest**

Presented in Table 7 is the t-test result between the academic achievement of the SBFP beneficiaries' pretest and posttest.

**Table 7**  
**Significant Difference between the Respondents' Pretest and Posttest Academic Achievement**

| Academic Achievement | Mean | t-value | p-value | Remarks     |
|----------------------|------|---------|---------|-------------|
| Pretest              | 6.6  | -13.382 | 0.000   | Significant |
| Posttest             | 8.65 |         |         |             |

Based on the results, it shows that there is a significant difference between the who are the SBFP beneficiaries' pretest and posttest means. The pretest mean is 6.6, the posttest mean is 8.65, the t-value is -13.382, and the p-value is 0.000, significant.

### **Qualitative**

This section presents the responses to the research questions that explored the lived experiences, challenges, and insights of the classroom or subject teachers of the SBFP beneficiaries in Maragusan West District about their learners' nutritional status and academic achievement in school.

### **What are the experiences of the participants in the School-Based Feeding Program of the severely wasted and wasted learners?**

#### **Experiences in Dealing with SBFP Beneficiaries**

The themes in this section were generated from the specific research question 1.1, 'What are your experiences in dealing with your severely wasted and wasted pupils who are beneficiaries of the SBFP?' Six emerging themes elaborate their views on the SBFP.

These six themes generated from the views of the informants along with the verbatim statements are further emphasized as follows: motivated to be in school, students behaving and performing well, not attending classes regularly, not performing well and skipping school, distractive to classes, hesitant to mingle with other learners and need to understand their situations.

#### **Experiences of Informants with Learner's Academic Performance**

This section presents the results to the specific research question 1.2 How do you describe your experiences about your learner's academic performance or achievement?' under the 1<sup>st</sup> major research question 'What are the experiences of the participants in the SBFP of the severely wasted and wasted learners?' The following themes served as results, which were: doing good in school, low academic

performance, not participative in the classroom activities, motivated to do well in school, and majority having low performance.

### **Class Interactions of SBFP Beneficiaries**

This section presents the results to the specific research question 1.3 How do your severely wasted and wasted learners interact during class discussions and activities in school?’ under the 1<sup>st</sup> major research question ‘What are the experiences of the participants in the SBFP of the severely wasted and wasted learners?’ The following themes served as results, which were: not quite participative, active and participative, and not alert and inattentive.

## **What are the challenges encountered by the participants in the School-Based Feeding Program of the severely wasted and wasted learners?**

### **Challenges Encountered in Dealing with SBFP Beneficiaries**

The themes derived from the responses of the research informants to the specific research 2.1 ‘What are the challenges encountered by the participants in dealing with your severely wasted and wasted learners who are beneficiaries of the SBFP?’ are presented in this section. The themes were skipping classes, challenges in simplifying lessons for them, limited knowledge of proper nutrition, problems with time management, support from parents and community, and students' lack of retention.

### **Difficulties Encountered**

This section presents the results to the specific question 2.2 ‘What difficulties did you encounter being their classroom teacher?’ After subjecting the responses to content analysis, the following themes were drawn: short attention span, no proper nutrition, problem with time management, problem with giving instruction, just on their absences, and addressing student absences.

### **Effect of Challenges to Learner’s Academic Achievement**

This section presents the results to the specific question 2.3 ‘How do those challenges and difficulties affect the learner’s academic achievement?’ under the major research question 2 ‘What are the challenges encountered by the participants in the SBFP of the severely wasted and wasted learners?’. After subjecting the responses to content analysis, the following themes were drawn: low academic performance, students doing well in class, problems catching up on lessons, hindrance to learning opportunities, and unable to answer quizzes.

### **Ways Used to Address Challenges Encountered**

The essential themes in this section were generated from the specific research question 2.4, ‘How do you address those challenges and difficulties you encountered?’ The themes elaborate the ways to address the challenges encountered by the participants. The themes are the following: remind students to practice healthy lifestyles, communicate with pupils and parents, provide activities to students, understand their situation, practice inclusive classroom environment, monitor health conditions, share extra food for them, and monitor pupils' class participation.

## **What are the insights gained from the experiences of the teacher concerning the academic achievement of severely wasted and wasted pupils who are beneficiaries of the School-Based Feeding Program?**

### **Insights Gained as Teachers of SBFP Beneficiaries**

In this section, the themes created were from the responses to specific research question 3.1, ‘What insights did you get from your experiences as a teacher of severely wasted and wasted pupils who are beneficiaries of School-Based Feeding Program?’ The following were the themes: health status not affecting performance in school, malnutrition affecting pupils’ attendance, malnutrition impacting pupils’ performance, designating somebody to focus on health concerns, a healthy body means a healthy mind, the critical role of nutrition to one’s well- being and School-Based Feeding Program good for students.

### **Positive Effects of School-Based Feeding Program to Academic Achievement**

Below is the presentation of the five essential themes generated from the responses to the last research

question 3.2, 'What are the positive effects of a School-Based Feeding Program on the academic achievement of the severely wasted and wasted pupils?' The themes generated from the responses were: improvement of pupils' health and performance, improvement of nutritional status of pupils, contributing to better learning outcomes, improvement of pupil's academic performance, and pupils' motivation to go to school.

#### **IV. Discussions and Conclusions**

This chapter summarizes the findings, discussions, and implications of the research that looked for elementary school teachers' lived experiences, challenges, and insights regarding the relationship between the nutritional status through the School-Based Feeding Program and academic achievement of SBFP beneficiaries in the Maragusan West district of Davao de Oro Division.

##### **Discussions**

The interpretation of the explanatory sequential approach is typically written in the study's discussion section. The chapter includes the results of the descriptive quantitative data followed by the qualitative data to understand the institution's public relations level better.

##### **Quantitative Phase**

Mean Scores and Descriptive Ratings with Interpretation were used to interpret the quantitative data. The following results were based on the data collected and the analyses through appropriate statistical tools.

##### **Nutritional Status Before and After the SBFP**

The mean score of the learners' nutritional status as reflected in their Body Mass Index before the School-Based Feeding Program is 13.81, and the mean score of the learners' nutritional status as reflected in their Body Mass Index after the SBFP is 14.50. These results show that the SBFP beneficiaries increased their Body Mass Index at the end of the 120 feeding days. There is a significant difference between the Body Mass Index before and after the SBFP, with a t-value of -4.642 and a p-value of 0.000.

This supports the study Bouterakos et al. (2022) found that school-feeding initiatives could lower the prevalence of anemia in young girls and primary school-aged children and increase overall nutritional status. Moreover, Bilbar's (2020) study says that school feeding programs help people cope with malnutrition.

Based on Aliyar et al. (2015), as cited by Drake et al. (2017), school supplementary feeding programs, which aim to feed malnourished children and enhance their health, are one strategy to combat child undernutrition. The goals of school feeding programs are to end hunger and prevent malnutrition.

##### **Academic Achievement Before and After the SBFP**

The mean score of the learners' academic achievement as reflected in their Pretest is 6.60. The competency level of the learners needed to meet the expectation of 33% class proficiency. The mean score of the learners' academic achievement as reflected in their Pretest is 8.65. The competency level of the learners needed to meet the expectation of 42.5% class proficiency. With a t-value of -13.382 and a p-value of 0.000, the results demonstrate a substantial difference between the learners' academic achievement as indicated by their Pretest and posttest. Even with the notable variation, the modest improvement in academic achievement fell short of DepEd's expectations.

This supports the study of Alcuizar (2016), who stated that appropriate food consumption is the most important factor influencing children's academic success. A student who eats healthily can concentrate better, leading to improved academic performance (Acharya et al., 2019; Okafor et al., 2020). In addition, the study of Sarma et al. (2013) demonstrated the importance of nutritional status influencing children's academic performance. The study above found that compared to youngsters of normal weight, those underweight, stunted, or suffering from undernutrition performed much worse academically.

##### **Significant Relationship between Nutritional Status through SBFP and Academic Achievement**

According to Katoch (2012), children who eat a healthy, balanced diet have better brain function, maximized cognitive capacities, and improved academic achievement. As stated by Ghosh et al. (2013) and Olanian et al. (2012), a strong correlation exists between a child's performance in school and their level of malnutrition, meaning that well-nourished children do better than undernourished children.

Additionally, according to Agujar et al. (2020), there is evidence that several common health issues and diets impact student attendance at school and academic performance. Higher cognitive test scores and greater academic performance were linked to both a better dietary foundation and a more recent nutritional state. It was discovered that nutritionally challenged students enroll later or leave school earlier than their peers who follow a normal diet. Students who eat well do better academically. According to health standards, children who eat the right meals respond and function more intellectually when they do so physically (Qureshi et al., 2020).

### **Qualitative Phase**

This section includes the study's presentations, which aimed to investigate the participants' experiences, difficulties, and insights regarding the important connection between the academic success of the learners and their nutritional status through the school-based feeding program.

The findings of the research revealed that:

Food fosters human connections and has a profound effect on young children's physical, social, and emotional development (Wallace et al., 2020). Food availability has the potential to result in extremely substantial improvements because research indicates that it can improve children's cognitive abilities and foster more critical, creative, and productive thought processes.

In dealing with SBFP beneficiaries, students are more likely motivated to be in school and attend classes because of the school-based feeding program, according to Assefa (2023). SBFP is one of the main elements in encouraging kids to attend class. This indicates that students' drive to attend classes and be in school is positively impacted by the motivation of the said feeding program.

In dealing with the SBFP beneficiaries, teachers are challenged to improve students' nutritional status, to get their attention to class discussion, and to master the lessons taught. The study by Wanjohi (2010) discovered that inadequate food and an unbalanced diet were the main contributors to childhood malnutrition. A bad diet harms children's cognitive development (Opoola et al., 2016; Dey & Nath, 2017).

Hunger jeopardizes schoolchildren's growth, education, and prospects (Cogan, 2021). According to new studies by Khan et al. (2020), one of the main causes of schoolchildren's low academic performance is their poor nutritional status. Participants revealed that severely wasted learners do not participate in classroom activities, and most perform poorly. Schoolchildren who are severely malnourished have slow intellectual development, according to NesaPriya and Premraj, 2017. Undernutrition harms children's academic achievement (Asmare et al., 2018).

A child's performance is significantly impacted by inadequate nutrition; frequently, this results in the child being weak and not paying enough attention in class (Groce et al., 2014). Learners with a short attention span may find it challenging to concentrate on a certain topic for extended periods without getting quickly sidetracked. A child must have a healthy diet to develop, grow, study, play, and engage in society according to Govender et al. (2021). When severely wasted and wasted learners adopt SBFP, their classroom interactions become more engaged and collaborative. A student who eats healthily can concentrate better, leading to improved academic performance (Acharya et al., 2019; Okafor et al., 2020).

Students' academic achievement is significantly impacted by teachers' efficient use of their time management skills (Ayodele & Oyewole, 2012; Ayodele & Abiodun, 2008). Teachers can learn about the well-being of their pupils. While a teacher cannot control all elements affecting the academic achievement of a pupil, building strong relationships with kids and their families can help create a partnership to promote health. Moreover, teachers have to monitor pupils' class participation as one way to address difficulties in the academic performance of severely wasted and wasted pupils. They need to make efforts to monitor class participation to enable teachers to analyze students' performance levels and their progress throughout the entire school year.

To prevent malnutrition and enhance children's well-being, parents and educators working together can implement policies, environmental supports, and nutrition instruction (Ward & Vaughn, 2019).

SBFP had a noteworthy effect on students' academic achievement. The study backs up the claim that

providing food to students during school hours improves their attendance (Maijo 2018). Additionally, it enhance students' academic performance and nutritional status. By providing nutritious food packs to severely wasted and wasted learner, there is an improvement in their health condition and participation in school (Dari et al., 2023). It increases enrollment, the fact that breakfast significantly improves children's short-term retention and attention span, and the potential to reduce or avoid malnutrition according to McEwan (2012).

### **Convergence of Data**

By looking at the scores in the 20-item researcher-made test questionnaires for English, Mathematics, Science, and Filipino, the academic achievement of the 41 SBFP beneficiaries individually manifested an increase in their academic achievement except for those who got low scores. The 6.60 mean score during the Pretest to the 8.65 mean gained score of the 41 learners in the posttest posttest signifies that they have manifested progress in their academic achievement.

The teacher-informants enumerated the experiences, challenges, and insights gained in dealing with the learners' nutritional status and academic achievement.

The conclusion of the quantitative investigation may be explained using the qualitative data or vice versa. Stated differently, the informants' experiences and difficulties faced when dealing with SBFP beneficiaries may justify the test results.

This means that the significant relationship between the learners' nutritional status and academic achievement is due to the experiences, challenges, and insights gained in dealing with the SBFP beneficiaries before and after the SBFP.

The divergence or convergence of data may have been visible if the quantitative instrument is specified and categorized based on the structured themes from the qualitative approach.

### **Implications for Practice**

Based on the findings of the study, the following implications for practice are offered.

*On the Experiences in Dealing with SBFP Beneficiaries.* It can be reckoned that being motivated to be in school, students behaving and performing well, not attending classes regularly, not performing and always skipping school, being distractive to classes, hesitant to mingle with other learners, and need to understand their situation were the experiences of the participants in dealing with SBFP beneficiaries. SBFP is one of the main elements that encourage kids to attend class. This indicates that students' drive to attend classes and be in school is positively impacted by the motivation of the said feeding program. The need for teachers, designated as the SBFP Focal Persons, must comprehend the circumstances of their students despite finding this feeding program to be disruptive to their classroom teaching duties. It is important to understand that students who receive the SBFP exhibit varying levels of nutritional status and health concerns.

*On the Experiences of Informant with Learner's Academic Performance.* As stated in the study's findings, the experiences of informants with learners' academic performance were doing good in school, low academic performance, not participating in classroom activities, motivation to do well in school, and the majority having low performance. There are various experiences, such as some learners who are beneficiaries of SBFP are doing well in school activities and class discussions regardless of their nutritional status, but the majority of the kids perform poorly academically. Most of the children who are malnourished have slow intellectual development, resulting in low academic performance and participation in classroom activities. However, they become active and can carry out assigned responsibilities because of the feeding program. Because of this, it's about time to implement the SBFP continuously rather than the scheduled 120 days to uplift the academic performance of pupils. As well as to examine the reasons why some of the malnourished pupils can still perform well despite their nutrition condition.

*On the Class Interactions of SBFP Beneficiaries.* It can be considered that SBFP beneficiaries demonstrate various behaviors during class interactions, such as not being quite participative, active, participative, alert, and inattentive. According to the participants, severely wasted and wasted children rarely

engage fully in class discussions or activities. These children take part with other students in the classroom less well than children with normal nutritional status. Before receiving the SBFP, children were unfocused and unresponsive. When severely wasted and wasted learners adopt SBFP, their classroom interactions become more engaged and collaborative. To ensure the class interaction of malnourished children, at home or in school, they have to be given, receive, and eat wholesome and healthy meal packs for them to be able to concentrate better, have better brain function, maximize cognitive capacities, which later on will lead to improved academic performance.

*On the Challenges Encountered in Dealing with SBFP Beneficiaries.* Indeed, skipping classes, simplifying lessons for them, limited knowledge of proper nutrition, the problem with time management, support from parents and community, students' lack of retention, and improving their nutritional status were the challenges encountered in dealing with the severely wasted and wasted pupils. The findings implied that teachers have to work hard to develop students who can appropriately store information for subsequent use throughout their teaching careers. Teachers have to contest to simplify lessons for SBFP beneficiaries. Department of Education has to remove the ancillary task of teachers not related to teaching so that they can focus on instilling enthusiasm for learning in every student. Increasing collaboration among parents, educators, and other stakeholders will encourage the enhancement of children's health and nutrition. Thus, improving their nutritional status is key to getting their attention to class discussion and later on for them to master the lessons taught to them.

*On the Difficulties Encountered.* Malnourished learners have short attention spans, which may make it challenging for them to concentrate on a certain topic for extended periods without being quickly sidetracked. They also have learning difficulties in reading, writing, speaking, listening, and viewing, have no self-discipline, and can hardly understand given instructions. It would be expected that teachers must modify lessons using various teaching methods and strategies to address these learning issues, provide clear instructions, and eliminate the barriers that hinder pupils from going to school. In this case, providing meals through SBFP may ensure children refrain from missing school. Teachers must also practice proper time management between teaching and other school designations to eliminate learning barriers that hinder pupils' learning opportunities.

*On the Effect of Challenges to Learner's Academic Achievement.* The findings implied that teachers must monitor their students and reach out to them. Students, in the same manner, need to communicate to teachers and classmates about the lessons missed due to absences. Teachers have to make sure to allocate time for monitoring pupils and recording their progress as they work toward their learning and development objectives. If possible, teachers have to make a schedule for how frequently they check in on the advancement of particular learning objectives of the students.

*On the Ways Used to Address Challenges Encountered.* Findings have shown that reminding students to practice healthy lifestyles, communicate with pupils and parents, provide activities to students, practice an inclusive classroom environment, monitor health conditions, share extra food with them, and monitor pupils' class participation are the ways used to address the challenges encountered in dealing with severely wasted and wasted learners. Teachers must understand pupils' situation to provide the appropriate learning environment, which is conducive to learning- a learning environment that recognizes and celebrates differences among learners in the classroom because every learner deserves to experience and learn in a classroom environment that can help develop and improve his nutritional status as well as their skills.

In addition, in the classroom, teachers must remind the learners to remember, practice, and promote healthy habits. The best decision pupils make is to choose a healthy lifestyle not just to become healthy but also to strengthen their academic performance. As teachers, it is necessary to monitor pupil's class participation as one way to address difficulties in the academic performance of severely wasted and wasted pupils. They need to make efforts to monitor class participation to analyze students' performance levels and their progress throughout the entire school year. In the implementation of SBFP, teachers are tasked to monitor the nutritional status of their learners. Teachers who share meals with their pupils is a voluntary act



that supports the Department of Education SBFP.

*On the Insights Gained as Teachers of SBFP Beneficiaries.* The insights or lessons gained by participants of SBFP beneficiaries is that for some learners, health status does not affect performance in school; most of them reveal that malnutrition affects pupils' attendance, malnutrition impacts pupils' performance, and it is way better to designate somebody to focus on health concerns. However, to assist students' academic, mental, and physical well-being, teachers are essential. The findings showed teachers also realized that a healthy body means a healthy mind and the critical role of nutrition in one's well-being. It can affect pupils learning energy level, concentration, ability, and mood towards learning. SBFP helps in promoting sustainable energy and stability so learners can learn well. Teachers of SBFP beneficiaries gained this insight that SBFP is good for students. It is beneficial to the nutritional status of every learner. By bringing nutritious foods to every school, no children are left hungry. Teachers gained insights that teachers cannot control all elements affecting the academic achievement of a pupil, including malnutrition due to poverty and family size, but teachers can build strong relationships with kids and their families, which can help create a partnership to promote health.

*On the Positive effects of School-Based Feeding Program to Academic Achievement.* As pointed out by the participants, the positive effects of SBFP on the academic achievement of SBFP beneficiaries are improvement of pupils' health and performance, improvement of nutritional status of pupils, contribution to better learning outcomes, improvement of pupil's academic performance, and pupils motivated to go to school. In other words, the teachers learned that SBFP contributes to the improvement of pupils' health and performance. It improves pupils' abilities to learn, thrive, and realize their full potential. It increases pupils' attendance rate in school and improves their total well-being.

### Concluding Remarks

The SBFP is significantly related to the nutritional status in terms of the BMI of the SBFP beneficiaries. In the same manner, the learners' BMI is significantly related to their academic achievement. From the data analysis, most of the learners who undergo the said feeding program increase their BMI. Moreover, the data reveals that most of the learners get a higher score in their posttest than in their pretest. It means that their academic achievement improves when their BMI improves.

Often, teachers face challenges and difficulties in dealing with SBFP beneficiaries regarding their nutritional status and academic achievement. To compensate for all of those, teachers have to understand and monitor pupils' situation that affects their nutritional status, participate in and provide additional and voluntary help towards the SBFP goal, create various learning activities appropriate and attainable by the malnourish children, communicate with pupils and parents concerning nutritional status and academic achievement. Build a harmonious relationship between the school, parents, pupils, and the community towards providing nutritious meals to pupils in need of alleviating their nutritional status and academic achievement.

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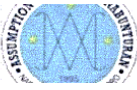
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## Appendix

### A.1. Endorsement Letter



**ASSUMPTION COLLEGE OF NABUNTURAN**  
Nabunturan, Davao de Oro

20 October 2023

**DR. CRISTY C. EPE, CESO V**  
Schools Division Superintendent  
Office of the Schools Division Superintendent  
Division of Davao de Oro  
Cabidanan, Nabunturan, Davao de  
Oro



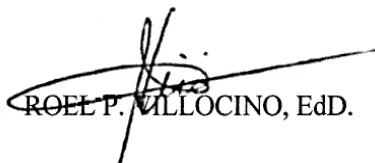
MADAM:

One of your teachers in the person of **MS. MAE ANNE A. LAGANG**, who is connected with the **Saranga Elementary School**, Sitio Saranga, Poblacion, Maragusan, Davao De Oro is our student in the Graduate Studies. Motivated by her desire to finish the Master's Degree, she is currently working on her thesis "**School-Based Feeding Program and Academic Achievement of Learners: A Mixed Study Methods**". Taking cognizance of the nature and scope of the study, the research committee did not see any implications inimical to the vision and thrust of the Division Office and of the Department of Education in general. Nonetheless, the result of the study might even be beneficial to people who have stakes in the educative process.

The undersigned, through the Graduate Studies Department, is making this **endorsement** for said student to embark on the subject she intends to explore for her thesis as partial fulfillment of the requirements leading to the degree Master of Arts in Education Major in Educational Administration. As Assumption College of Nabunturan envisions for the overall professional development of its students, the undersigned hopes this endorsement merits it.

Anticipating on your positive response to this matter, I

am Very truly yours,

  
ROEL P. VILLOCINO, EdD.

## A.2. Approval Letter from the Schools Division Superintendent



Republic of the Philippines  
**Department of Education**  
 REGION XI  
**SCHOOLS DIVISION OF DAVAO DE ORO**

Office of the Schools Division  
 Superintendent

November 9, 2023

**MAE ANNE A. LAGANG**

Researcher  
 Assumption College of Nabunturan  
 Nabunturan, Davao de Oro

Dear **Ms. Lagang:**

This has reference to your letter requesting permission to conduct a study to the selected public schools in the Davao de Oro Division to gather data for your Thesis entitled "School-based Feeding Program and Academic Achievement of Learners: A Mixed Study Method".

It is informed that this Office has no objection to your request provided that the following requirements are properly complied with, to wit:

1. The endeavor shall be consulted with the Section Head/ School Head of the school where you intend to conduct your study at least two weeks ahead to ensure that no classes/activities will be disrupted;
2. Strict adherence to the Inter-Agency Task Force (IATF) COVID-19 protocols and health guidelines as implemented by this Office;
3. No instructional time shall be utilized for the purpose;
4. An Action Research shall be conducted as an upshot of this study;
5. The results and recommendations shall be submitted in hardcopy immediately and to be discussed with the school head concerned for consideration on their plan of action.

It is advised that a copy of the research study in its final form shall be submitted to this Office upon completion.

Truly yours,



**CRISTY C. EPE**

*Schools Division Superintendent*

PN: 11092023-209



Address: Capitol Complex, Brgy. Cabidanan, Nabunturan, Davao de Oro  
 Contact No. 0951-387-1728 (TNT); 0915-399-7779 (Globe)  
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 Website: www.depeddavaodeoro.ph

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| Effectivity    | 09.12.22    | Page | 1 of 1 |

*A.3. Request Letter to the Public Schools District Supervisor*

March 17, 2024

**AZUCENA L. TEVES, PhD**  
Public Schools District Supervisor  
Maragusan West District  
Poblacion, Maragusan, Davao de Oro

Dear Mrs. Teves,

A blessed day!

I am a student at the Graduate School of Assumption College of Nabunturan who plans to conduct a study entitled, "Nutritional Status of School-Based Feeding Beneficiaries and Their Academic Achievement: A Mixed Methods Study" in your district. I have chosen 32 severely wasted and 9 wasted grade 6 learners officially enrolled in Maragusan West District.

The respective schools are as follows:

1. Maragusan Central Elementary School
2. Mauswagon ES
3. New Panay IS
4. Bagong Silang ES
5. New Katipunan ES
6. Magcagong ES
7. Saranga ES
8. Mahayahay ES

In addition, I would also include their respective School- Based Feeding Focal Person and grade 6 teacher as respondents of my study. The students in my study will be given test questionnaires and will answer via face-to-face modality.

In line with this, I would like to ask permission for the conduct of the study to the identified learners and teacher-coordinators. Rest assured that the data that I will gather will be solely used for the purpose of this academic endeavor.

Thank you so much for the support and understanding.

God bless you abundantly.

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