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Research Article

INFLUENCE OF PHYSICAL ACTIVITIES AND FOOD PREFERENCE AMONG OVERWEIGHT STUDENTS OF NAAWAN, MISAMIS ORIENTAL PHILIPPINES

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ABSTRACT

This study aims to determine the influence of physical activities and food preference among overweight students of Naawan, Misamis Oriental. This study adopted the descriptive survey and structured interview design and the profile of the study was generally expressed in percentage and mean. This study was conducted on 11 boys and 12 girls overweight students of Naawan, Misamis Oriental that were identified using a standard health-related physical fitness test with its corresponding score scale to measure their health classification. A sample of 102 respondents was used. Data were collected using questionnaires and interview schedules. Data was analyzed in both descriptive and inferential statistics. The study establishes that the major cause of overweight is decreased light physical activity and the freedom of making their own choices of food also plays a significant factor in the development of overweight and obesity. The study recommended that students should have regular physical activity and parents should encourage their children to do household chores and to follow the food guide for Filipinos.

Keywords: Physical Activities, Food Preference, Overweight Students.

INTRODUCTION

Background of the Study

Living a healthy and happy life must start in the earlier stage of the adolescents' life. Their health habits and practices today as well as in the past will greatly affect the status of their future health. Accordingly, adolescents should work towards maximizing the level of their health and wellness to live long, full, and healthy lives. The pursuit of health, personal growth, and improved quality of life rely on living a balanced life. To achieve balance, one needs to care for his mind, body, and spirit. Contrary to this phenomenon, it has been observed today that being overweight among teenagers has played a very serious problem for all Filipinos and even worldwide. According to a global estimate by the World Health Organization (WHO), in 2005 there were about 1.6 billion overweight persons aged 15 years and above, and among them at least 400 million adults were obese. The WHO further projects that by 2015, approximately 2-3 billion adults will be overweight and more than 700 million will be obese. Furthermore, in the Philippines, overweight children below five years old have become rampant, listing a 400% percent increase from 1% in 1992 to 5 percent in 2013 (Perez, A, CNN Phil. 2016). Similar data now are being reported from many developing countries, particularly in those in Asia and, to a lesser extent, in Africa. In Bahrain, studies showed a marked increase in obesity noted more among adolescents, ranging from 15% to 45% (Ruston, D., *et al,* 2006). This problem among teenagers should be given immediate attention because this can lead to potentially fatal conditions and several diseases associated with obesity at an early age. Published reports have shown that overweight and obesity are associated with impaired glucose tolerance, hypertension, atherosclerotic risk factors, and type II diabetes among children (Velasquez-Mieyer, *et al.,* 2007). This situation will eventually affect the growth and development of a person. To address this problem, every individual should acquire physical fitness, through regular physical activities that will burn the caloric intake of their body and proper food intake also plays a vital role to achieve this goal. In this connection, the researcher decided to investigate the influence of physical activities and food preference among the overweight students of Naawan, Misamis Oriental.

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Significance of the Study

The result of this study provides a wide array of understanding and awareness of the importance of health to mankind. This study may help the Department of Education in designing a MAPEH curriculum incorporating more physical activity for the students. Parents will become health conscious and will prepare nutritious food for the whole family, especially for the children as well as engage them regularly in some of the household chores. For elementary and high school students, the findings would add to their knowledge in maintaining their physical health that would contribute efficiently and effectively to their performance of their duties and responsibilities in school and in the community. They will be able to freely participate and enjoy all activities in the community. As to private and public employees, the result of this study would be precisely useful to them as it shows a general awareness of the importance of physical health to every individual who is overweight and in maintaining their normal health status. For the practitioners, this study would help them design an improved Physical Fitness Program in their respective workplaces and will eventually apply to groups of students or individuals who desire to maintain toned-up bodies. Lastly, to the general public, the findings of this investigation may be used to attain a normal health status that would help in the performance of their daily tasks in the community or in their respective households.

LITERATURE REVIEW

This study was embarked on Hippocrates' advice that eating alone will not keep a man well, he must do exercise. He also recommended that regular moderate physical activity improve health and well-being. Accounts from the early civilization physical activity and physical expression played a significant role in the lives of every individual

which is manifested in a form of play, dance, and sports. This assumption determined the status of the respondents in terms of their time allotment for physical activity and the type of physical activities they performed at home and in school. The present study was anchored in the book of Hoeger and Hoeger (2016) which posited that physical activity which is done regularly, produces health benefits and thus is considered to be a form of exercise. This involves specifically, the health-related components of a person where the health status classification was tested. Distinctly, from the differences in the instrument and method used among these studies, the one thing that keeps them similar is the significant implication of these studies to one's health status.

METHODOLOGY

The Research Design

The researcher used the descriptive survey and structured interview design to determine the influence of physical activities and food preference among the 23 overweight high school students of Naawan Misamis Oriental. In this study, the researcher used a standardized health-related physical fitness test with a corresponding score scale for the evaluation of the respondents' classification. The test was composed of step test (cardiovascular endurance), abdominal curl-ups (Girls) and push-ups (boys) modified push up (girls) (muscular endurance), modified sit-and-reach (lower back flexibility), and body-mass-index (BMI, for body composition) were measured in all subjects (Condo, Banawa, & Biong, 2010). A questionnaire was used to determine the other health-related factors and health consciousness.

The Locale of the Study

Naawan is a fourth-class municipality of Misamis Oriental with a total land area of 8, 808 hectares. It has ten barangays and the major settlement of the area is the Poblacion with a population of 18,895. There are three high schools in the municipality, two were used as the location of this study namely; Mindanao State University of Naawan located at Purok #3, Poblacion, Naawan, Misamis Oriental and Naawan National High School located at Simanoc, Naawan, Misamis Oriental.

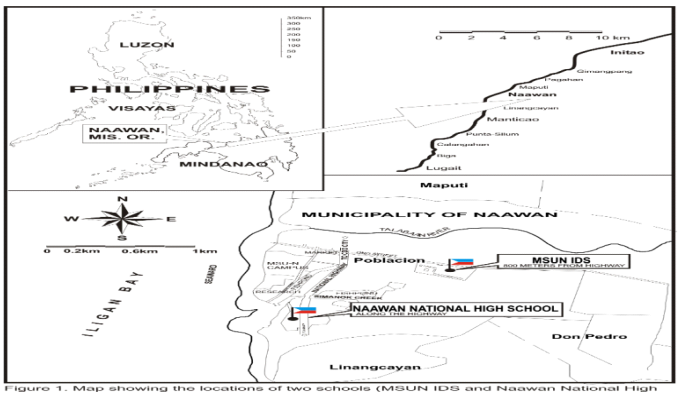

Figure 1. Map showing the locations of two schools (MSUN IDS and Naawan National High

Figure 2. Map of Naawan Misamis Oriental

The Respondents/Informants of the Study

The study was conducted at Naawan Misamis Oriental Region 10 covering two secondary schools during the second semester of the calendar year 2018-2017. There were 102 qualified respondents, only 58 signified to join the program but because of some reasonable circumstances, only 23 overweight high school students appeared during the conduct of the study. The small population may have been caused by the following reasons: first, the program was voluntary and not compulsory among the identified respondents. Second, time is inconvenient to the respondents. Lastly, the commitment of the respondents to be a part of the study is very important. The limitation of the study is mainly based on the commitment of the respondents.

Table1. The Population of the Study

Name of School	Number of Respondents (Male)	Number of Respondents (Female)	TOTAL
MSUN-IDS	9	11	20
Naawan National High School	2	1	3
TOTAL	**11**	**12**	**23**

Gathering of Data

Prior to the conduct of the program, parents, and guardians of the respondents were sent a letter requesting them to allow their children to join the program and to answer a structured questionnaire to obtain information on the level of physical activity, nutritional habits, socio-economic status and other factors that may be contributory to the development of overweight of their children. Likewise, the respondents were made to sign a waiver to join the program. A self-made questionnaire was designed consisting of two parts. Part one was on the nature and extent of the physical activities of each child. Part two consisted of questions and choices reflecting the acting patterns and food preferences of each participant. Heights and weights were either measured or obtained from the schools' medical records of the students who were within 12-17 years old. A measurement was used to compute the Body Mass Index (BMI) of students by dividing the weight (kilograms) by the square of the height (meters).

Statistical Treatment of Data

The data gathered on the profile of the respondents were statistically treated using the Weighted Mean,

1. **Mean Average** is a particular value or average of the variables. The average of a numerical set is found by dividing the sum of a set of numbers by the total number in the group. Therefore it is expressed necessarily in the same unit. The mean of a series is the quotient obtained by dividing the sum of the values by the number of items. If x1,x2,.....xn is the N values of a variate X, then the Arithmetic Mean ($\bar{X}$) is defined as the quotient of the sum of the values divided by their number .

   Symbolically,

   $$\bar{X} = 1N[x1+x2+.....+xn] = \sum XN$$

   $$\text{Mean} = \sum XN$$

   Where,

   X = Values of the variables

   $\sum$ = Total of the values and read as summations

   N = Number of item

2. **Percentage** is a number or ratio expressed as a fraction of 100. It is often denoted using the percent sign, "%"

RESULTS AND DISCUSSION

The Profile of the Respondents

The incidence of overweight among high school students in Naawan, Misamis Oriental is in the age bracket of 14 to 15 years old and is high among female respondents appeared consistent with the result of the Food and Nutrition Research Institute, (2014) where females have a slightly higher incidence of overweight than males as shown in figure 1.

Respondents' Profile in Terms of Age

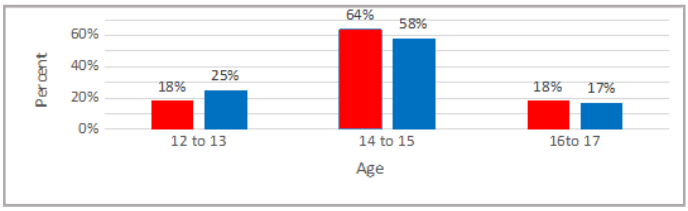

Figure 1. Percentage Distribution of Respondents' Age

Figure 1 shows the percentage distribution of the respondents' age. About sixty-four percent (64%) are female respondents and fifty-eight percent (58%) are male in the age bracket of 14 to 15 years old. Almost eighteen percent (18%) are female while twenty-five percent (25%) are male in the age bracket of 12 to 13 while eighteen percent (18%) are female and seventeen percent (17%) are male in the age bracket of 16 to 17. This implies that the age bracket 14 to 15 years old has the most number of overweight students may perhaps be due to the increasingly less adult supervision in terms of selection of food preferences and the nature of the physical activity they engage in. As observed it is during this age that there is a plateau in the growth and development of the adolescent, especially for females (Corpuz, *et.al.,* 2010).

Respondents' Profile in Terms of Gender

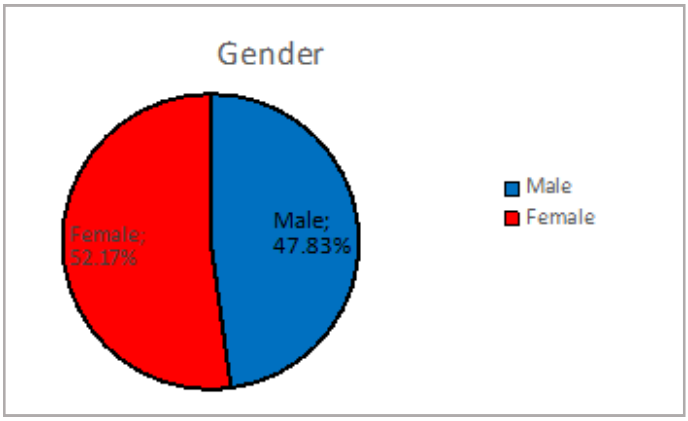

Figure 2. Percentage Distribution of Respondents by Gender

Figure 2 shows the percentage distribution of the respondents' gender. As reflected, around fifty-two percent (52%) of the respondents are female and forty-eight (48%) are male. This means that the incidence of overweight is noted to be higher among female students than in male students. This finding is consistent with the result of the national study where females have a slightly higher incidence of being overweight than males (Food and Nutrition Research Institute, 2014).

Respondents' profile in terms of socio-economic status

As disclosed in figure 3, the monthly income of the majority of the respondents belongs within the bracket of 21, 000 to 25,000 which falls in the lower middle income as shown in the table of classification of income from the National Statistics Authority, 2015.

Respondents' profile in terms of socio-economic status

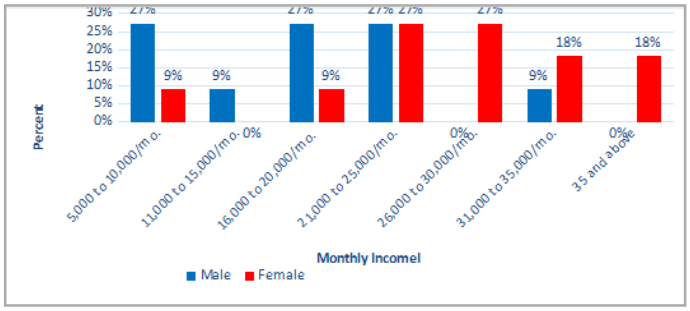

Figure 3. Percentage Distribution of Respondents' Socio-Economic Status

Figure 3 shows the percentage distribution of the respondents' socio-economic status. Around 27% of both the female and male respondents have an income of 21,000-25,000.00 per month and 27% of males and 9% of females earn both 16,000-20,000 and 5,000-10,000 per month. About 27% of female and 0% of male earn 26,000-30,000 per month while 18% of the female and 9% of male earn 31,000 to 35,000 per month. Likewise, (18%) of female and 0% of female earn 35,000 and above and 9% of male and 0% of female earn 11,000-15,000 per month. This implies that most of the respondents both male and female family income is in the bracket of 21,000 to-25,000 pesos per month which appear to be in the lower middle income as shown in the table of classification of income from the National Statistics Authority, 2015

Profile of the Respondents' Other Physical Activities at Home

Declining light physical activities were common among the respondents and the frequency of either vigorous or moderate is low. Some other activities at home which compromised physical activity are watching television, playing video games, and doing assignments. These activities require only a very static or minimal movement making the adolescents overweight or obese. The choice of food they eat plays a significant role in the development of overweight teenagers. Thus, they were freely given the choice of what food they are going to eat during their lunch and snack. Eating in fast-food chains was also common among the respondents making it more convenient.

Respondents' Profile in terms of Engagement of the Type Exercise

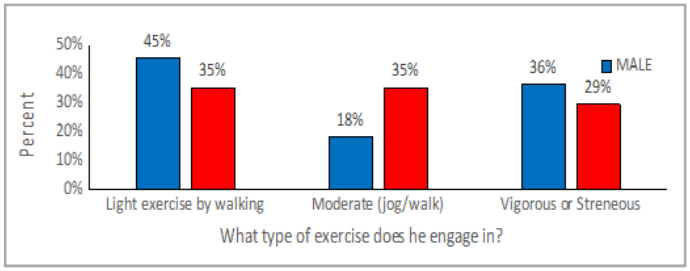

Figure 4. Percentage Distribution of the Respondents' Engagement on the Type of Exercise

Figure 4 shows the percentage of the respondents' engagement in physical activity. Most of the overweight or obese, around 45% male

and 35% female had only light intensity exercise like walking, and about 36% of males and 29% of females engaged in vigorous exercises such as sports; basketball, soccer, tennis, while 18% male and 35% female performed moderate-intensity exercise like jogging/walk. This result implies that the role of declining physical activity contributes to the development of overweight and obesity among adolescents. Although, all the age groups appear to have significant physical activity the frequency of performing both moderate and vigorous is low. A new study published in the journal of *Medicine & Science in Sports & Exercise* suggests that, contrary to what many people believe, mundane activities such as walking around the office and climbing stairs have a positive impact on health (Villarica, H., 2011). However, this theory may be applicable to those who are still in the normal health status to maintain the desire weight of a person. For overweight, they need to double up the effort in order to achieve the goal for acquiring a normal weight.

Respondents' Frequency of Physical Activities

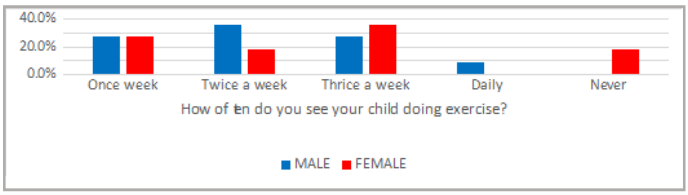

Figure 5. Percentage Distribution of Respondents' Frequency of Engagement in Physical Activities

Figure 5 shows the frequency of physical activity of the respondents. Around 36.4% of female and 27.3% of male engaged in physical activity with a high frequency (thrice a week) and 36% male and 18% female engaged in twice a week. About 27.3% of both male and female who were reported that they engaged in physical activity once a week while 18% of female were never engaged. However, 9.1% of male performed physical activity daily. This finding implies that majority of the respondents are preoccupied with activities which do not require physical movement for a longer period of time. The types of exercise also greatly affect the development of their health status such that, most of them were only engaged in light intensity exercise such as walking. For overweight individuals, it is best to apply the principle of overload and progression to for a fast result.

Respondents Other Activities at Home and Frequency of Engagement in this Activity daily

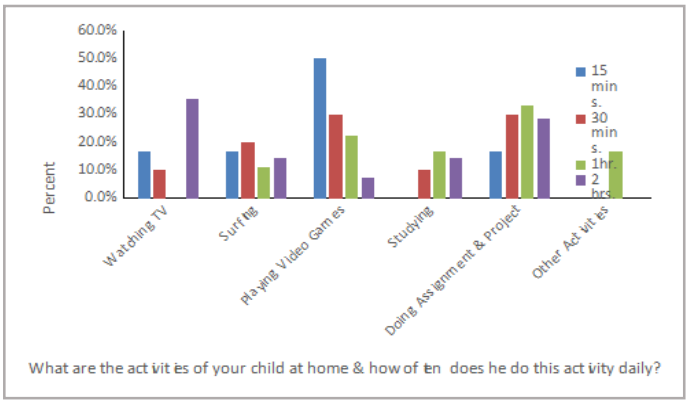

Figure 6. Percentage Distribution of Respondents' Frequency of Engagement in Physical activities

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Profile of the Respondents in Term of their Food Intake

Responses as to Whether the Respondents Eat Breakfast.

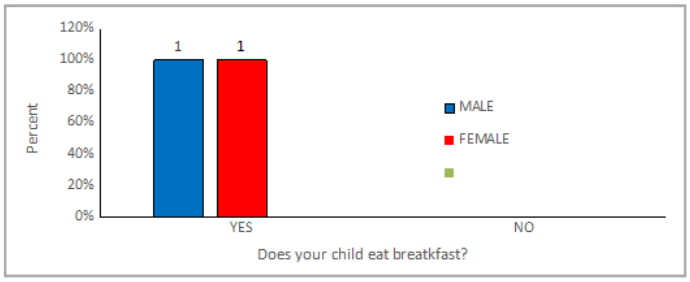

Figure 7. Percentage Distribution on Responses as to Whether the Respondents Eat Breakfast

Figure 7 shows the percentage distribution on the responses of the respondents as whether they eat breakfast. All (100%) of both female and male respondents ate breakfast daily. This is just normal, for adolescents need more calories because of their high metabolic demands during this stage and so, the quantity of food intake does not seem to contribute to obesity as most of the respondents eat meals three times daily. However, the choice of foods may be of importance.

Responses as to the choices of Food the Respondents During Breakfast

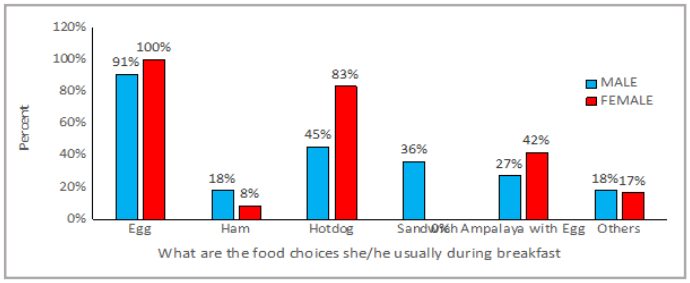

Figure 8. Percentage Distribution on the Responses of the Respondents' Choices of Food during Breakfast

Figure 8 reveals the percentage distribution on the responses of the respondents' choices of food during breakfast. All (100%) of female and Ninety-One (91%) of male chose to eat egg during breakfast. Around 83% female and 45% male referred to eat hotdog during breakfast. 42% of female and 27% of male chose to eat ampalaya with egg for their breakfast while 36% of male referred to eat sandwich in the morning. About 18% of male and 8% of female chose to eat ham likewise, 18% of male and 17% of female chose other food for their breakfast. This implies that the respondents average meal for breakfast consisted of carbohydrates (bread), protein, (meat & egg), vegetables (ampalaya) and processed foods such as hotdog or ham. Although, protein (egg) plays a very important part in their daily meals there should be a balance nutrients for them to sustain their whole day activities as a student and as a person. As indicated, there is a great consumption of processed foods by the respondents

this maybe contribute their status as overweight individuals. Processed Foods belongs to fancy foods that may contain only artificial favoring and not the nutrients that are needed by their bodies.

Reponses as to what does the Respondents Ate for Lunch

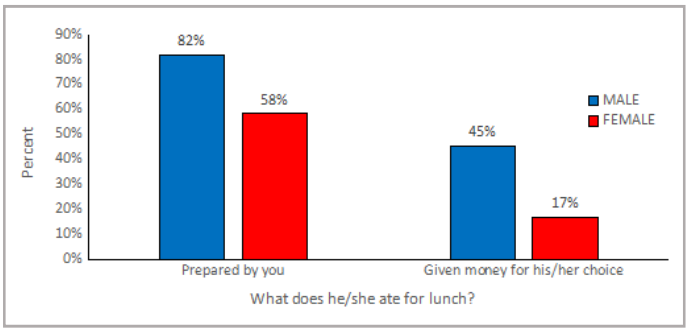

Figure 9. Percentage Distribution on the Reponses as to what does the Respondents Ate for Lunch

Figure 9 shows the percentage distribution on the responses as to what does the respondents ate for lunch. Majority (82%) male and (58) female respondents' parents prepared the food for lunches of their children while 45% are male and 17% are female were given money. This implies that the choices of what is eaten during lunch time is still monitored and supervised by the parents. Hence, it does contribute much to the incidence of overweight among the respondents.

Responses as to the Food Preference of the Respondents during Lunch

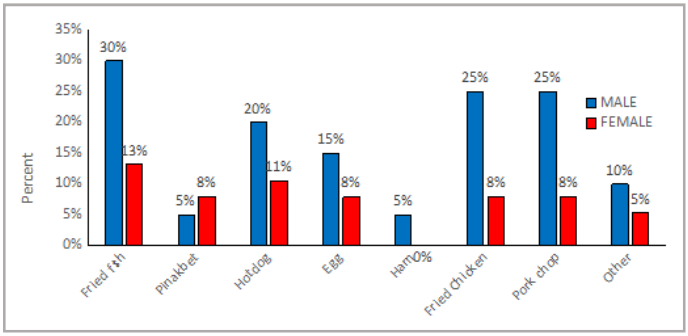

Figure 10. Percentage Distribution on the Responses as to the Respondents' Food Preference during Lunch

Figure 10 reveals the percentage distribution on the responses as to the Food choices during lunch. Around 30% are male and 13% female chose to fried Fish (Protein) for lunch while 25% are male and 8% are female referred both fried chicken and pork chop (Protein) for their lunch. About 20% are male and 11% are female preferred hotdog and 15% are male and 8% female referred egg for their lunch. Around 8% are female and 5% male preferred pinakbet (vegetable) for their lunch while 5% are male chose ham and 8% for other menu. This result implies that most the food preference of the respondents were high protein which contributes to the body mass of a person thus, making their health status fall under the classification of overweight or obese. Processed Foods also play a significant role in the growth of the development of overweight students hence, this contains artificial flavoring that are pleasant in appearance and taste only but does not contribute to a healthy lifestyle.

Response as to the Manner of the Respondents' Preference for Snacks

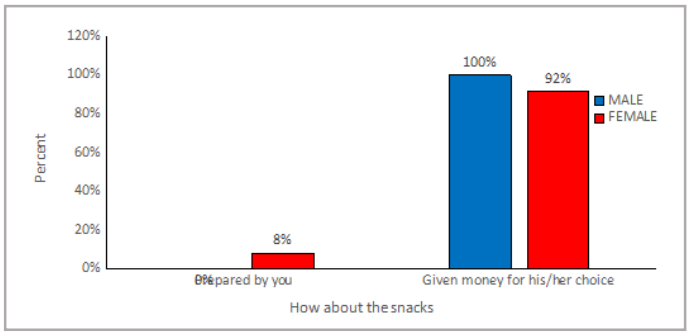

Figure 11. Percentage Distribution on the Responses as to the Manner of the Respondents' Preference for Snacks

Figure 11 shows the percentage distribution on the responses as to the manner of the respondents' preference for snacks. Majority (100%) male and 92% of female preferred to be given money for their snacks while 8% of female and 0% of male chose their snacks which are prepared by their parents. This implies that the respondents have freedom to choose for their snacks since most were only given money for their preference. There are many fancy foods sold in most of the canteens including junk foods, fries, cream and candies which are usually taken with bottles of juice and soft drinks (cited in the study of obesity in school-aged children: Prevalence and Cause, 2009). These have increased the caloric intake of the respondents as one can see that it surpass the recommended value as it appears that the choice of snack is rich in sugar and fats.

Responses as to Whether They Eat in the Fast Food

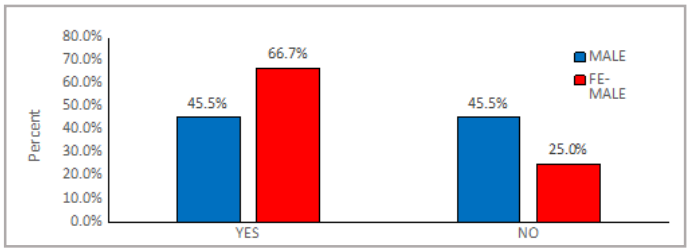

Figure 12. Percentage Distribution on the Responses as to Whether They Eat in the Fast Food

Figure 12 shows the percentage distribution on the responses as to whether they eat in the fast food. Majority (66.7%) female and 45.5% male answered yes while 45.5% male and 25% female answered no. This implies that fast food eating is one common practice among the respondents. Dining in this place was commonly done once a week for convenience and easy to acquire. Some of the parents make it as a reward for high performance in school. This condition contributes to the development of overweight individual since fast foods are fancy foods which are hurriedly done and highly caloric and with so much sugar. This implies that physical activity and physical inactivity can greatly affect the growth and development of overweight individuals. Likewise, the respondent's choice of food also contributes to the fast-growing problem of overweight and obesity. It is very important to have regular physical activities at home and in school to compensate for the caloric intake of the body. Moreover, there should be a thorough supervision and monitoring of the daily food intake of children. The right amount and a balance diet should be observed and followed to gradually minimize their weight problem since it cannot be imposed abruptly for they are already on the state of overweight or obese health status.

CONCLUSION

The freedom of making their own choices of food also plays a significant factor in the development of overweight and obesity. Although, it is our choice to make our children physically active and train them to become independent in the different aspect of their personality but we should not neglect the fact that a healthy mind needs a healthy body, thus being physically fit is an essential and not a choice anymore.

RECCOMENDATIONS

Delicious and fancy foods are all around and it becomes a challenge now-a-days to attain the level of good health by preparing adequate meals through a variety of nutritious foods. The Food Guide is but one of the many nutritional and dietary tools and guidelines developed by the FNRI to help the Filipinos achieve good health and nutrition (See Table 9). Should this study be replicated, a bigger sample should be used.

Table 9. Suggested Food Guide for Filipinos

FOOD GUIDE FOR FILIPINOS	
EAT MOST	Rice and Other Cereals, bread and root crops
EAT MORE	Vegetable and fruits
EAT MODERATELY	Animal foods, Dried beans and nuts
EAT JUST ENOUGH	Fats, oil and sugar

Table 9, shows the suggested food guide for Filipinos. This guide is composed of four categories, first, eat most, these are the food which gives energy to our body such as rice and other cereals, bread and root crops. These are necessary to keeps our body on the go with all the activities for the whole day especially for the adolescents who are very active during this stage. With the many changes they encounter at this stage it is but important that they will be given proper guidance on what foods are necessary for them and the amount of food intake their body needs. Second, eat more, these include vegetables, and fruits which are fibers and are needed by the body for cleansing and repairing our body systems. These are equally important to keep the body functional at all times. Third, eat moderately; these are animal foods, dried beans and nuts. These foods are body building foods that are also necessary for us, such that it is responsible for our body structure and functions. It is needed by the body as strength in lifting and carrying any objects or things we encounter daily. Lastly, eat just enough food that serves as fuel to our body such as fats, oil and sugar. These are needed for us to function but a very critical selection of food sources should be considered such that these food should come from saturated fats (meat and dairy products) and saturated sugar (mango, guyabano, pineapple, and other sweet fruits). These foods also may be converted into energy but an excessive amount of these foods will be converted into cholesterols that are dangerous to our health.

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