INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
2024, Vol. 5, No. 6, 2197 – 2208
http://dx.doi.org/10.11594/ijmaber.05.06.22

Research Article

Association between Lifestyle Factors and Body Mass Index among Medical Technology/Medical Laboratory Science Students at the University of Mindanao, Philippines: A Cross-Sectional Study

Junelle P. Silguera*

College of Health Sciences Education, University of Mindanao, 8000 Davao City, Philippines

Article history:
Submission April 2024
Revised June 2024
Accepted June 2024

**Corresponding author:*
E-mail:
jsilguera@umindanao.edu.ph

ABSTRACT

This study investigates the factors influencing the Body Mass Index (BMI) status of Medical Technology/Medical Laboratory Science students at the University of Mindanao, Davao City, Philippines. Using a quantitative and descriptive design approach, 185 respondents were sampled using stratified and convenience sampling methods. The analysis included Frequency, Mean, Standard Deviation, and Ordinal Logistic Regression to assess diet, exercise, and pressure status as regressors of BMI. Findings reveal that respondents' age ranges from 17 to 24 years, with a mean BMI of 20.55, indicating normal weight status. First-year students predominantly participated, with more females than males. Most regularly consume breakfast, spend 6 to 10 minutes on meals, and engage in exercise sessions of less than 30 minutes, predominantly 1 to 3 times a week. Further, most respondents use mobile devices for 4 to 6 hours, and most prefer bedtimes from before 11:00 pm to 12:00 midnight. The final model highlights mealtime spent, exercise duration, and bedtime as significant regressors for BMI, emphasizing their association with lifestyle factors. These findings underscore the importance of academic institutions offering Medical Technology/Medical Laboratory Science courses to address obesity factors. Implementing awareness programs can empower students to make informed lifestyle choices.

Keywords: *Body Mass Index, Descriptive research design, Diet, Exercise, Medical Technology/Medical Laboratory Science, Philippines, Pressure Status*

Introduction

Obesity is the term used to indicate the high range of weight for an individual of a given height that is associated with adverse health effects. It is due primarily to an imbalance between caloric intake and activity. Increased caloric intake and reduced physical activity are likely the major drivers of obesity (Axelrad, 2019). Obesity increases the likelihood of various diseases and conditions, which are linked

How to cite:
Silguera, J. P. (2024). Association between Lifestyle Factors and Body Mass Index among Medical Technology/Medical Laboratory Science Students at the University of Mindanao, Philippines: A Cross-Sectional Study. *International Journal of Multidisciplinary: Applied Business and Education Research*. *5*(6), 2197 – 2208. doi: 10.11594/ijmaber.05.06.22

to increased mortality. These include Type 2 diabetes mellitus (T2DM), cardiovascular diseases (CVD), metabolic syndrome (MetS), chronic kidney disease (CKD), hyperlipidemia, hypertension, nonalcoholic fatty liver disease (NAFLD), certain types of cancer, obstructive sleep apnea, osteoarthritis, and depression (Lin & Li, 2021)

Every country is affected by obesity, with some lower-income countries showing the highest increases in the last decade. No country has reported a decline in obesity prevalence across the entire population, and none are on track to meet the World Health Organization's (WHO) target of 'no increase on 2010 levels by 2025'. The estimates for global levels of overweight and obesity

(BMI ≥25kg/m^2), also referred to as high BMI throughout this Atlas, suggest that over 4 billion people may be affected by 2035, compared with over 2.6 billion in 2020. This reflects an increase from 38% of the world's population in 2020 to over 50% by 2035 (Lobstein et al., 2023)

Aligning with the World Health Assembly (WHA) targets for 2025, the Philippine Plan of Action for Nutrition (PPAN) includes a goal of no increases in the prevalence of childhood overweight over the period to 2025. However, an analysis of available data suggests that the Philippines is unlikely to meet this target. The childhood overweight and obesity rates in the Philippines have increased in recent years. Based on the Expanded National Nutrition Survey (ENNS) conducted by the Department of Science and Technology Food and Nutrition Research Institute (DOST-FNRI) in 2019, children 5 to 10 years and 10 to 19 years, the prevalence of childhood overweight and obesity was higher, at 9.1% and 9.8% respectively. Several risk factors and environmental conditions contribute to the increased prevalence of overweight and obesity in the Philippines. One of these is the limited engagement of school children in physical activities and unhealthy dietary habits of older children (Castro, 2021)

Obesity in adolescents is associated with poor diet, intake of high-energy food and snacks, insufficient physical activity, and other risky lifestyle habits. For example, Munoz-Pareja et al. (2013) reported that obesity-related eating behaviors are associated with higher consumption of food with high energy content, sugar, and alcoholic beverages. Greater time spent in light-intensive and sedentary activities is associated with higher BMI (Bann et al., 2015). These may have implications for behavioral approaches to control elevation in BMI values.

Breakfast skipping is common in adolescents, and it is associated with changes in Body Mass Index (BMI) and cognitive abilities. Breakfast skipping enhances appetite throughout the remaining day, which leads to overeating, resulting in overweight and obesity. The addition of breakfast is a useful plan of action to improve satiety, reduce food motivation, and improve diet quality. Eating breakfast regularly is associated with less mental distress and a healthy lifestyle (Fatima et al., 2020)

The interrelatedness between obesity and psychological problems seems to be twofold in that clinically meaningful psychological distress might foster weight gain, and obesity may lead to psychosocial problems. Stress may contribute to changes in dietary behaviors that lead to weight change, with various effects related to sex baseline body mass index, or cortisol reactivity in response to stress (Alsultan et al., 2018)

The development of technology and information is running very fast, marked by progress in information and technology, one of which is gadgets. This affects excessive use of gadgets, and low physical activity makes eating patterns inappropriate, which can affect nutritional status in the long run (Anjani et al., 2023)

Controlling for baseline BMI, children who slept less, went to bed later, or got up earlier at the time of the first assessment had higher BMIs 5 years later and were more likely to be overweight. This study underscores the likely importance of sleep on children's physical health and suggests that sleep is important for understanding childhood weight problems (Snell et al., 2007)

Obesity in university students is also a public health problem worldwide, but few data are available on this issue. Thus, it is critical to identify factors associated with this problem. One approach is to evaluate university students' dietary patterns, physical activity, and

other lifestyles. Moreover, several studies have arrived at different conclusions for some factors. Hence, this research hypothesizes that these discrepancies are due to differences in methodology. Some studies have examined the association between factors and BMI, but others have examined the association between factors and overweight/obesity (Qin et al., 2018). Bachelor of Science in Medical Technology/Bachelor of Science in Medical Laboratory Science (BSMT/BSMLS) is a four-year program consisting of general education and professional courses. One of the goals of this program is to develop knowledge, skills, professional attitude, and values in the performance of clinical laboratory procedures needed to help the physician in the proper diagnosis, treatment, prognosis, and prevention of diseases (CHED, 2017). These medical students are future health-care providers. They are by themselves more prone to obesity due to their sedentary lifestyle, stress, and disordered eating habits and spending more time with their books and gadgets. Despite these issues, it remains a neglected problem. Many studies have proven the high prevalence of obesity among medical students in India. The psychosocial impact of obesity among young adults is being least bothered (Rekha et al., 2022)

Body mass index (BMI) is a simple weight-for-height index commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m2). BMI provides the most useful population-level measure of overweight and obesity as it is the same for both sexes and all ages of adults (WHO, 2021). The BMI ranges for adults are Below 18.5 (Underweight), 18.5 – 24.9 (Normal), 25.0 – 29.9 (Overweight), and 30.0 and above (Obese) (CDC, 2021).

This study benefits Medical Technology/Medical Laboratory Science students of University of Mindanao since it will assess their lifestyle and how it affects their body mass index status and evaluate the possibility of obtaining cardiovascular diseases in the future if left unsolved. Also, this study is significant among academic institutions that utilize the prediction model in assessing medical technology/medical laboratory science students' body mass index status. Further, programs should be formulated to mobilize information about the lifestyle, focusing on diet, exercise, and pressure as predictors influencing their body mass index status.

The 1st year to 4th year regular students enrolled in the Bachelor of Science in Medical Technology/Medical Laboratory Science Program of the University of Mindanao, 1st semester, first term, Academic Year 2023-2024 are included in this study. However, students fit the established criteria yet are not willing to participate for any personal reasons, students who took other tertiary programs before shifting to Bachelor of Science in Medical Technology/Medical Laboratory Science, students who are taking medications for mental health issues, appetite stimulants, steroids, and other drugs that affect physiologic lifestyle practice are all excluded on this study.

The primary objective of this study is to document the current demographic profile of the respondents in their personal records for future reference. In addition, this study provides data on respondent's lifestyles in terms of their diet, exercise, and coping mechanism under pressure. Further, the predictors influencing their body mass index will be evaluated. Lastly, a prediction model can be formulated and set as a reference in assessing future respondents regarding their body mass index status. Specifically, this research answers the following questions:

1. What is the demographic profile of the respondents in terms of:
   a. Age
   b. Sex
   c. Year Level
   d. BMI level
2. What is the data on diet by the respondents in terms of:
   a. Consumption of breakfast per week
   b. Time spent on each meal (minutes)
3. What is the information regarding exercise by the respondents, in terms of:
   a. Duration each time (minutes)
   b. Frequency per week
4. What is the pressure status of the respondents in terms of:
   a. Mobile devices viewing time per day
   b. Time go to bed

5. What are the significant regressors of the BMI status of the respondents?

Methods

Research Design

This study utilized quantitative research. This type of research abides by formal, objective, rigorous, deductive approaches and systematic strategies for generating and refining knowledge for problem-solving. It consists of systematic observation and description of the characteristics or properties of objects or events to discover relationships between an independent (predictor) variable and a dependent (outcome) variable within a population (Mohajan, 2020). Specifically, this study used descriptive design to determine, describe, or identify what is, while analytical research attempts to establish why it is that way or how it came to be (Manjunatha, 2019). The type of data used in this study is primary data collected from the respondents, considering the inclusion-exclusion criteria.

Research Instrument

The research tool was adapted from the study of Qin et al., 2018, titled: "Factors Affecting Body Mass Index in Overweight/Obese University Students, Gansu, China: A Cross-Sectional Study. The tool consists of four parts: the demographic profile, data on diet, information about exercise, and the pressure status of the respondents.

Part one focused on the respondents' demographic profile: name (optional), cellphone number (optional), age, height, weight, year level, and sex.

Part two focused on the data on the diet of the respondents. It is divided into two domains: the frequency of breakfast consumption per week and the time spent on each meal. There are four options per domain. The respondent will mark check the option of choice.

Part three focused on the information regarding the exercise of the respondents. It is divided into two domains: duration each time and frequency per week. There are four options per domain. The respondent will mark check the option of choice.

Part four focused on the pressure status of the respondents. It is divided into two domains: gadget viewing time per day and sleeping time. There are four options per domain. The respondent will mark check the option of choice.

Sampling Technique

According to the study of Leblanc and Fitzgerald (2000), there is a minimum of 30 observations per independent variable. Since this study had six independent variables, then a minimum of 180 respondents is required. In this case, the researcher obtained a total of 185 respondents. Further, this study utilized stratified sampling. The respondents were divided into four strata (1st year, 2nd year, 3rd year, and 4th year students). Using convenience sampling, the researcher obtained samples per stratum, considering the inclusion-exclusion criteria set by this study.

Survey questionnaires were distributed along with weighing and height scales. The researcher gave an orientation about the study and its significance. The questionnaire can be answered within 5-7 minutes. Questions and clarifications are free to be answered. The accomplished questionnaires have been tallied, and the required statistical tools have been applied.

Statistical Tools

This study utilized the following statistical tools:

Mean. This descriptive statistical tool adds up the numbers in a set and divides by the total quantity of numbers in the set. It helps to assess a set of numbers by giving the average, helping to contextualize each data point (Hayes, 2023)

Standard deviation. This descriptive statistical tool measures a dataset's dispersion relative to its mean and is calculated as the square root of the variance. The standard deviation is calculated as the square root of variance by determining each data point's deviation relative to the mean (Hargrave, 2023).

Frequency- It is a representation, either in a graphical or tabular format, that displays the number of observations within a given interval. The frequency is how often a value occurs in an interval, while the distribution is the pattern of frequency of the variable (Young, 2022)

Ordinal logistic regression analysis is a statistical method that describes the relationship between an ordered response variable (Y) and one or more predictor variables (Y) (Dewi & Kusumawati, 2022)

Result and Discussion

Table 1A. The Demographic Profile of the Respondents in terms of Age and BMI Level

	N	Minimum	Maximum	Mean	Std. Deviation
AGE	185	17.00	24.00	20.1838	1.71273
BMI LEVEL	185	12.48	32.47	20.5464	3.61793

Table 1A shows the respondents' demographic profile regarding age and BMI level. The descriptive statistics show that the sample consists of 185 observations for the variable age. The minimum age is 17.00, the maximum age is 24.00, the mean age is 20.1838, and the standard deviation is 1.71273. These statistics indicate that the ages in the sample range from 17 to 24 years, with an average age of approximately 20.18 years. The standard deviation of 1.71273 suggests a relatively low level of variability in age within the sample.

For the variable BMI level, representing the Body Mass Index (BMI) levels of the individuals, the descriptive statistics show a minimum BMI level of 12.48, a maximum BMI level of 32.47, a mean BMI level of 20.5464, and a standard deviation of 3.61793. These statistics provide information about the distribution of BMI levels in the sample. The BMI levels range from 12.48 to 32.47, with an average BMI level of approximately 20.55. The standard deviation of 3.61793 indicates moderate variability in BMI levels within the sample.

Table 1B. The Demographic Profile of the Respondents in terms of Year Level

		Frequency	Percent	Valid Percent	Cumulative Percent
	1ST	62	33.5	33.5	33.5
	2ND	46	24.9	24.9	58.4
	3RD	37	20.0	20.0	78.4
	4TH	40	21.6	21.6	100.0
	Total	185	100.0	100.0	

Table 1B shows the demographic profile of the respondents in terms of year level. 1st Year (62 individuals, 33.5%) has the largest group, constituting 33.5% of the total sample. It suggests a significant representation of individuals in their first academic year. 2nd Year (46 individuals, 24.9%) is the second-largest group, comprising 24.9% of the sample, indicating a substantial presence of individuals in their second academic year. 3rd Year (37 individuals, 20.0%) is the group that represents 20% of the sample, suggesting a smaller but still notable portion of individuals in their third academic year. 4th Year (40 individuals, 21.6%) has 21.6% representation, indicating a similar proportion to the third year.

Table 1C. The Demographic Profile of the Respondents in terms of Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
	FEMALE	134	72.4	72.4	72.4
	MALE	51	27.6	27.6	100.0
	Total	185	100.0	100.0	

Table 1C shows the demographic profile of the respondents in terms of sex. The female respondents constitute 72.4% of the total. It indicates a substantial majority of females within the studied population. The male respondents comprise 27.6% of the total sample, suggesting a more minor but still noteworthy representation of males.

Table 2A. The Frequency of the Consumption of Breakfast per Week

	Frequency	Percent	Valid Percent	Cumulative Percent
NEVER	18	9.7	9.7	9.7
1-3X	71	38.4	38.4	48.1
4-6X	43	23.2	23.2	71.4
EVERYDAY	53	28.6	28.6	100.0
Total	185	100.0	100.0	

Table 2A shows valuable insights into the breakfast consumption habits within the sample. Never (18 individuals, 9.7%) suggests that 9.7% of the sample never consumes breakfast. 1-3x (71 individuals, 38.4%) has 38.4% of the sample, indicating individuals who consume breakfast 1 to 3 times a week. 4-6x (43 individuals, 23.2%): Individuals in this category consume breakfast 4 to 6 times a week, representing 23.2% of the sample. Everyday (53 individuals, 28.6%) suggests individuals who consume breakfast every day, constituting 28.6% of the sample.

Table 2B. The Frequency of Time Spent per Meal by Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
1-5 MIN.	24	13.0	13.0	13.0
6-10 MIN.	101	54.6	54.6	67.6
11-20 MIN.	46	24.9	24.9	92.4
>20 MIN.	14	7.6	7.6	100.0
Total	185	100.0	100.0	

Table 2B provides insights into the sample's distribution of time spent on meals. 1-5 min. (24 individuals, 13.0%) suggests that 13.0% of the sample spends 1 to 5 minutes on meals. 6-10 min. (101 individuals, 54.6%) spend 6 to 10 minutes on their meals, representing the majority of the sample at 54.6%. 11-20 min. (46 individuals, 24.9%) indicates individuals who spend 11 to 20 minutes on their meals, constituting 24.9% of the sample. >20 min. (14 individuals, 7.6%) suggests individuals who spend more than 20 minutes on their meals, representing 7.6% of the sample.

Table 3A. The Frequency of Time Spent During Exercise by the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
>90 MIN.	12	6.5	6.5	6.5
61-90 MIN.	2	1.1	1.1	7.6
30-60 MIN.	45	24.3	24.3	31.9
<30 MIN.	126	68.1	68.1	100.0
Total	185	100.0	100.0	

Table 3A t provides valuable insights into the distribution of exercise durations within the sample. >90 min. (12 individuals, 6.5%) suggests that 6.5% of the sample engages in exercise sessions lasting more than 90 minutes. 61-90 min. (2 individuals, 1.1%) spend 61 to 90 minutes on exercise, constituting 1.1% of the sample. 30-60 min. (45 individuals, 24.3%) represents individuals who engage in exercise sessions lasting 30 to 60 minutes, accounting for 24.3% of the sample. <30 min. (126 individuals, 68.1%) suggests that 68.1% of the sample participates in exercise sessions lasting less than 30 minutes.

Table 3B. The Frequency of Exercise Weekly by the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
EVERYDAY	31	16.8	16.8	16.8
4-6X	13	7.0	7.0	23.8
1-3X	98	53.0	53.0	76.8
NEVER	43	23.2	23.2	100.0
Total	185	100.0	100.0	

Table 3B provides valuable insights into the distribution of exercise frequencies within the sample. Every day (31 individuals, 16.8%) suggests that 16.8% of the sample exercises daily. 4-6x (13 individuals, 7.0%) reflects exercise 4 to 6 times a week, constituting 7.0% of the sample. 1-3x (98 individuals, 53.0%) engage in exercise 1 to 3 times a week, accounting for the majority at 53.0%. Never (43 individuals, 23.2%) suggests that 23.2% of the sample never exercise.

Table 4A. TV/Computer/Cellphone Viewing Time per Day

	Frequency	Percent	Valid Percent	Cumulative Percent
1-3 HOURS	26	14.1	14.1	14.1
4-6 HOURS	92	49.7	49.7	63.8
7-9 HOURS	45	24.3	24.3	88.1
>9 HOURS	22	11.9	11.9	100.0
Total	185	100.0	100.0	

Table 4A provides insights into the distribution of gadget usage durations within the sample. 1-3 hours (26 individuals, 14.1%) suggests that 14.1% of the sample uses gadgets for 1 to 3 hours. 4-6 hours (92 individuals, 49.7%) use gadgets for 4 to 6 hours, constituting the majority at 49.7%. 7-9 hours (45 individuals, 24.3%) who use gadgets for 7 to 9 hours, accounting for 24.3% of the sample. >9 hours (22 individuals, 11.9%) suggests that 11.9% of the sample uses gadgets for more than 9 hours.

Table 4B. The Frequency of Bedtime Preference by the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
< 10:00 pm	25	13.5	13.5	13.5
10:00 pm-11:00pm	40	21.6	21.6	35.1
11:00 pm-12:00MN	69	37.3	37.3	72.4
>12:00MN	51	27.6	27.6	100.0
Total	185	100.0	100.0	

Table 4B provides insights into the distribution of bedtime preferences within the sample. < 10:00 pm (25 individuals, 13.5%) suggests that 13.5% of the sample prefers to go to bed before 10:00 pm. 10:00 pm-11:00 pm (40 individuals, 21.6%) prefer to go to bed between 10:00 pm and 11:00 pm, constituting 21.6% of the sample. 11:00 pm-12:00MN (69 individuals, 37.3%) represents individuals who prefer to go to bed between 11:00 pm and 12:00 midnight, accounting for 37.3% of the sample. >12:00MN (51 individuals, 27.6%) suggests that 27.6% of the sample prefers to go to bed after midnight.

Table 5A. Model Information

Model	-2Log Likelihood	Chi-Square	df	Sig.
Intercept Only	369.153			
Final	322.589	46.563	23	.003

Table 5A presents model information from the given variable. The -2 Log Likelihood for the final model is 322.589. A lower value indicates a better fit. The Chi-Square statistic for the final model is 46.563. The comparison between the intercept-only and final models suggests that the final model provides a significantly better fit to the data, as indicated by the Chi-Square test's significance level. The lower -2 Log Likelihood for the final model further supports its superiority in explaining the observed data compared to the intercept-only model.

Table 5B. The Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	633.996	436	.000
Deviance	319.817	436	1.000

Table 5B shows the Goodness-of-Fit. The significant p-value (0.000) suggests that there is a significant difference between the observed and expected values, indicating a potential lack of fit for the model. The Deviance is substantially lower than the degrees of freedom, which could indicate a good fit. However, the Deviance test's non-significant p-value (1.000) suggests that the model fits the data well.

Table 5C. Pseudo R-Square

Cox and Snell	.223
Nagelkerke	.257
McFadden	.125

Table 5C shows the Pseudo R-square values. The Cox and Snell Pseudo R-Square value is 0.223. This metric ranges from 0 to 1, with higher values indicating a better fit. In this case, approximately 22.3% of the variability in the dependent variable is accounted for by the independent variables in the model. The Nagelkerke Pseudo R-Square value is 0.257. Like Cox and Snell, Nagelkerke's R-Square also ranges from 0 to 1. Here, around 25.7% of the variability in the dependent variable is explained by the model. The McFadden Pseudo R-Square value is 0.125. While lower than the other two, McFadden's R-Square is still a valuable indicator of model fit. In this case, 12.5% of the variability in the dependent variable is explained by the model.

Table 5D. Regression Coefficients and Significance Levels Table

		Estimate	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Threshold	[BMI_ORDINAL = 1.00]	1.762	4.065	.665	-6.205	9.730
	[BMI_ORDINAL = 2.00]	5.169	4.090	.206	-2.847	13.186
	[BMI_ORDINAL = 3.00]	6.828	4.113	.097	-1.233	14.889
Location	AGE	.163	.180	.367	-.191	.516
	[YEAR_LEVEL=1.00]	.692	.856	.419	-.985	2.369
	[YEAR_LEVEL=2.00]	.394	.712	.580	-1.001	1.789
	[YEAR_LEVEL=3.00]	1.090	.569	.056	-.026	2.206
	[YEAR_LEVEL=4.00]	0[a]	.	.	.	.
	[SEX=.00]	-.494	.362	.172	-1.203	.215
	[SEX=1.00]	0[a]	.	.	.	.
	[MEAL_FREQ_BFAST=1.00]	.061	.667	.927	-1.246	1.368
	[MEAL_FREQ_BFAST=2.00]	.370	.419	.377	-.451	1.191
	[MEAL_FREQ_BFAST=3.00]	-.076	.469	.871	-.995	.843
	[MEAL_FREQ_BFAST=4.00]	0[a]	.	.	.	.
	[MEAL_TIME_SPENT=1.00]	-1.548	.761	.042	-3.040	-.057
	[MEAL_TIME_SPENT=2.00]	-1.620	.684	.018	-2.962	-.279
	[MEAL_TIME_SPENT=3.00]	-1.004	.730	.169	-2.435	.428
	[MEAL_TIME_SPENT=4.00]	0[a]	.	.	.	.
	[EXER_DURATION=1.00]	-.974	.695	.161	-2.337	.388
	[EXER_DURATION=2.00]	-2.189	1.540	.155	-5.207	.829
	[EXER_DURATION=3.00]	-1.205	.410	.003	-2.009	-.401
	[EXER_DURATION=4.00]	0[a]	.	.	.	.
	[EXER_FREQUENCY=1.00]	-.142	.587	.809	-1.294	1.009
	[EXER_FREQUENCY=2.00]	-.529	.737	.473	-1.974	.915
	[EXER_FREQUENCY=3.00]	-.499	.453	.271	-1.387	.389
	[EXER_FREQUENCY=4.00]	0[a]	.	.	.	.
	[PRESSURE_GADGET=1.00]	.793	.642	.217	-.465	2.052
	[PRESSURE_GADGET=2.00]	.895	.524	.088	-.133	1.922
	[PRESSURE_GADGET=3.00]	.646	.591	.274	-.512	1.803
	[PRESSURE_GADGET=4.00]	0[a]	.	.	.	.
	[PRESSURE_BED=1.00]	-.480	.568	.398	-1.594	.633
	[PRESSURE_BED=2.00]	.200	.477	.676	-.736	1.135
	[PRESSURE_BED=3.00]	1.192	.452	.008	.306	2.078
	[PRESSURE_BED=4.00]	0[a]	.	.	.	.

Table 5D shows the regression coefficients and significance levels. Based on the results, age, year level, sex, frequency of taking breakfast weekly, frequency of exercising weekly, and gadget usage time are not significant predictors for BMI (p-value, >0.05). On the other hand, meal time spent, time duration of exercise, and time in bed are significant regressors for BMI (p-value, <0.05).

Meal times of 6-10 minutes have lower BMIs than respondents taking a meal in > 20 minutes. Exercise duration of 30-60 minutes has a lower BMI than having exercise in <30 minutes. At the same time, bedtime of 11:00 pm to 12:00 has a higher BMI than those who slept > 12.

Conclusion

The descriptive statistics analysis for the variable "age" in the sample of 185 observations reveals a range from 17 to 24 years, with a mean age of approximately 20.18 years and a relatively low level of variability around this mean. Also, the analysis of descriptive statistics for the variable "BMI level" provides insights into the distribution of BMI levels in the sample. The BMI levels vary from 12.48 to 32.47, with an average BMI of approximately 20.55 and a moderate degree of variability around this mean. This means that the respondents have a normal BMI status based on the criteria established by the Centers for Disease Control and Prevention (CDC). Likewise, the analysis regarding the academic year has a diverse distribution, with the 1st Year being the most represented, followed by the 2nd Year, and the 3rd and 4th Years having similar proportions. This means that 1st-year students participate more than the other year level, considering the sampling techniques utilized by this study. Lastly, female respondents have a higher number of participants in terms of participation than males, comprising a smaller yet still noteworthy proportion.

The analysis reveals a diverse range of breakfast consumption patterns within the sample, with a notable percentage of individuals in each category. Most of the sample

consumes breakfast regularly, every day, or a few times a week, while a smaller percentage never consumes breakfast. This means that most respondents consume breakfast regularly in a week. This is to prepare themselves for the academic assessments set by the school instructors. Consuming a complete meal could contribute to energy production for bodily needs. On the other hand, the analysis reveals a varied distribution in the time spent on meals within the sample. The majority of individuals spend 6 to 10 minutes on their meals. A smaller percentage spends less time (1-5 min.) or more time (>20 min.) on their meals. This information provides insights into the diversity of mealtime habits among the studied population.

The analysis indicates a diverse distribution in the duration of exercise sessions within the sample. The majority of individuals engage in exercise sessions of less than 30 minutes, while a significant percentage participates in sessions of 30 to 60 minutes. Smaller proportions of the sample spend more extended periods, either 61 to 90 minutes or over 90 minutes, on their exercise sessions. On the other hand, the analysis indicates a diverse distribution in the frequency of exercise within the sample. Most individuals exercise 1 to 3 times a week, while smaller percentages exercise every day or 4 to 6 times a week. Additionally, a noteworthy proportion of the sample never engages in exercise. This means that most respondents do not exercise due to allotting most of their time in studying.

The analysis reveals a diverse distribution in the duration of mobile device usage within the sample. The majority of individuals use gadgets for 4 to 6 hours, while substantial percentages use gadgets for shorter durations (1-3 hours) or longer durations (7-9 hours and >9 hours). This means that respondents utilize mobile devices for entertainment through different social media platforms, for communication, for watching lecture videos for educational purposes, or for reading files in preparation for academic assessments. On the other hand, the analysis reveals a varied distribution in bedtime preferences within the sample. Most individuals prefer to go to bed between 11:00 pm and 12:00 midnight, while other substantial percentages prefer different bedtime ranges—before 10:00 pm, between 10:00 pm and 11:00 pm, or after midnight. This means that the respondents consider staying late at night to study in preparation for the upcoming academic assessments, yet not beyond midnight to secure enough strength for the next day's activities.

In summary, the statistical indicators, specifically the Chi-Square test and the -2 Log Likelihood, suggest that the final model better fits the data, providing a more accurate and meaningful representation than the intercept-only model. While the significant p-value raises a flag, the non-significant p-value from the Deviance test suggests that the model fits the data well overall. Further, the Pseudo R-squared values indicate a moderate to substantial variability in the dependent variable explained by the independent variables in the model. The model appears to have a reasonable fit, and the choice of the R-Square metric influences the perceived level of explanation. Based on the analysis of the provided statement, it can be concluded that certain factors are not significantly associated with BMI (Body Mass Index), namely age, year level, sex, frequency of taking breakfast weekly, frequency of exercising weekly, and gadget usage time, as indicated by p-values greater than 0.05. However, the result suggests that mealtime spent, time duration of exercise, and time in bed are identified as significant regressors for BMI, with p-values less than 0.05. Specifically, respondents with a meal time of 6-10 minutes tend to have a lower BMI than those taking a meal over 20 minutes. This means that the more time a respondent takes his meal, the higher the risk of becoming obese. The longer the time, therefore, the increase in meal consumption.

Additionally, individuals engaging in exercise for 30-60 minutes exhibit a lower BMI than those with exercise durations of less than 30 minutes. This means that respondent who takes less time or does not exercise has a higher risk of becoming obese. Furthermore, individuals who go to bed between 11:00 pm and 12:00 am tend to have a higher chance of becoming obese than those who sleep after midnight. BMI levels are more affected by the number of hours of sleep instead of the specific time to sleep. According to the study by Attardo, 2018, titled: “

Sleep, obesity, and how they are related," individuals who have been deprived of sleep have a higher chance of becoming obese. In this case, although participants slept before 12 midnight, it is not a guarantee that they will get the normal level of BMI. In summary, the provided data suggests that certain lifestyle factors, such as mealtime, exercise duration, and bedtime, are associated with variations in BMI among the respondents.

Overall, academic institutions offering Medical Technology/Medical Laboratory Science courses should highlight the contributory factors in obtaining obesity. In addition, such institutions should establish programs to mobilize information to raise awareness among students, thus becoming mindful of their lifestyles.

Acknowledgement

I extend my heartfelt appreciation to the University of Mindanao for providing necessary support essential for carrying out this research. Special thanks to Dr. Melisa Aratia Ph.D. for serving as my mentor throughout the process of conducting this study in the field of Discrete Choice Analysis at University of Southeastern Philippines. Your guidance, expertise, and unwavering support have been invaluable, and I am immensely grateful for the opportunity to learn under your mentorship.

To my family, thank you for your endless love, understanding, and encouragement. Your unwavering support has been the pillar of my strength, and I am deeply grateful for your sacrifices and belief in my abilities.

Lastly, I would like to acknowledge the divine guidance and blessings from God, without which this research would not have been possible.

References

Alsultan, N., Alanazi, M., Boholigah, A., Alshammari, D., Alnahwi, K., & Alsayafi, Z. (2018). The Influence of Stress on Body Mass Index Among Female University Students. The Egyptian Journal of Hospital Medicine, 8.

Anderson, H., Masri, S., & Abdallah, M. (2022). 2022 ACC/AHA Key Data Elements and Definitions for Chest Pain and Acute Myocardial Infarction: A Report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Data Standards. Circulation: Cardiovascular Quality and Outcomes.

Anjani, B., Adiwibawa, D., Farmananda, I., & Pramana, K. (2023). The Relationship of Gadget Addiction and Diet Pattern to the Body Mass Index (BMI) of Adolescents Ages 15-17 Years Old. Jurnal Psikiatri Surabaya.

Axelrad, D. (2019). America's Children and the Environment. Washington, D.C.

Castro, M. C. (2021). Landscape Analysis on Childhood Overweight and Obesity: The Philippines. Mandaluyong City, Philippines: UNICEF Philippines Country Office.

CDC. (2021). Body Mass Index: Considerations for Practitioners. Department of Health and Human Services Centers for Disease Control and Prevention.

CHED. (2017). Policies, Standards, and Guidelines for the Bachelor of Science in Medical Technology/Medical Laboratory Science (BSMT/MLS) Program. Commission of Higher Education; CHED Memorandum Order No. 13. City, Quezon , Philippines.

Dewi, T., & Kusumawati, R. (2022). An Ordinal Logistics Regression Model for Analyzing Risk Zone Status of COVID-19 Spread. Barekeng: Journal of Mathematics and Its Implication, 8.

Doctor, T. F. (2023). TFD. Retrieved from https://thefilipinodoctor.com/condition/myocardial-infarction-heart-attack

Elmagd, M. A. (2016). Benefits, Need and Importance of Daily Exercise. International Journal of Physical Education, Sports, and Health .

Engdahl, B., & Ziegel, B. (2022). Statistics on Myocardial Infarctions 2021. The National Board of Health and Welfare.

Fatima, N., Noor, Z., & Shafique, S. (2020). Effect of Breakfast Skipping on Body Mass Index Adolescent University Girls. Journal of University Medical and Dental College, 22.

Hargrave, M. (2023). Standard Deviation Formula and Uses vs. Variance. Investopedia.

Hayes, A. (2023). What is Mean? Definition in Math and Formula for Calculation. Investopedia.

Ivanovski, Z., Milenkovski, A., & Narasanov, Z. (2018). Time Series Forecasting Using A Moving Average Model For Extrapolation of Number of Tourist. UTMS Journal of Economics.

LeBlanc, M., & Fitzgerald, S. (2000). Logistic Regression for School Psychologists. School Psychology Quarterly.

Lim, B., & Zohren, S. (2021). Time-series Forecasting with Deep Learning: A survey. Phil. Trans. R. Soc.

Lin, X., & Li, H. (2021). Obesity: Epidemiology, Pathophysiology, and Therapeutics. Frontiers in Endocrinology, 9.

Lobstein, T., Jackson-Leach, R., Powis, J., Brinsden, H., & Gray, M. (2023). World Obesity Atlas. Chancery Lane, London WC2A 1EN: World Obesity Federation.

Manjunatha, N. (2019). Descriptive Research. Journal of Emerging Technologies and Innovative Research.

Mechanic, O., Gavin, M., & Grossman, S. (2023). Acute Myocardial Infarction. StatPearls.

Mohajan, H. K. (2020). Quantitative Research: A Successful Investigation in Natural and Social Sciences. Journal of Economic Development, Environment and People.

Nuttall, F. (2015). Body Mass Index Obesity, BMI, and Health: A Critical Review. Nutrition Research.

OECD/WHO. (2012). In-hospital Mortality Following Acute Myocardial Infarction and Stroke. In OECD/WHO, Health at a Glance: Asia/Pacific 2012. Paris: OECD.

Puspitasari, A., Satibi, Yuniarti, E., & Taufiqurohman. (2022). Forecasting Drug Demand Using the Single Moving Average 3 Periode at UGM Academic Hospital. Unimma Journal.

Qin, X., Chen, L., Liu, X., Zheng, S., & Wang, X. (2018). Factors Affecting Body Mass Index in Overweight/Obese University Students, Gansu, China: A Cross Sectional Study. 11.

Quioc, M., Ambat, S., Lagman, A., Ramos, R., & Maaliw, R. (2022). Analysis of Exponential Smoothing Forecasting Model of Medical Cases for Resource Allocation Recommender System. 2022 10th International Conference on Information and Education Technology .

Rekha, C., Lalitha, N., Paramaguru, R., & Paul, C. (2022). Prevalence of Overweight and Obesity among Medical Students. International Journal of Scientific Study, 4.

Snell, E., Adam, E., & Duncan, G. (2007). Sleep and the Body Mass Index and Overweight Status of Children and Adolescents. Child Development, 15.

TFD. (2023). The Filipino Doctor. Retrieved from https://thefilipinodoctor.com/condition/myocardial-infarction-heart-attack

Tran, B. (2022). Academic Pressure Affect Students' Lives Mental Health Crisis & Academic Failure. American Journals of Higher Education.

von Braun, J., Afsana, K., Fresco, L., & Hassan, M. (2023). Science and Innovations for Food Systems Transformation. Gewerbestrasse 11, 6330 Cham, Switzerland: Springer Nature Switzerland AG .

WHO. (2021, June 9). Obesity and Overweight. Retrieved from World Health Organization: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

Young, J. (2022). Frequency Distribution: Definition in Statistics and Trading. Investopedia.