Students' BMI Status: Benchmark for a Fitness Program

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ABSTRACT

Maintaining a healthy weight is essential for overall health and the prevention of chronic diseases. This study examined the Body Mass Index (BMI) status of 185 First-Year College of Business students at John B. Lacson Foundation Maritime University-Molo, Inc., before and after completing a physical education course (PATHFit 1). The research aimed to assess BMI changes among students as a group and across gender, residence, and high school background, and to determine if these changes were statistically significant. The researchers conducted the study in mixed approaches using the face-to-face weigh in and height in for the Body Mass Index (BMI) test and the researcher-made online student profiling via Google Form for a comprehensive data collection. Descriptive and inferential statistical analyses, including mean, standard deviation, and t-tests, were employed. Results indicated a positive shift toward healthier BMI statuses post-course completion, emphasizing the role of physical education in promoting healthier lifestyles and reducing health risks. Specifically, there was a decrease in the percentage of underweight students (from 19% to 9%) and an increase in those with normal weight (from 66% to 77%). Physical education programs like PATHFit 1 are effective in promoting healthier lifestyles among college students. Maintaining a healthy weight not only reduces the risk of chronic diseases but also enhances cognitive outcomes such as problem-solving and memory. Schools should prioritize physical activity to foster holistic student development.

Keywords: physical fitness, body mass index (BMI), business students, maritime university, education

INTRODUCTION

Physical education has been shown to contribute to the development of crucial cognitive outcomes like problem solving, self-awareness, goal setting, memory, self-regulation, planning and creativity (Alvarez-Bueno et al.,2017; Biddle & Asare, 2011). The effects of physical activity within PE in this line have also been shown to be greater than other forms of physical activity (OECD Report 2019). Increasing prevalence of obesity poses challenges for public health (Hunt et al., 2020).

The OECD Report (2019) claims that healthier students make "better learners". Physical education classes can contribute to making students more holistically active in, outside, and beyond school. Body mass index (BMI), which measures weight standardized for height, is often used as a measure of health risk (Otis, 2024). Research shows that students are more active on days they attend PE, and with higher attendance rates are also associated with increased motivation to school PE courses and extra-curricular physical activity outside of school (Tendinha et al., 2021. Physical education has the potential to become one of the cornerstones of the education of tomorrow that contributes to the holistic development of students, fostering the development of crucial competencies and the physical and mental health of students (Shelley, 2024). Students with higher academic performance had faster reaction time, suggesting that attention, concentration, arousal level and processing speed is an important factor for students' success in learning process and cognition (Prabhavathi et al., 2017). Many students struggle when prerequisites are required as preparation courses. Placing minimum grade requirements on prerequisites may improve student success by ensuring that well-prepared students can progress further (Mann et al., 2018).

Dynamically, schools provide a unique venue for youth to meet the activity recommendation. While at the same

time, schools face increasing challenges in allocating time for physical education and physical activity during the school day (Neil-Sztramko, 2021). When people, regardless of age, gender and background participate in the recommended level of physical activity — at least 60 minutes daily — multiple health benefits accrue (WHO, 2018). Training on differentiated instruction, data-driven decision-making, and inclusive teaching practices can further support students' development (Sebastian et al., 2025). York et al. (2015) opine that grades and GPA are the most used measure of academic success. Different models and theories have been tested in educational institutions to predict academic performance of the students with the development of the technology and the advancement of communication channels (Munir et al., 2021). According to Li (2017), students often perform well academically despite the challenges of their competitive academic environments. He mentioned that it is important to explore what enables the academic resilience of these students.

Why Is Healthy Weight Important? Reaching and maintaining a healthy weight is important for overall health and can help you prevent and control many diseases and conditions. If you are overweight or obese, you are at higher risk of developing serious health problems, including heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems, and certain cancers. That is why maintaining a healthy weight is so important: It helps you lower your risk for developing these problems, helps you feel good about yourself, and gives you more energy to enjoy life (National Institute of Health, 2023).

The integration of the Self-determination Theory (Ryan & Deci, 2017), and the Hierarchical Model of Motivation (Vallerand & Lalande, 2011), previously been successfully applied in PE contexts studies (Gråstén & Watt, 2017), were bases in the conduct of this study. The Commission on Higher Education (CHED) issued memo order #39 series of 2021 (Policies and guidelines Policies, Standards, and Guidelines on the Implementation of Tertiary Physical Education: Physical Activity Towards Health and Fitness (PATHFit) Courses last December 31, 2021.

Body Mass Index Chart	
Classification	BMI Scores (kg/m2)
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obese	30.0-40.0
Extreme Obese	>40.0

The conceptual framework is presented here.

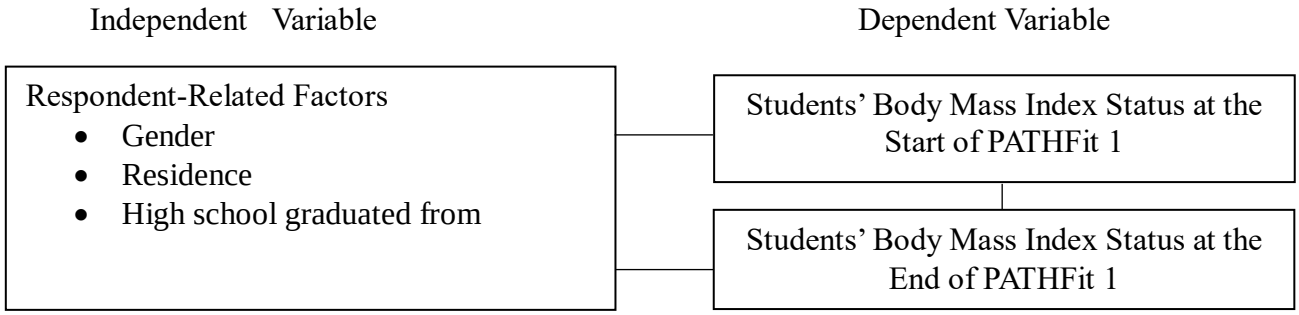

Figure 1. Schematic diagram showing the interrelatedness of the variables.

Statement of the Problem

This study determined the Body Mass Index (BMI) status of First-Year College of Business students at the start and at the end of the PATHFit 1 class. The locale of the study is at John B. Lacson Foundation Maritime

University-Molo, Inc.

Specifically, the study sought answers the following questions:

What is the Body Mass Index (BMI) status of First-Year College of Business students at the start the PATHFit
1 class when taken as an entire group and when categorized according to gender, residence, and high school graduated from?
2. What is the Body Mass Index (BMI) status of First-Year College of Business students at the end of the PATHFit 1 class when taken as an entire group and when categorized according to gender, residence, and high school graduated from?
3. Is there a significant difference in the Body Mass Index (BMI) status of First-Year College of Business students at the start and at the end of the PATHFit 1 class?

The null hypotheses state that there is no significant difference in the Body Mass Index (BMI) status of First-Year College of Business students at the start and at the end the PATHFit 1 class.

MATERIALS AND METHODS

The researchers conducted the study in mixed approaches using the face-to-face weigh in and height in for the Body Mass Index (BMI) test and the researcher-made online student profiling via Google Form for a comprehensive data collection. Demographic information which includes sex, residence, and high school graduated from were encoded by the students in the Google Form sent to them. Students who are currently taking the course PATHFit 1 were given out consent forms before they were involved in the research study. One-hundred eighty-five (185) randomly selected first year students of JBLFMU-Molo, Inc. who enrolled and passed the PATHFit 1 were the participants in this study. Descriptive and inferential statistical analyses, including mean, standard deviation, and t-tests, were employed. The descriptive statistical tools were mean, and standard deviation. The inferential statistical tool was t-test.

Ethical Considerations

In conducting this research, ethical considerations were given utmost priority to ensure the integrity of the study and the well-being of the respondents. Ethical protocols followed throughout the study included obtaining informed consent from all respondents. This ensured that respondents understood the purpose of the study, their involvement, and their right to withdraw at any time without consequence. These ethical measures were carefully implemented to protect the rights of respondents while also promoting the quality and trustworthiness of the research outcomes. Ethical considerations are crucial in physical education research to ensure participant safety, maintain research integrity, and uphold the principles of informed consent, confidentiality, and respect for autonomy (Esmonde, 2023).

RESULTS AND DISCUSSION

The respondents of this study were the 185 first-year students enrolled in PATHFit 1 during the first semester of the academic year 2022-2023 at the College of Business and Management of JBLFMU-Molo, Inc. They were categorized according to gender, residence, and high school graduated from. The male respondents comprised 37%, while the remaining 63% were females. Those residing in rural areas comprised 59%, while those from urban areas comprised 41%. Respondents who graduated from private high school composed 38%, and those from public high school comprised 62%. Table 1 shows the distribution of respondents.

Table 1. Distribution of Respondents

Categories	f	%
Entire Group	185	100
Gender		
Male	68	37

Female	117	63
Residence		
Rural	110	59
Urban	75	41
High school graduated from		
Private	70	38
Public	115	62

Table 2. BMI Status of First-year Students at the Start and End of PATHFit 1 Class

Body Mass Index	At the Start of PATHFit 1 Class		At the End of PATHFit 1 Class	
Status	f	%	f	%
Underweight	35	19	16	9
Normal	122	66	142	77
Overweight	17	9	20	11
Obese	11	6	7	4

The Body Mass Index (BMI) status of First-Year College of Business students at the start of the PATHFit 1 class when taken as an entire group, revealed that 35/185 or 19% are underweight, 122/185 or 66% are normal, 17/185 or 9% are overweight and 11/185 or 11% are obese. At the end of the PATHFit 1 class, only 16/185 or 9% are underweight, 142/185 or 77% are normal, 20/185 or 11% are overweight, and 7/185 or 4% are obese. Table 2 presents the results.

Table 3. Results of the BMI Status of First-year Students at the Start of PATHFit 1 Class

Categories	Underweight	Normal	Overweight	Obese	Total
Entire Group	35	122	17	11	185
Gender					
Male	8	45	9	6	68
Female	27	77	8	5	117
Residence					
Rural	19	77	9	5	110
Urban	16	45	8	6	75
High school graduated from					
Private	10	48	7	5	70
Public	25	74	10	6	115

Legend:

Classification	BMI Scores (kg/m2)
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obese	30.0-40.0
Extreme Obese	>40.0

The Body Mass Index (BMI) status of First-Year College of Business students at the start of the PATHFit 1 class when grouped according to gender, residence, and high school graduated from revealed that out of the 35 who belong to the underweight, 8 are males and 27 are females, 19 are from the rural areas while 16 are from the urban, 10 graduated from private high schools and 25 are from public high schools. The 122 who belong to the normal BMI are composed of 45 males and 77 females, 77 from rural and 45 from urban, and 48 from private high schools while 74 are from public high schools. The 17 who are overweight were 9 males, 8 females, 9 from rural and 8 from urban, 7 from private high schools and 10 graduated from public high schools. The 11 who

belong the obese BMI are composed of 6 males and 5 females, 5 from rural and 6 from urban, and 5 from private high schools while 6 are from public high schools. Table 3 presents the results.

Table 4. Results of the BMI Status of First-year Students at the End of PATHFit 1 Class

Categories	Underweight	Normal	Overweight	Obese	Total
Entire Group	16	142	20	7	185
Gender					
Male	2	50	12	4	68
Female	14	92	8	3	117
Residence					
Rural	8	87	10	5	110
Urban	8	55	10	2	75
High school graduated from					
Private	4	57	6	3	70
Public	12	85	14	4	115

Legend:

Classification	BMI Scores (kg/m2)
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0-29.9
Obese	30.0-40.0
Extreme Obese	>40.0

At the end of the PATHFit 1 class, the Body Mass Index (BMI) status of First-Year College of Business students when grouped according to gender, residence, and high school graduated are as follows: out of the 16 who belong to the underweight, 2 are males and 14 are females, 8 are from the rural areas while 8 are from the urban, 4 graduated from private high schools and 12 are from public high schools. The 142 who belong to the Normal BMI are composed of 50 males and 92 females, 87 from rural and 55 from urban, and 57 from private high schools while 85 are from public high schools. The 20 who are overweight were 12 males, 8 females, 10 from rural and 10 from urban, 6 from private high schools and 14 graduated from public high schools. The 7 who belong the obese BMI are composed of 4 males and 3 females, 5 from rural and 2 from urban, and 3 from private high schools while 4 are from public high schools. Table 4 presents the results.

Table 5. Paired Samples t-test

Body Mass Index	Mean	t	df	Sig. (2-tailed)
at the Start at the End	21.36 21.68	-3.895	184	0.000

Table 5 shows a significant difference in the BMI Status of First-year Students at the Start and end of PATHFit 1 Class t (184) = 3.895, p=0.000.

CONCLUSIONS

Based on the information provided in the sources, the conclusion drawn from the study on first-year college students enrolled in the PATHFit 1 class at the College of Business and Management of JBLFMU-Molo, Inc. during the academic year 2022-2023 is related to the Body Mass Index (BMI) status changes before and after the class. The study revealed that at the start of the PATHFit 1 class, 19% of students were underweight, 66% were normal, 9% were overweight, and 6% were obese. By the end of the class, the percentage of underweight students decreased to 9%, while the percentage of normal-weight students increased to 77%. Additionally, the percentage of overweight students increased to 11%, and the percentage of obese students decreased to 4%. This

indicates a positive shift towards a healthier BMI status among the students after completing the PATHFit 1 class, highlighting the effectiveness of the physical education program in promoting healthier lifestyles and potentially reducing the risk of associated health problems. The null hypothesis that there is no significant difference in the Body Mass Index (BMI) status of First-Year College of Business students at the start and at the end the PATHFit 1 class is rejected.

RECOMMENDATIONS

Based on the information provided in the conclusions, the recommendations include the following: Importance of Physical Education: Physical education plays a crucial role in the holistic development of students by contributing to cognitive outcomes like problem-solving, self-awareness, memory, and creativity. It is emphasized that physical education classes can enhance students' overall activity levels, motivation, and academic performance. Healthier Weight for Better Learning: Maintaining a healthy weight is essential for overall health and can help prevent various diseases. The study highlights the importance of a healthy weight in reducing the risk of serious health problems such as heart disease, high blood pressure, diabetes, and certain cancers. It also emphasizes that healthier students tend to be better learners. Promotion of Physical Activity: Encouraging students to engage in physical activity for at least 60 minutes daily is crucial for reaping multiple health benefits. Schools are identified as unique venues for students to meet physical activity recommendations, despite facing challenges in allocating time for physical education during the school day. Academic Success and Physical Health: The study underscores the correlation between academic success and physical health, suggesting that students with higher academic performance often exhibit faster reaction times. It is implied that attention, concentration, and processing speed play vital roles in students' learning processes and cognition. Implementation of Physical Education Policies: The study mentions the issuance of memo order #39 series of 2021 by the Commission on Higher Education (CHED), which outlines policies and guidelines for the implementation of tertiary physical education courses. These guidelines aim to promote physical activity towards health and fitness among students, contributing to their overall well-being and academic success. These recommendations highlight the significance of physical education, maintaining a healthy weight, promoting physical activity, and integrating physical health with academic success for the holistic development and well-being of students.

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