

Body Mass Index, Eating Habits and Physical Activities of College Students at Catanduanes State University Panganiban Campus

ROWEL S. SALVADOR¹

¹Catanduanes State University, Panganiban Campus, Panganiban, Catanduanes, Philippines

<http://orcid.org/0000-0002-6563-7016>

Corresponding author: rssalvador@catsu.edu.ph

Originality 100% • Grammar Check: 98% • Plagiarism: 0%

ABSTRACT

Article History:

Received: 03 Sept 2023

Revised: 17 Jan 2024

Accepted: 01 Mar 2024

Published: 28 Mar 2024

Keywords - physical health, body mass index, common meals, eating habits, physical activities, descriptive-correlational, policy development, philippines

The transition from high school to university is a critical phase when students struggle to make healthy eating choices with adequate nutrition, affecting their academic status. This descriptive-correlational research investigated the body mass index, eating habits, and physical activities of one hundred twenty-four (124) Bachelor of Elementary Education college students at Catanduanes State University, Panganiban Campus, Catanduanes, Philippines. The researcher used the mean frequency to tabulate the result of the student's socio-demographic profile, physical activities, and eating habits and the Pearson chi-square to determine the relationship of the variables. Analyzed data on *sex* revealed that the majority or 50.80% of the



© Rowel S. Salvador(2024). Open Access. This article published by JPAIR Multidisciplinary Research is licensed under a Creative Commons Attribution-Noncommercial 4.0 International (CC BY-NC 4.0). You are free to share (copy and redistribute the material in any medium or format) and adapt (remix, transform, and build upon the material). Under the following terms, you must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. You may not use the material for commercial purposes. To view a copy of this license, visit: <https://creativecommons.org/licenses/by-nc/4.0/>

respondents have normal BMI, only 3 or 2.42% are obese; *year level*, majority or 29.03% are first year while 0.80% or 1 is irregular; *family income* is below Php 9,520; *physical activities*, majority or 54.83% “rarely” exercise while only 0.81% does it “usually”; *eating habits*, the respondents “seldom” skip meals aside from majority “seldom” eat the aforementioned list of foods by mealtime. No correlations were established between sex, physical activities, and BMI only along variable-*eating habits* (Pearson chi-square 14.484, $p = 0.025$). Thus, healthy eating habits constitute improved food knowledge and education, meal planning, participation in food preparation, and exercise, which reinforces a higher level of physical fitness associated with an increase in academic achievement.

INTRODUCTION

Malnutrition associated with related morbidity is highly prevalent nowadays. The transition from high school to university is a critical phase when students struggle to make healthy eating choices with adequate nutrition. Colleges and universities are potentially imperative for promoting healthy diet, physical exercise, and weight management practices for a well and fit future (França et al., 2022). This nutrition becomes a critical part of health and development, which is integral to having stronger immune systems, healthy mental well-being, lower risk or contagion of non-communicable diseases, and physical endurance (World Health Organization, 2024). Successively, those with adequate nutrition are said to be more productive and thus learn better. However, many college students experience changes in their life patterns and a weakening of dietary habits due to inappropriate eating habits like skipping meals and consuming low-level nutritious foods (Wilder Research, 2014).

A WHO report (2023) shows a correlation between low Physical Activity (PA) and improper diet. This is manifested in the study of Al-Hazzaa et al. (2013) about terrific lifestyle leading to an epidemic of overweight and obesity in the lifestyle of youth in Saudi Arabia, where calorie-dense foods and sugar-sweetened beverages are highly preferred with less exercise with a sharp habit of TV viewing and computer and internet use.

This problem is similar in Chile, with the highest obesity rates, especially among children aged 6 to 7 years and 31.2% of the population over 15 years (3). This dilemma is caused by factors such as socio-economics, no physical exercise, genetic predisposition, high-calorie intake, and mental disorders (Urzúa et al., 2021). This health crisis is relative to the study of Sogari et al. (2018) in the United States, who emphasized improved food knowledge and education, meal planning, involvement in food preparation, and physical exercise as factors to

healthy behavior. Their research pointed out the labeling of healthy food options through information campaigns.

Another related study in the Kingdom of Saudi Arabia unfolded the reason for the decrease in eating habits among physiotherapy students owed to food insecurity during the pandemic as viewed on the suggestions of the International Food Policy Research about the doubling of malnutrition caused by extreme poverty (Kosendiak et al., 2024).

In the Philippines, it is very difficult to achieve the diet-related non-communicable disease targets (Mahmood et al., 2021). There is no progress towards achieving the target for obesity, given that 8.8% of adult (aged 18 years and over) women and 6.4% of adult men are obese. The obesity prevalence is lower than the regional average of 10.3% for women and 7.5% for men (Global Nutrition Report, 2022).

UNICEF Philippines Representative Oyun Dendevnorov detailed that one in three Filipino children under 5 years old are stunted, too short for their age. In contrast, roughly 7 percent of children are too thin for their height. Estimably, 10th of Filipino adolescents are now overweight (World Health Organization, 2023).

The aforementioned health crisis can affect students' Body Mass Index (BMI) normality. According to Shmerling (2020), the higher the BMI, the higher the chances of acquiring different diseases. This is where preventing its increase is set to help target the 2030 Agenda for Sustainable Development, a very real possibility that we could fall short of achieving a crucial aim that impacts all the others – namely SDG 3, aimed to ensure healthy lives and promote well-being for all ages. This goal is critical to achieving all other economic, environmental, and social objectives since they are only possible with a thriving, healthy human population (United Nations, 2023). It is in this context that DOST Secretary Fortunato de la Peña, in his keynote speech, declared the 2030 (SDGs) most importantly the SDGs 2 and 3, where DOST-FNRI subscribes prioritize to implement food and nutrition research and development (R&D) and science and technology (S&T) programs and projects to solve malnutrition in the country. This shows that we have made double efforts to address the nutrition problems.

Relative to it, Elmskini et al. (2024) advocated tips on healthy eating habits to constitute improved food knowledge and education, meal planning, participation in food preparation, and exercise. There is a reinforcement of a higher level of physical fitness, including flexibility, functional strength, and running speed agility, associated with increased academic achievement. Therefore, developing good physical fitness early in life is especially important because it may serve as a foundation for later development pathways (Gouveia et al., 2020). This is where

higher academic achievements are associated with more positive individual and cumulative health behaviors and children's BMI (Lv et al., 2020).

To find this end, it is in this context that the researcher conducts this undertaking since health is wealth, especially in college. This is anchored on Research Thrust 3: Health and wellness, especially focusing on adolescents- the BEED college students at Catanduanes State University Panganiban Campus. This study, therefore, aims to explore the body mass index, eating behaviors, and physical activity among college students with a Bachelor of Elementary Education degree to improve knowledge of dietary behaviors and physical fitness in the university-age population.

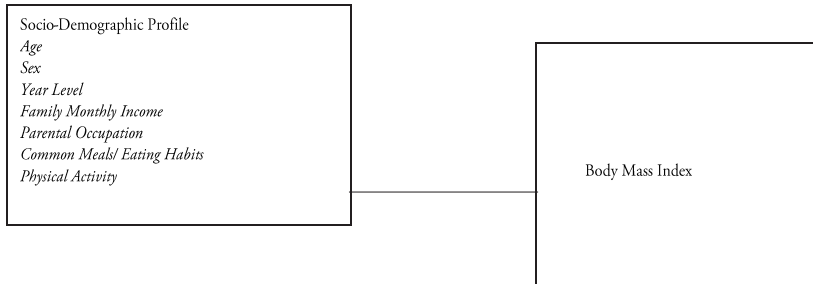
FRAMEWORK

The following theories on body mass index were found to be significant, providing anchorage for this study. According to new research, the theory of Edward L. Deci and Richard M. Ryan-on self-determination theory (STD) contends that personality, human motivation, and optimal functioning are linked. This is where a relationship exists between the body mass index (BMI) and the psychological aspects related to motivation, needs such as autonomy, competence, social relationships, and the intention of being physically active in Physical Education students. On this note, the study was framed within the context of various local and foreign studies of Bruna (2020), Ho et al. (2022), Hudson et al. (2023), and Kirolos et al. (2024).

With the specific objectives of the study formulated and data and information gathered through surveys and questionnaires, the researcher anticipates generating imperative findings. The independent variables include the sociodemographic profile of the students (age, sex, year level, family monthly income, parent's occupation, body mass index), common meals/ eating habits, and physical activity.

Based on the findings of the study, financial literacy and menu planning workshops, a health and nutrition program and activities, and the development of instructional materials (IM) on health and fitness to disseminate the current health issues and challenges that college students face will serve as research outputs. With the suggested recommendations, the student's health and fitness, if foreseen, will improve as envisioned outcomes of the study.

Figure 1
Schematic Diagram of Conceptual Model



OBJECTIVES OF THE STUDY

This research determines the body mass index, common meals, eating habits, and physical activities of 124 Bachelor of Elementary Education college students at Catanduanes State University Panganiban Campus. The overall purpose is to serve as a benchmark to help not only the students be aware of their health status but also for the school administration and parents to identify the support needed by the students to avoid malnutrition or obesity. Also, the students be aware of their health status to avoid BMI-related diseases and be guided on the importance of having a good eating habit and the value of physical activities for their health and weight maintenance.

METHODOLOGY

Research Design

The data were generated from a cross-sectional, self-administered research questionnaire of selected 124 first-year to fourth-year Bachelor of Elementary Education (BEED) college students at Catanduanes State University-Panganiban Campus, Panganiban, Catanduanes, Philippines. Descriptive-correlational research was selected to fulfill the aim of this study. It is descriptive in purpose, gathering salient health and fitness data to describe, record, analyze, and interpret the body mass index (BMI) of Bachelor of Elementary Education (BEED) college students at Catanduanes State University-Panganiban Campus, Panganiban, Catanduanes, Philippines, using fishbowl sampling. Likewise, ethnomethodology was also applied systematically. The results of the health and fitness test were treated using the frequency count, percentage, and weighted; meanwhile, in

correlating the variables, the chi-square test was utilized.

Research Site

This study was conducted at Catanduanes State University-Panganiban Campus, Panganiban, Catanduanes, Philippines. This university was chosen because it is considered a public, government-owned geared to address the quality education of the general population, most especially the Bachelor of Elementary Education (BEED).

Participants

Selected 124 college students with a Bachelor of Elementary Education comprised the study respondents. These samples were screened using the sample size calculator in raosoft.com with the fishbowl sampling technique. Every name chosen as a sample was referred to the list, the class schedule, and the professor handling the subject to determine the student's whereabouts. All those who formed part of this sample were asked to sign the informed consent for research ethics.

Instrumentation

The research instrument was composed of three (3) sets of questionnaires focusing mainly on the socio-demographic profile, physical activities, common meals, and eating habits of selected 124 Bachelor of Elementary Education students who underwent exploratory factor analysis and confirmatory factor analysis. The instrument was also pilot-tested on Bachelor of Technical Vocation Education college students at the same university.

It contained a five-point scale with corresponding descriptive ratings to determine the frequency of physical activities, common meals and eating habits: (5) more than 5 times per week= Always (A); (4) 4-5 times per week= Usually (U); (3) 2-3 times per week= Sometimes (S); (2) Once per week= Rarely (RA); (1) No exercise at all= Never (N). These criteria underwent a face and constructed validity considering existing constructs from previous literature and studies apart from consultation from several Department of Physical Education experts.

After the validation of the instrument, a reliability test was conducted to determine the consistency of the scores using the instrument measuring the same set of factors with a similar type of study established. In this study, the Cronbach alpha was used to examine the reliability of the questionnaire. The validated instrument underwent pilot testing to ensure reliability.

Data Gathering

Given the established validity and reliability of the instrument, a request letter to the Office of the Campus Director endorsed by the ARES Director was properly secured for the survey of the participants. The masterlist of the students officially enrolled at Catanduanes state University, Panganiban Campus, Panganiban Catanduanes, was secured at the Office of Admission and Registrar Services. Data were geared towards the start of the Academic Year 2022-2023. Each participant was formally introduced to the nature, purposes of the study and confidentiality of the data gathered.

Research Ethics Protocol

The respondents were told of their voluntary participation and whatever data gathered be kept private. The research secured Ethics Clearance from the Ethics Review Committee with informed consent from all respondents.

Statistical Analysis

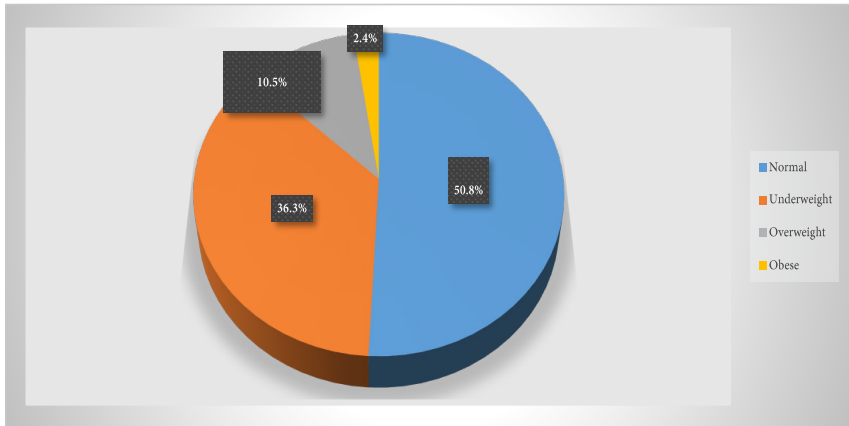
Before tallying, the completed questionnaires were coded according to the course. The researcher mainly used descriptive statistics for data analysis. The data gathered were collated, treated and analyzed by the objective of the study.

RESULTS AND DISCUSSION

Along with the socio-demographic profile, the study revealed that the majority, or 31%, of the respondents are 20. In contrast, the youngest one, or 1%, is 28, with a higher representation of females (75.8%) than males (24.2%). The 91.9% of the respondent's families have an income below Php 9520, which suggests a significant portion of the sample may face financial constraints and have fewer educational resources for children. Tao Lin and Han Lv (2017) state that family income significantly influences children's education level, and increasing family income can improve their education level. Their father's occupation shows that 24.2% are rice farmers, which indicates unstable employment, abaca farmers (19.4%), and fishermen (16.1%). This implies irregular income and low levels of education, which may influence the level of family support and resources for children.

The high proportion of unemployed mothers (59.67%) highlights the potential impact of financial constraints and very limited resources on the family's ability to provide support. The presence of domestic helper mothers or Kasambahay (10.5%) indicates greater flexibility in balancing work and family responsibilities, potentially allowing them to support their children's learning more.

Figure 1
Body Mass Index of the Respondents



The study also revealed that the majority of respondents had normal BMI, with only 3 or 2.4% obese.

Table 1
Physical Activities of the BEED Respondents at CatSU- Panganiban Campus

Vigorous Physical Activities	Frequency					WM	QNR	QLR
	5	4	3	2	1			
Heavy gardening	14	24	30	27	29	2.7	3	S
Fast dancing	7	19	40	31	27	2.6	3	S
Jogging	6	15	50	31	22	2.6	3	S
Basketball	9	9	26	32	48	2.2	2	RA
Jumping rope	3	9	35	32	45	2.1	2	RA
Fast swimming	1	5	34	53	31	2.1	2	RA
Rice Farming	3	11	28	19	63	2	2	RA
Fishing	7	4	12	32	69	1.8	2	RA
Abaca farming	2	5	11	28	78	1.6	2	RA
Lawn tennis	1	2	7	24	90	1.4	1	N
Soccer	1	0	12	23	88	1.4	1	N

Weighted Mean for Vigorous Exercise

2 2 RA

Moderate Physical Activities	Frequency					WM	QLR
	5	4	3	2	1		
Mopping floor	26	26	33	24	15	3.2	S
Brisk walking	29	25	27	20	23	3.1	S
Carrying small children	20	22	37	23	22	3	S
General gardening	16	23	36	27	22	2.9	S
Volleyball	10	11	42	24	37	2.5	S
Stair-climbing	13	16	31	26	38	2.5	S
Badminton	6	17	31	20	50	2.3	RA
Biking on level ground	10	16	27	25	46	2.3	RA
Scrubbing the bathtub	10	17	22	29	46	2.3	RA
Sports involving catch and throw	8	10	27	32	47	2.2	RA
Water aerobics	4	12	21	36	51	2	RA
Car washing	5	4	12	27	76	1.7	RA
Table tennis	1	1	14	24	84	1.5	RA
Baseball	4	4	11	18	87	1.5	RA
Tennis(doubles)	1	2	6	33	82	1.4	N
Weighted Mean for Moderate Exercise						2.3	RA

Low-level Physical Exercise	Frequency					WM	QLR
	5	4	3	2	1		
Washing dishes	82	18	16	5	3	4.4	U
Cooking	66	23	24	10	1	4.2	U
Doing laundry	60	27	24	10	3	4.1	U
Standing	62	24	29	9	0	4.1	U
light walking	56	30	27	4	7	4	U
Stretching	34	32	48	9	1	3.7	U
Lifting hand weights	7	30	38	30	19	2.8	S
Push-ups	3	16	34	25	46	2.2	RA
Against the wall	2	6	34	32	50	2	RA
Fishing sitting	5	4	24	23	68	1.8	RA

Weighted Mean for Lower Exercise

3.3

S

Legend:

Numerical rating		Adjectival Rating		
5	-	Always (A)	-	More than 5 times per week
4	-	Usually (U)	-	4-5 times per week
3	-	Sometimes (S)	-	2-3 times per week
2	-	Rarely (RA)	-	Once per week
1	-	Never (N)	-	Not at all

This section presents the findings on the physical activities frequently engaged by the BEED students in CatSU-Panganiban Campus. The college students “rarely” engage in vigorous physical activities with a weighted mean of 2.0. Likewise, most are “sometimes” involved with heavy gardening, fast dancing, and jogging. The respondents also are “rarely” engaged in moderate physical activity, where most are involved in mopping the floor. They “usually” do wash dishes, laundry, and cooking.

Osmani and Perić (2023) said regular physical activity (PA) is important in maintaining health and quality of life. Persons who do not regularly exercise or who adopt sedentary behavior are prone to becoming overweight or obese, which has a significant impact on morbidity, quality of life, and physical and mental health. Positive attitudes towards exercise can facilitate the behaviors and values of a healthy lifestyle.

Table 2*Common Meals, Eating Habits of BEED Students, and Commonly Skipped Meals*

MEALS	Frequency					WM	QLR
	5	4	3	2	1		
Breakfast	17	25	31	27	24	2.9	S
Snacks	12	22	44	28	18	2.9	S
Dinner	26	13	14	23	48	2.6	S
Lunch	26	12	16	11	59	2.5	S
Weighted Mean for skipping meals						2.7	S

This portion indicates that students “sometimes” skipped meals, with breakfast and snacks being the most common meals skipped, with 2.7 being the most common.

BREAKFAST	Frequency					WM	QLR
	5	4	3	2	1		
Coffee and bread	22	44	47	9	2	3.6	U
Rice and fried egg	26	49	31	14	4	3.6	U
Fish and rice	24	39	47	10	4	3.6	U
Rice, fried egg, and coffee	25	33	43	19	4	3.5	U
Vegetables and rice	15	38	46	21	4	3.3	S
Rice and processed foods	19	24	44	31	6	3.2	S
Root crops	11	27	51	30	5	3.1	S
Milk and egg	15	29	39	32	9	3.1	S
Dried/Smoked fish and rice	14	26	54	24	6	3.1	S
Fish and rice coffee	15	28	46	29	6	3.1	S
Chicken and rice	17	20	46	37	4	3.1	S
Coffee with milk and bread with fillings	11	28	46	29	10	3	S
Instant noodles	14	17	49	39	5	3	S
Rice and canned goods	11	26	49	35	2	3	S
Pork and rice	14	19	47	38	6	3	S
Vegetables and rice with fruits	8	25	51	35	4	3	S
Rice, processed foods, and coffee	8	20	39	51	6	2.8	S
Instant noodles and rice	12	21	34	43	14	2.8	S
Dried/smoked fish, rice, fruit	6	16	50	41	11	2.7	S
Vegetables and rice with fruits, and coffee	4	20	42	49	9	2.7	S
Coffee with milk, bread with fillings, and fruits	5	16	41	49	13	2.6	S
Meat, rice, coffee and fruits	4	11	47	53	9	2.6	S
Rice, processed foods, coffee and fruits	7	15	34	41	27	2.5	S
Weighted Mean for Breakfast						3	S

LUNCH	Frequency					WM	QNR	QLR
	5	4	3	2	1			
Fish and rice	29	40	43	9	3	3.7	4	U
Vegetables and rice	19	32	51	19	3	3.4	3	S
Chicken and rice	23	25	40	32	4	3.3	3	S
Pork and rice	19	22	55	21	7	3.2	3	S
Vegetables and rice with fruits	16	21	52	30	5	3.1	3	S
Rice and canned goods	11	17	59	34	3	3	3	S
Rice and dried/smoked fish	13	19	53	34	4	3	3	S
Rice and processed foods	14	12	48	45	5	2.9	3	S
Rice and Instant noodles	17	12	46	39	10	2.9	3	S
Fish and rice with fruits	7	21	43	45	8	2.8	3	S
Chicken and rice with fruits	12	13	45	45	9	2.8	3	S
Pork and rice with fruits	10	11	42	51	10	2.7	3	S
Beef and rice	9	16	35	51	13	2.7	3	S
Beef and rice with fruits	9	13	29	57	16	2.5	3	S
Root crops	7	13	35	32	37	2.4	3	S
Weighted Mean for Lunch						3	3	S

DINNER	Frequency					WM	QNR	QLR
	5	4	3	2	1			
Fish and rice	32	37	39	12	4	3.7	4	U
Vegetables and rice	24	38	37	16	9	3.4	3	S
Chicken and rice	23	25	51	19	6	3.3	3	S
Pork and rice	16	32	52	15	9	3.3	3	S
Rice and dried/smoked fish	14	19	52	33	6	3	3	S
Vegetables and rice with fruits	15	22	46	29	12	3	3	S
Fish and rice with fruits	12	13	52	39	8	2.9	3	S
Rice and canned goods	9	17	54	34	10	2.8	3	S
Chicken and rice with fruits	10	16	42	51	5	2.8	3	S
Rice, processed food	8	17	45	42	12	2.7	3	S

Rice and instant noodles	10	17	37	47	13	2.7	3	S
Pork and rice with fruits	8	16	42	46	12	2.7	3	S
Beef and rice	11	14	38	46	15	2.7	3	S
Beef and rice with fruits	7	14	30	57	16	2.5	3	S
Root crops	3	5	35	31	50	2	2	RA
Weighted Mean for Dinner						2.9	3	S

SNACKS	Frequency					WM	QLR
	5	4	3	2	1		
Bread	31	46	31	11	5	3.7	U
Juice	18	38	42	17	9	3.3	S
Fish balls/kikiam	16	30	41	26	11	3.1	S
Leftover (bahaw)	16	35	34	23	16	3.1	S
Pancit	14	20	56	24	10	3	S
Banana	12	25	50	30	7	3	S
Junk foods	20	20	35	26	23	2.9	S
Lugaw	9	20	38	41	16	2.7	S
Lugaw with egg	9	16	42	40	17	2.7	S
Pasta	6	15	48	35	20	2.6	S
Burger	3	17	46	39	19	2.6	S
Native cakes	8	13	41	49	13	2.6	S
Softdrinks	4	24	45	26	24	2.6	S
Suman	0	12	47	48	17	2.4	RA
Biko	4	8	35	59	18	2.4	RA
Chicharon	7	12	27	42	36	2.3	RA
Bibingka	4	10	28	47	35	2.2	RA
Pizza	6	4	24	44	46	2	RA
Weighted Mean for Snacks						2.7	S

The study disclosed that the most common meals for breakfast are coffee and bread, rice and fried egg, and fish and rice, with a weighted mean of 3.6. Fish and rice are the common meal for lunch and dinner, while the common snack is bread. Fonseca et al. (2020) identification of meal dietary patterns may

contribute to a better understanding of college students' eating habits, and it is crucial to determine specific targets for nutrition and health intervention.

Table 3

Significant correlation between Body Mass Index and Sociodemographic Profile

Sex	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.810a	3	0.078
Likelihood Ratio	6.629	3	0.085
N of Valid Cases	124		
Age			
Pearson Chi-Square	29.382a	18	0.044
Likelihood Ratio	30.284	18	0.035
Linear-by-Linear Association	6.243	1	0.012
N of Valid Cases	124		
Year Level			
Pearson Chi-Square	16.726a	12	0.16
Likelihood Ratio	21.387	12	0.045
Linear-by-Linear Association	3.053	1	0.081
N of Valid Cases	124		
Family Income			
Pearson Chi-Square	9.847a	6	0.131
Likelihood Ratio	9.79	6	0.134
Linear-by-Linear Association	1.5	1	0.221
N of Valid Cases	124		

The study shows no significant association between sex and BMI ($X^2(3) = 6.810$, $p = 0.078$). The average BMI of males was higher than females. Therefore, no correlations were established between genders. Age and BMI were significantly associated ($X^2(18) = 29.382$, $p = 0.044$). Jeong et al. (2023) highlighted that BMI could be a good measure of body fatness, particularly among young age groups of women. The lower correlation between BMI and body fatness in older compared to younger age groups could be related to increasing PBF and decreasing lean body mass. The correlations between BMI and biomarkers generally decrease with age, but this pattern is seen with fat mass index and body fat percentage. Thus, these more technically advanced measures are not necessarily superior to

BMI in most circumstances, particularly in epidemiological studies. When BMI indicates body fatness, the different contexts depending on age, sex, and race/ethnicity should be considered.

There was no significant association between year level and BMI ($X^2(12) = 16.726, p = 0.16$). In line with this notion, Msoga and Anasel (2020) discussed age, gender, and place of origin as related factors to student BMI. Thus, they recommended that public health planners and implementers target these factors to fight obesity.

There was no significant association between family income and BMI ($X^2(6) = 9.847, p = 0.131$).

Table 4

Significant Correlation between Body Mass Index and Eating Habit

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.484a	6	0.025
Likelihood Ratio	11.805	6	0.066
N of Valid Cases	124		

A significant correlation was established between eating habits and BMI ($X^2(6) = 14.484, p = 0.025$). In their study, Gonzalez-Suarez et al. (2013) recommended that reducing food portions at any snack time will protect children from being overweight. This is based on their investigated variables on demographic profile, anthropometric measures of height, weight, body mass index, and information about snacking. It was found that the obese group had statistically more servings of sweetened drinks and low-quality snacks. Female obese subjects have statistically more servings at nighttime and greater total snack servings.

Ramírez-Contreras et al. (2021) stressed the importance of promoting healthy aptitude among college students when they described the tendency to gain weight caused by poor eating and lifestyle habits. This could also cause calorie restriction. College students with the highest dietary restraint had the greatest BMI and the lowest energy and fat intake.

Table 5*Significant Correlation between Body Mass Index and Physical Activities*

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.641a	9	0.674
Likelihood Ratio	7.866	9	0.548
N of Valid Cases	124		

There was no significant association between Physical Activities and BMI ($X^2(9) = 6.641, p = 0.674$).

Ding and Jiang (2020) concluded that there were obvious stages of change in the BMI results of these university students during their school years; the physical education curriculum probably influenced these. For instance, the BMI level is positively correlated with vital capacity, 50m run, and 800m run and negatively correlated with standing, long jump, sit, and reach.

The limitation of this study is the reliance on self-reported data through questionnaires, which may introduce response bias and inaccuracies in reporting eating habits and physical activities. Additionally, the study's focus on a specific demographic of Bachelor of Elementary Education college students at Catanduanes State University may limit the generalizability of the findings to a broader student population. Furthermore, the cross-sectional design of the research restricts the ability to establish causal relationships between variables, highlighting the need for longitudinal studies to track changes in health behaviors and BMI over time accurately.

CONCLUSIONS

The new knowledge contribution of this study lies in the exploration of the relationship between body mass index, eating habits, and physical activities specifically among Bachelor of Elementary Education college students at Catanduanes State University, providing insights into the unique health behaviors of this particular student population.

Along the socio-demographic profile, most of the respondents are males and first-year BEED college students. Most of the parents are rice farmer and housewives. As reflected, the family income is below 9,520 only.

The students "rarely" engage in vigorous physical activities but "sometimes" do heavy gardening, fast dancing, and jogging. They "rarely" engage in moderate physical activity, though most of them do floor mopping. They "usually" wash dishes, do laundry, and cook as their low-level form of exercise.

Age and body mass index are positively related, as eating habits and body mass index. College students mostly skip breakfast common meals are light foods like coffee and bread, fried egg fish, meat and fish are very rare.

Common snacks are kikiyam, fish ball, leftover (bahaw), banana, junk foods, and pansit; they can very seldom afford other expensive snacks like pizza, burger, soft drinks, and suman.

No significant relationship between sex and BMI, year level and BMI and family income and BMI.

The study's findings contribute to policy development by prioritizing on body mass index, eating habits, and physical activities among Bachelor of Elementary Education college students at Catanduanes State University provides valuable insights for policymakers to develop targeted health promotion programs and policies aimed at improving the overall well-being of this student population.

Future research stemming from this study could delve into the long-term effectiveness of tailored health interventions on the well-being of Bachelor of Elementary Education college students, explore the influence of socio-economic factors on health behaviors and BMI, and conduct comparative analyses across academic disciplines to understand the broader implications of curriculum and academic demands on the health outcomes of college students.

TRANSLATIONAL RESEARCH

The findings of this study on body mass index, eating habits, and physical activities among Bachelor of Elementary Education college students at Catanduanes State University can be translated into practical initiatives aimed at promoting health and well-being within the student community. Practical translational research initiatives may include developing targeted nutrition education programs to improve eating habits, implementing physical activity interventions tailored to the students' preferences and lifestyle, collaborating with university stakeholders to incorporate health promotion activities into the curriculum, and establishing campus-wide policies that support a healthy environment. Additionally, leveraging various communication channels such as newsletters, social media, and community engagement can help disseminate information on the importance of healthy behaviors and encourage sustainable lifestyle changes among college students.

ACKNOWLEDGMENTS

Above all others, my commendation to Divine Providence for the pure love and wisdom. Also grateful to Dr. Patrick Alain T. Azanza, SUC President III; Dr. Jose Z. Tria, Research and Development Coordinator; Dr. Rosana S. Abundo, Vice President for Research; Dr. Kristian Q. Aldea, Assistant Vice President for Research; Dr. Gemma Acedo, VP for Academic Affairs; Dr. Jaymund M. Floranza, Director for Academic, Research, and Extension service; and Dr. Ramon F. Samonte, the Campus Administrator of CatSU, Panganiban Campus. Likewise, for Mama Cida and Papa Canor, my brothers Emon, Mel, Manoy Louie, and sisters Lyn, Bing, and Nhe; my dearest treasures, *my life*: Ivan, Zander, Amara, my Junior child soon and Mama Juvy, his deepest love is conveyed.

LITERATURE CITED

- Al-Hazzaa, H. M., Musaiger, A. O., & ATLS Research Group. (2011). Arab Teens Lifestyle Study (ATLS): objectives, design, methodology and implications. *Diabetes, metabolic syndrome and obesity: targets and therapy*, 417-426.
- Bruna, J. J., Jabaraj, D. B., Segismundo, A. B., Narayanan, R. M., & Felixkala, T. (2020). Evaluation of obesity risk among the student community in vigan city, philippines using risk indices.
- Ding, C., & Jiang, Y. (2020). The Relationship between Body Mass Index and Physical Fitness among Chinese University Students: Results of a Longitudinal Study. *Healthcare*, 8(4), 570. <https://doi.org/10.3390/healthcare8040570>
- Elmskini, F. Z., Bouh, A., Labyad, A., Elghoulam, N., Iraqi, H., Mehdad, S., ... & Benaich, S. (2024). Increased nutrition knowledge and adherence to the Mediterranean diet are associated with lower body mass index and better self-rated general health among university students. *Human Nutrition & Metabolism*, 35, 200240.

- Fonseca, L. B., Pereira, L. P., Rodrigues, P. R. M., Andrade, A. D. S., Muraro, A. P., Gorgulho, B. M., ... & Ferreira, M. G. (2021). Food consumption on campus is associated with meal eating patterns among college students. *British Journal of Nutrition*, *126*(1), 53-65.
- França, P. a. P., Lima, C. K. a. Z. G., De Oliveira, T. M., Ferreira, T. J., Da Silva, R. R. M., Loureiro, L. L., & Pierucci, A. P. T. R. (2022). Effectiveness of current protein recommendations in adolescent athletes on a low-carbon diet. *Frontiers in Nutrition*, *9*. <https://doi.org/10.3389/fnut.2022.1016409>
- Global Nutrition Report. (2022). Country Nutrition Profiles. <https://tinyurl.com/5ysz7jca>
- Gonzalez-Suarez, C. B., Lee-Pineda, K., Caralipio, N. D., Grimmer-Somers, K., Sibug, E. O., & Velasco, Z. F. (2015). Is what Filipino children eat between meals associated with body mass index?. *Asia Pacific Journal of Public Health*, *27*(2), NP650-NP661.
- Gouveia, É. R., Gouveia, B. R., Marques, A., Lopes, H., Rodrigues, A., Peralta, M., ... & Ihle, A. (2020). Physical fitness predicts subsequent improvement in academic achievement: Differential patterns depending on pupils' age. *Sustainability*, *12*(21), 8874.
- Ho, E., Qualls, C., & Villareal, D. T. (2022). Effect of diet, exercise, or both on biological age and healthy aging in older adults with obesity: secondary analysis of a randomized controlled trial. *The Journal of nutrition, health and aging*, *26*(6), 552-557.
- Hudson, T. A., Ferreira, L. K., Amaral, A. C. S., & Ferreira, M. E. C. (2023). Body, eating, and exercise comparison orientation measure (BEECOM): Cross-cultural adaptation and psychometric properties among Brazilian female university students. *Body Image*, *45*, 323-330.
- Jeong, S. M., Lee, D. H., Rezende, L. F., & Giovannucci, E. L. (2023). Different correlation of body mass index with body fatness and obesity-related biomarker according to age, sex and race-ethnicity. *Scientific Reports*, *13*(1), 3472.
- Kirolos, A., Harawa, P. P., Chimowa, T., Divala, O., Freyne, B., Jones, A. G., ... &

- Wells, J. C. (2024). Long-term outcomes after severe childhood malnutrition in adolescents in Malawi (LOSCM): a prospective observational cohort study. *The Lancet Child & Adolescent Health*.
- Kosendiak, A. A., Wasilewski, A., Kasprzak, A., Marczyński, P., Brawańska, K., & Chwałczyńska, A. (2024). Level of knowledge, nutritional habits, use of stimulants, and physical activity during the COVID-19 epidemic among students of physiotherapy at Wrocław Medical University. *Nutrition*, *117*, 112247.
- Ly, B., Ly, L., Bai, C., & Luo, L. (2020). Body mass index and academic achievement in Chinese elementary students: The mediating role of peer acceptance. *Children and Youth Services Review*, *108*, 104593.
- Mahmood, L., Flores-Barrantes, P., Moreno, L. A., Manios, Y., & Gonzalez-Gil, E. M. (2021). The influence of parental dietary behaviors and practices on children's eating habits. *Nutrients*, *13*(4), 1138.
- Msoga, J. J., & Anasel, M. (2020). The relationship between eating habits, socio-demographic characteristics and body mass index among undergraduate students from two selected universities, Tanzania. *International Journal of Community Medicine and Public Health*, *7*(2), 406-15.
- Osmani, A., & Perić, D. B. (2023). Physical activity, body composition and attitudes toward exercise among college students. *South African Journal for Research in Sport, Physical Education and Recreation*, *45*(3), 60-79.
- Ramírez-Contreras, C., Farrán-Codina, A., Izquierdo-Pulido, M., & Zerón-Rugero, M. F. (2021). A higher dietary restraint is associated with higher BMI: a cross-sectional study in college students. *Physiology & Behavior*, *240*, 113536.
- Shmerling, R. H., MD. (2020, May 26). *When dieting doesn't work*. Harvard Health. <https://www.health.harvard.edu/blog/when-dieting-doesnt-work-2020052519889>
- Sogari, G., Li, J., Wang, Q., Lefebvre, M., Huang, S., Mora, C., & Gómez, M. I. (2022). Toward a reduced meat diet: University North American students' acceptance of a blended meat-mushroom burger. *Meat science*, *187*, 108745.

United Nations. (2023). Transforming our World: the 2030 Agenda for Sustainable Development. <https://sdgs.un.org/2030agenda>

Urzúa, K., Salazar, B., & Viscardi, S. (2021). Impact of nutritional and physical activity interventions on the cognitive and academic achievement of schoolchildren. *Archivos Latinoamericanos de Nutrición (ALAN)*, 71(3), 228-235.

Wilder Research. (2014, January). Nutrition and Students' Academic Performance. https://www.wilder.org/sites/default/files/imports/Cargill_lit_review_1-14.pdf

World Health Organization. (2023, December 20). *SDG Target 2.2 Malnutrition*. <https://tinyurl.com/2etxbd9>

World Health Organization. (2024). Nutrition. https://www.who.int/health-topics/nutrition#tab=tab_1