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KNOWLEDGE ON NUTRITION AND EATING HABITS OF HIGH SCHOOL STUDENTS OF THE BULACAN AGRICULTURAL STATE COLLEGE: BASIS FOR NUTRITION EDUCATION PROGRAM

JENNIFER I. GUEVARRA,
Bulacan State University, City of Malolos, Bulacan
LUZVIMINDA F. TANTOCO, Ed.D
Bulacan Agricultural State College, San Ildefonso, Bulacan

Abstract

This study looks on how the socio-demographic profile and nutrition knowledge of the high school students of Bulacan Agricultural State College (BASC) relate to their eating habits. It employs descriptive method of research where survey questionnaires were the main instrument in gathering data from a total of 262 respondents enrolled for the Academic Year 2014-2015. The survey questionnaire was developed to describe the socio-demographic characteristics, nutrition knowledge, eating habits and daily meal intake of respondents. The nutrition knowledge and food habits are focused on domains of essential food nutrients, good nutrition principles and healthy food choices.

The nutrition knowledge of respondents in terms of essential food nutrients, nutrition principles and healthy food choices all got a descriptive interpretation of *very knowledgeable*. In terms of eating habits, all the categories of eating habits were descriptively interpreted as *moderately healthy,* as in the intake of essential nutrients, practice of good nutrition principles and preference on healthy food choices.

A strong negative significant correlation exists between grade level of respondents and in all the categories of eating habits. Age, gender, parents' educational level and occupation of students

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were found no significant correlation with their eating habits. Nutrition knowledge in terms of essential food nutrients has a strong positive correlation with eating habits in terms of intake of foods containing the essential nutrients and is positively correlated in terms of preference on healthy food choices. On the other hand, nutrition knowledge in terms of the different nutrition principles was found to be positively correlated with the respondents' eating habits in term of preference on healthy food choices. No significant association was found between nutrition knowledge in terms of healthy food choices with all the categories of eating habits..

Based from the result of the study, the college shall adopt a nutrition program to help improve the eating habits of students focusing on improving students' knowledge of nutrition, promoting healthy eating habits among them, increasing awareness on physical activities and wellness, and educating parents and other stakeholders on the value of good nutrition practices.

In coming up with a more effective approach in improving the eating habits among students, the result of the study suggests that a more intensive research investigating the factors affecting students' practice of nutrition must be conducted.

Keywords: nutrition, eating habits, education, knowledge, food, health

Introduction

Nutrition is of greatest importance in the normal functioning of the human body. Proper nourishment helps individuals perform the tasks required by their specific stage of life. During school age, students are exposed to a wide array of activities, both academic and physical ones, to meet the requirements of the curricular offerings. In meeting such requirements effectively, nutrition plays a vital role.

The World Health Organization (2014) explains nutrition as the process whereby the body takes food in consideration of its dietary requirements; and the manner by which the body utilizes nutrients in food for growth, energy, and maintenance. When the body is working the way it should, it is in its good physical health (Duyff, 2010). Proper nutrition is essential to good health which is vital in performing physical, mental, emotional and social endeavours and in reaching optimum growth and development.

Physiological growth and mental development characterize the adolescent stage, which prepares individuals to more mature roles and responsibilities as they reach the adult stage. Studies have shown that adolescence is the period of life where most of the adult's dietary pattern can be acquired, that whatever practices established during this stage, it will be carried on through adulthood. Acquiring good nutritional practice is very crucial in this stage in order to live a well and fruitful life throughout their adulthood.

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High school students fall under the age bracket of adolescent stage which is characterized by rapid growth and development, the reason why there is a need to put a greater concern on their diet so as to realize their fullest growth potential. Adolescents tend to have more food choices compare to their childhood stage wherein food intake is mostly supervised by adult family members. Their nutritional status is at greater risk due to many factors that can bring remarkable effect on their food habits. It is also the stage of teen-age years where they are starting to seek independence from their parents including the choice of foods to eat. Peer pressures, social media, food advertisements and the like cannot be disclaimed that greatly influence their nutrition practices.

Stang and Story (2005), explained that it is during the adolescent stage where individual's ability to understand new and difficult situations and information significantly changed; and in the desire of these young people to become unique and independent individuals where the requirement for nutrients suddenly increased, coupled with growing desire for freedom when it comes to choosing foods, and not so mature intellectual abilities, places them at nutritional jeopardy.

Today's adolescent's way of life is being interrupted by the many influences surrounding them, and one being greatly affected is their food habit that can lead to poor nutrition. In the Philippines, malnutrition remains to be one of the serious problems where adolescents are affected. The Food and Nutrition Research Institute (FNRI) under the Department of Science and Technology (DOST), conducted its 8th National Nutrition Survey on 2013, and reveals that Filipino adolescents were stunted and wasted with obtained percentages of 31.6 and 12.4, respectively. Survey also revealed that occurrence of overweight/obese continued to increase from 4.9% in 2003 to 8.3% in 2013. With regards to the adolescents' nutritional needs and concerns, FNRI reported that:

"Puberty and adolescence are periods of rapid growth and development, thus nutrient requirements are high. Nutritional concerns during adolescence are eating disorders, inappropriate food patterns including skipping meals, the practice of food fads and crash diets and the use of alcohol and drugs." (Compendium of Philippine Medicine, 2012)

Mâsse, Fitzgerald, Watts, Naylor and Saewyc (2014) found out that availability and consumption of sugar-sweetened beverages and other environments were related with higher adolescent obesity and concluded that school plays an imperative role in shaping adolescents' dietary habits.

With regards to the nutrition of children and adolescents, American Dietetic Association (2010) stated that children and adolescents who do have adequate consumption of foods and beverage that provide energy and essential nutrients are at risk of nutritional problems such as

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growth retardation, iron-deficiency anemia, poor performance in school and increased possibility of developing psychosocial difficulties and chronic diseases such as heart disease and osteoporosis during adulthood.

The importance of diet for the promotion of good health and prevention of disease has been the concern of most health providers nowadays due to the occurrence of diet related diseases even at very young age such as diabetes, cancers and heart problems. This has led to greater focus on the diet and eating patterns of school children and adolescents since their period of growth is critical in the formation of positive nutrition attitude that might be carried on throughout adulthood. Ming, Ying and Kassim (2006), emphasized that healthy eating patterns such as eating frequency, skipping of breakfast, and frequency of meals eaten away from home have implication on school children's nutritional status, as well as in their academic performance

As teenagers, the high school students of Bulacan Agricultural State College (BASC) are also prone to having improper eating habit due to many factors that can influence their dietary practices. At their age, they have started gaining independence when it comes to deciding on what food to take since most of their times are spent away from home.

The BASC campus has main canteen, which is operated by the college, and commercial food stalls that rent spaces to cater the food needs of students during snacks and lunch. There are no guidelines to follow as to the kind of foods to be sold to students, except for the prohibition of cigarette and liquor. These stalls may offer food items that are not considered to be contributing to healthy intake of foods. Upon observation, the common food items identified being sold by food stall owners inside the college for snack items were hamburgers, hotdog sandwiches, French fries, fish balls, *kikiam*, squid balls, fried chicken skin, siomai, *lugaw,* macaroni soup, biscuits, breads, pancakes, cheese sticks, candies, chips, softdrinks, *buco* juice, *samalamig*, artificial fruit juices and others foods items wherein mostly high in fat, salt, and sugar. Among the viands served during lunch were chicken adobo, ground pork guisado, afritada, menudo, fish fillet, hotdog, fried chicken and other meat dishes. Vegetable dishes were observed not being served regularly. During an interview, the canteen manager reported that vegetable dishes were left unsold in the counter when they offered it because students do not usually choose vegetables over meat dishes.

The nutritional quality of meal that students will take may be affected by influences such as knowledge of nutrition, family food pattern, peer influence, multi-media and the school food environment. The above mentioned influences, if not controlled, might lead students to poor eating habit, thus, poor nutritional status, a condition that may hinder these young people in becoming highly productive adults.

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Since the dietary practice is vital to having a healthy nutritional status, and that it is significantly formed during teenage years, it is believed that the institution where teen-agers acquired their formal education is a great avenue for the development of positive eating behavior. For this reason, this study aimed to determine the nutrition knowledge and eating habits of secondary students to serve as basis in the formulation of nutrition education program for the college.

Statement of the Problem

The general problem of this study is: How do the socio-demographic profile and nutrition knowledge of the high school students of Bulacan Agricultural State College (BASC) relate to their eating habits?

Specifically, this study sought answers to the following questions:

1. How may the socio-demographic characteristics of the respondents be described in terms of

1.1. sex

1.2. age

1.3. grade

1.4. parents' educational attainment and

1.5. parents' occupation?

2. What knowledge on nutrition do respondents have pertaining to

2.1. essential food nutrients

2.2. nutrition principles and

2.3. healthy food choices?

3. How may the eating habits of the respondents be described in terms of

3.1. intake of essential food nutrients

3.2. practice of good nutrition principles and

3.3. preference on healthy food choices?

4. Is there a significant relationship between eating habits,

4.1. socio-demographic profile, and

4.2. nutrition knowledge?

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5. What nutrition education program may be proposed based on the findings of the study?

Methodology

This study made use of descriptive research method employed in the Laboratory High School Students of Bulacan Agricultural State College. Lomax and Li (2013) explained that descriptive research typically describes what appears to be happening and what the important variables seem, and that data are gathered and analysed statistically. This method involved gathering quantitative information, which, in this study, utilized survey method for that purpose. A survey method has the advantage of taking a census or large sample of population (Axinn, 2006).

In an attempt to describe the characteristics of the entire population and to obtain a more accurate and reliable result, this study made use of census or complete enumeration in data gathering. A self-made questionnaire was administered to elicit information required to answer problems of the study. Actual observations and interviews were conducted to validate data and identify possible factors affecting their response. The data gathered were cleaned, encoded, tabulated, analysed using descriptive statistical tools. Frequency count, percentage, mean, and standard deviation were the statistical tools used to describe socio-demographic characteristics, while nutrition knowledge and food habits utilized weighted mean and standard deviation. To determine if relationship exists between variables, Pearson's product moment correlation coefficient was used. A Statistical Package for the Social Sciences (SPSS) software was utilized in the analysis and organization of data. Results were validated with other findings and presented in manner that answered the problems of the study.

Careful analysis of results led to the recommendations of nutrition program that may be adopted by the College to help improve eating habits of students.

Population of the Study

The respondents of the study were the Laboratory High School students of Bulacan Agricultural State College. As presented in Table 1, the distribution of number of students per year level was 50, 43, 76, and 120 for Grade 7, Grade 8, Grade 9 and 4th Year, respectively. A total of 289 enrolled students in the Academic Year 2014-2015 were chosen to be the participants of this study. A complete enumeration was employed in the population count of the study. Out of 289 students enrolled, only 262 were able to accomplish questionnaire because others were absent in class during the survey administration.

Table 1

Population of the Study

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Grade Level	Number
7	50
8	43
9	76
4th Year	120
Total	**289**

Research Instrument

A self-made survey questionnaire was used in the gathering data from the respondents. The questionnaire was developed employing questionnaires from other related studies and in reference with related literatures. The developed questionnaire consists of four parts that described socio-demographic profile, nutrition knowledge, eating habits and daily meal intake of respondents. The instrument was developed based on the objectives, problems and conceptual framework presented in this study.

The Part I of the questionnaire was designed to obtain socio-demographic characteristics of the respondents. It asked questions concerning sex, age, grade level, and father's and mother's educational attainment and occupation. These data were required to describe the characteristics of the respondents and to determine its relation with other variables of the study.

To assess the nutrition knowledge of students, a 20-item multiple choice questions was formulated as Part II of the questionnaire. Questions were divided into three categories: seven (7) items focused on essential food nutrients; six (6) items on nutrition principles; and seven (7) items on healthy food choices. Questions were made to select the correct letter of answer on among three choices. Correct answer got an equivalent value of one (1) while wrong answer got zero (0) as equivalent value. The mean scores of each question, the total average mean score per category, and as a whole were computed and descriptively interpreted using the three-point Likert scale equivalent below:

Numerical Scale	Range	Verbal Interpretation
3	0.68 – 1.0	Very Knowledgeable
2	0.34 – 0.67	Knowledgeable
1	0 – 0.33	Not Knowledgeable

Each of the questions in Part II, which are concerned with nutrition knowledge, had a corresponding equivalent question on Part III, as its practice of the knowledge. Questions were not grouped accordingly but arranged in irregular order in the questionnaire to grasp respondents' general knowledge of nutrition and eating habits without focusing only on specific category.

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The Part III of the instrument was consist of a 20-item Likert-type questions concerning respondents' degree of practice on the different eating habits. Questions were also of three categories: seven (7) items for the intake of essential nutrients; six (6) items for the practice of good nutrition principles; and seven (7) items for the preference on healthy food choices. Respondents identified their degree of practice as *Always, Often, Sometimes, Rarely* and *Never* with assigned equivalent values of 5, 4, 3, 2 and 1, respectively. Inverse numerical values were assigned for items that were considered negative practices. To have a detailed description of the eating habits of the respondents, the average mean scores of each question, category and as a whole were computed and interpreted. Both for six-item and seven-item set of questions, a five-point Likert scale equivalent was utilized. For the descriptive interpretation of the eating habits of the respondents, the scale below was utilized:

Numerical Scale	**Range (6-item questions)**	**Range (7-item questions)**	**Verbal Interpretation**
5	4.81-6.00	5.61-7.00	Very Healthy
4	3.61-4.80	4.21-5.60	Healthy
3	2.41-3.60	2.81-4.20	Moderately Healthy
2	1.21-2.40	1.41-2.80	Slightly Healthy
1	1.00-1.20	1.00-1.40	Not at All Healthy

Part IV of the instrument was constructed to evaluate the daily meal intake of respondents where they were asked to list down food items consumed from breakfast to afternoon snack. Students were also asked of the reasons if in case they are skipping meals. This part of instrument was intended mostly to assess the nutritional practice and the quality of foods being taken by respondents, especially, while in school. The data were utilized as bases in the formulation of nutrition program for the College.

Each part of the survey questionnaire had clear instructions on how each question will be accomplished to ensure that data gathered were the ones the study was trying to capture. Each item in the questionnaire was carefully formulated, selected, modified and constructed in consideration of the developmental stage and level of comprehension of the respondents.

Results and Discussion

Socio-Demographic Profile

Table 2 describes the socio-demographic characteristics of the respondents. The total population of the laboratory high school was included as respondents of the study. Out of the 262 respondents surveyed, majority (60%) of the respondents were female and 40% were male.

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Respondents were at the age ranging from 12- 16 years old. The highest number was composed of 15 year olds at 85 (32%), while 56 (21%) were at age 16; 50 (19%) at age 14; 47 (18%) at age 13 and the least number of the youngest respondents (9%) was the youngest, at 12 years old.

For the grade level, most of the respondents were on 4th year level, 106 out of 262 (40.5%). Seventy-one (27.1%) of the respondents were Grade 9; 47(17.9%) were Grade 7; and the least number, 38(14.5%) were Grade 8.

Table 2

Socio-Demographic Characteristics of Respondents

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Items	Frequency	Percent
Sex		
Male	106	40
Female	156	60
Total	**262**	**100**
Age		
12	24	9.2
13	47	17.9
14	50	19.1
15	85	32.4
16	56	21.4
Total	**262**	**100**
Grade		
7	47	17.9
8	38	14.5
9	71	27.1
4th Year	106	40.5
Total	**262**	**100**
Father's Educational Attainment		
Under Elementary	6	2.4
Elementary Graduate	31	12.3
Under High School	9	3.6
High School Graduate	54	21.3
Under College	60	23.7
College Graduate	88	34.7
Vocational Course	5	2.0
Total	**253**	**100**
Mother's Educational Attainment		
Under Elementary	4	1.5
Elementary Graduate	34	13.1
Under High School	16	6.2
High School Graduate	64	24.7
Under College	45	17.4
College Graduate	93	35.9
Vocational Course	3	1.2
Total	**259**	**100**
Father's Occupation		
Manager	4	1.6

Continuation of Table 2

Professional	9	3.6
Technician/Associate Professional	4	1.6
Clerical Support Worker	7	2.8
Service and Sales Worker	55	22.3
Skilled Agricultural, Forestry and Fishery Worker	81	32.8
Craft and Related Trades Worker	13	5.3
Plant and Machine Operator/ Assembler	4	1.6
Elementary Occupations	30	12.1
Armed Forces Occupation	3	1.2
Self-employed	13	5.3
OFW (category unknown)	14	5.7
No Occupation	10	4.0
Total	**247**	**100**
Mother's Occupation		
Manager	1	0.4
Professional	28	10.9
Clerical Support Worker	2	0.8
Service and Sales Worker	20	7.8
Skilled Agricultural, Forestry and Fishery Worker	11	4.3
Craft and Related Trades Worker	32	12.5
Elementary Occupations	6	2.3
Self-employed	16	6.2
OFW (Category Unknown)	9	3.5
No Occupation	132	51.4
Total	**257**	**100**

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As presented in the table, most of their fathers were college graduates which are comprised of 88 (34.8%) and college undergraduates, 60 (23.7%) out of 253 respondents. Only six (2.4%) respondents have fathers who were not able to finish elementary schooling. Nine respondents did not have clear answers and were identified as missing items.

Among the 259 respondents, 93 (35.9%) of the respondents' mothers were able to obtain a college degree, and 64 (24.7%) were college level. Very few of the respondents' mothers did not finish elementary schooling, 4 (1.5%). There were three respondents who did not answer the question.

It can be observed that most parents of respondents were able to reach higher degree of formal education which provided them opportunity to gain sufficient knowledge on nutrition that may influence food habits of their children.

In terms of parents' occupation, out of the total 247 respondents, the top three occupations of fathers were those categorized as: [1] skilled agricultural, forestry and fishery workers at 81 (32.8%); [2] service and sales workers at 55 (22.3%); and [3] elementary occupations at 30 (12.1%). The top occupation of respondents' father fell under the category of skilled agricultural, forestry and fishery worker, since the locality is known for rice and vegetable production. As described by the Philippine Standard Occupational Classification (PSOC) (*see Appendix C*), such category of occupation involves growing and harvesting of field or tree and shrub crops and breeding or producing variety of animal husbandry products for food and income (Philippine Statistic Authority). It can be observed that only 10 (4%) of the populations' fathers were not employed at the time of the study. Fifteen of the responses were not considered in the survey due to inconsistency of answers.

On the other hand, it can be observed that majority of the respondents' mothers were housewives at 132 (51.4%), categorized under no occupation. Those mothers with occupation were mostly engaged in craft and related works, 32 (12.5%) and in the professional category, 28 (10.9%). Two respondents did not answer the question while three responses were not applicable. Since most mothers of the population are stay-at-home mothers, they may have greater opportunity of shaping healthy eating patterns among family members as compare to those mothers who are working away from home.

Nutrition Knowledge of the Respondents

The nutrition knowledge of the respondents was collected from the 20-item questionnaire which was presented in terms of the following categories: Essential Food Nutrients, Nutrition Principles and Healthy Food Choices.

Table 3 presented the data on nutrition knowledge of the respondents in terms essential food nutrients which were gathered out of the seven-item questions in the questionnaire. The

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question which got the most number of correct answer was on the nutrient responsible for maintaining fluid, where the answer is water; 252 out of 262 respondents answered the question correctly, with a mean score of 0.96 and descriptive interpretation of *very knowledgeable*. Respondents were also described as *very knowledgeable* when it comes to identifying the rich food sources of calcium for keeping the bone and teeth healthy, since most of them got the correct answer of milk, cheese, yogurt with a mean score of 0.85. The same verbal description was obtained on the question on which color of fruits and vegetables does Vitamin A is highly present, where most students, with 0.84 computed mean, answered correctly the yellow and dark-green color. The question which got the lowest mean score of 0.66 (172 out of 262) and obtained a descriptive interpretation of *knowledgeable*, fell on the question about the nutrient the body needs in order to grow new cells and repair old one wherein the correct answer is protein.

When it comes to the knowledge of nutrition in terms of the essential food nutrients, the population was described as *very knowledgeable* since the obtained average mean score from the seven questions relative to essential food nutrients was 0.79. The result may imply that respondents have learned the basic concept of the essential food nutrients since its lessons have been included in the elementary and high school curricula.

Table 3

Summary of Nutrition Knowledge of Respondents

Nutrition Knowledge Category	Mean	Descriptive Interpretation
Essential Food Nutrients	0.79	Very Knowledgeable
Nutrition Principles	0.84	Very Knowledgeable
Healthy Food Choices	0.89	Very Knowledgeable
Total Mean	**0.84**	**Very Knowledgeable**

It can be generalized from the result that respondents were highly knowledgeable in terms of nutrition. Similar result was obtained in the study conducted by Nabhani-Zeidan, Naja and Nasreddine (2011) when they examined the nutrition-related knowledge among groups of adolescents in Lebanon with high and low socio-economic status, where, they found that nutrition knowledge was high among both groups. Regardless of the source of nutrition information, as well as to whether they put the knowledge into practice, it can be noted that most of adolescents have good knowledge of nutrition.

Eating Habits of the Respondents

Eating habits of students was assessed thru a 20-item questionnaire categorized into intake of essential food nutrients, practice of good nutrition principles, and preference on healthy food choices.

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*T*he result obtained out of the seven-item questions in the questionnaire relative to the intake of essential food nutrients. It revealed that respondents intake of fish got the highest mean score of 4.22 with a descriptive interpretation of *healthy* in the five-point Likert scale equivalent. The item that got the lowest mean score of 2.69 was about squash and carrots as part on their daily food intake, which, descriptively interpreted as *slightly healthy*.

Table 4

Summary of the Eating Habits of Respondents

Eating Habits	Mean	Descriptive Interpretation
Essential Food Nutrients	3.54	Moderately Healthy
Good Nutrition Practices	3.46	Moderately Healthy
on Healthy Food Choices	2.91	Moderately Healthy
Grand Mean	3.30	Moderately Healthy

The result indicates that most high school students do not have the optimum practice of healthy eating habits. As Stang and Story (2005) noted in their study, healthy eating is not a primary concern during teenage years, as snacking and day meals of secondary students are usually done outside the home, and with less supervision from parents, as well as with many factors that can influence their food choices leading to poor eating practices.

Current Nutrition Practices of High School Students of BASC

Since the result of the study shows that nutrition knowledge is a good predictor of eating habits among students, an intervention must be done by the college to help improve their knowledge of nutrition. Additional effort must also be made towards promotion of good eating practices since result also shows, that as the grade level of students advances, their healthy eating habits decreases.

To assist in the proposal of nutrition education program, the survey questionnaire was presented on the following tables below, and utilized for the said purpose. A nutrition education program for the college is proposed to improve the eating habits of students with specific objectives of incorporating food safety and healthy food choices in the operation guidelines of food establishments in the college, promoting healthy eating habits among students, and educating parents and the whole college community on good nutrition practices**.**

Since most of the time of students are spent away from their home during school days, snacks and lunch are mainly consumed in school. Based from the result of the survey, a great number of respondents *always* take their snacks in the morning with 132 (50.8%), while those who responded *often* were 61 (23.5%).

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When respondents were asked on where they usually take their lunch, majority of them took their lunch at food stalls located inside the campus, with 169 (66%) out 256 respondents. Also, 46 (18%) were noted taking lunch at the college canteen. With the large number of students being catered inside the campus for lunch and snack, the college, as well as those involved in food services, may serve as instrument in promoting positive food habits and improving nutritional status among students through provision of healthy food choices.

As students usually take their snacks and lunch in the campus, the college should come up with guidelines concerning operations of the college canteen and food stalls inside the campus, bearing policy statements on food safety and nutritional value of foods to be served to students. The said guideline shall be stipulated in the contract agreement between the college and food stall operators. There shall be strict compliance to the guideline and its implementation shall be strictly monitored by a task force to be created by the college.

In terms of nutritional quality of the snacks, food items bought by the respondents were categorized as follows: (1) *unhealthy* if all the food items cited contain high amount of sugar, fat, salt and food additives; (2) a *little unhealthy* if most of the food items cited contain high amount of sugar, fat, salt, and food additives; (3) *somewhat healthy* if most of the food items cited do not contain high amount of sugar, fat, salt, and food additives; and (4) *healthy* if all the food items cited do not contain high amount of sugar, fat, salt, and food additives. It was found that majority of the food items bought by the students were only *a little healthy* (143 or 55.6%). The respondents having *unhealthy* snacks reached up to 60 (23.3%). This means that food items taken by the respondents for their morning snacks do not contain the proper kind and amount of nutrients essential for good health, and may contain ingredients that may be harmful to health. Only 10 (3.9%) of the respondents were found to have *healthy* food items during morning snack.

It can be observed in Table 16, that even though large number of students take their lunch at regularity of *always* at 43.5% (114), and often at 38.5%(101), skipping lunch was a usual practice for those responded with regularity of *sometimes, rarely* and *never* at 16.4% (43), 1.1% (3) and 0.4% (1), respectively, despite lunch being an important meal of the day.

Respondents were asked of common reasons for skipping their lunch. The primary reason cited by the respondents for skipping their lunch was the amount of school work they need to complete with 86 (41.5%) out of 203 responses. When interviewed, respondents explained that they were allotted only a 40-minute lunch break, which does not provide them enough time to finish other school work, thus, opted to skip lunch for that matter. According to Mr. Sidney Barredo, laboratory high school teacher, the time allocation for lunch was only 40 minutes because the college was in the four-day scheme during the time of interview, but since the

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current scheme at present is five-day, students are given 90 minutes lunch break (Personal Communication, July 25, 2016).

A great number of respondents reasoned that they do not like the food choices available, with 41 or 19.8%, and according to interview, this reason prompted them to purchase foods which are not healthy replacement for lunch. Other respondents cited the short time allotment (37 or 17.9%) as their reason for skipping lunch.

Students should be made to understand the importance of taking meals properly and choosing the right kind of foods on their overall well-being. Though lessons in nutrition are already embedded in the junior high school curriculum, a reinforcement must be done so that the theory learned from the class will be applied to their daily life. Exposing students in activities related to nutrition such as participation in the Nutrition month, and provision of Information Education Campaign (IEC) materials may deem to promote healthy eating habits among students.

Breakfast is considered to be the most important meal of the day since it starts empowering the body with the needed nutrient for the day's work. When respondents were asked on the common breakfast items they usually take, processed foods such as hotdog (99 responses), noodles (40 responses), tocino (22 responses), and canned meatloaf (20 responses) were identified.

Parents should realize that said food items do not provide the proper nutrient needed by their children and that prolonged consumption may cause harm to health due to additives added on them. Since parents are the ones mostly preparing meals for their children at home, they must be oriented with the value of proper nutrition and be guided towards promoting healthy eating pattern among family members.

As parents are primarily responsible for the food preparation at home and can greatly influence the food habits of their children, they should be equipped with proper knowledge of nutrition and be made to appreciate the value of good nutrition. Also, members of the college community must serve as role model to students regarding the practice of good nutrition and healthy lifestyle. Thereby, activities such as seminars, lectures, regular physical activities, and provision of Information Education Campaign (IEC) materials are some of the proposed interventions for educating the faculty and staff, parents, guardians, food stall operators, and the whole college community.

The environment in school is the ideal place to establish and promote healthy food habits among children and adolescents through foods availability, nutritional policies, school nutrition and health curricula and program, and teacher and peer modelling (Taylor, Evers, and McKenna, 2005).

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Relationship of Socio-Demographic Profile and Nutrition Knowledge with the Eating Habits of the Respondents

The relationship of the socio-demographic profile and the eating habits of the respondents was presented in Table 11. As can be seen in the result, from among the socio-demographic characteristics, only the grade level was found to be significantly associated with eating habits. There is a strong significant correlation exists between grade level of respondents and in all the categories of eating habits. The resulting r values of correlation coefficient between grade level and eating habits were -0.163**, -0.319** and -0.193** for categories of intake of essential food nutrients, practice of good nutrition principles and preference on healthy food choices, respectively, thus, denoted strong negative correlation.

It can be noted from the result that as grade level advances, eating habits of respondents decreases. The said result can be glided for the reason that as student level progresses, it is assumed that school tasks become more complex, thus, requiring much of students' attention leading to lesser focus on practicing good eating habits. As reported by Kim, Grimm, Harris, Scanlon and Demissie (2011) regarding fruit and vegetable consumption among high school students in USA, students in higher grade levels of 10 and 12 have significantly lower consumption than among students in grade 9 level.

Table 5

Correlation Coefficient between Socio-Demographic Characteristics with Eating Habits

Socio-Demographic Characteristics	Eating habits					
	Intake of Essential Food Nutrients		Practice of Good Nutrition Principles		Preference on Healthy Food Choices	
	r	Sig r	r	Sig r	r	Sig r
1. Age	-0.031	0.612	-0.027	0.665	-0.049	0.421
2. Sex	-0.061	0.318	0.085	0.167	-0.012	0.843
3. Grade Level	**-0.163****	0.007	**-0.319****	0.000	**-0.193****	0.002
4. Fathers' Educational Attainment	0.021	0.734	-0.031	0.615	0.002	0.975
5. Mothers' Educational Attainment	-0.052	0.395	-0.070	0.256	0.001	0.986
6. Fathers' Occupation	0.079	0.199	0.072	0.239	0.078	0.203
7. Mothers' Occupation	-0.005	0.933	0.032	0.603	0.102	0.097

**, P < 0.01 Highly Significant

As students get senior, their exposure to factors affecting food patterns widens which can actually put them to greater risk of acquiring unhealthy eating habits. Once the children begins schooling, they also start to gain independence on choice of food, which may put them at risk of taking food without consideration to its nutritional value. Since there are many factors that may influence food habits of students while away from home, the risk of acquiring unhealthy food habits increases as they age in school.

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No significant correlation was found between age and eating habits, which may be to reason why respondents do not have strong variation in terms of age, ranging from 12-16 years old, which all fall under the stage of adolescence. Sex was not correlated with eating habits which means eating habits of male students do not differ significantly with female students, since both groups are within the age bracket where consciousness on the effect of food intake is not yet of strong concern. Meanwhile, parents' educational attainment and occupation do no significantly affect respondents' eating habits which may because during the time of the study, respondents already have independence on their food choices and that parents can no longer supervise their intake of food especially when they are in school or outside their homes.

Table 12 presents data showing the association of nutrition knowledge and eating habits of the respondents in terms of the different categories. It can be observed that nutrition knowledge in terms of essential food nutrients has a strong positive correlation with eating habits in terms of intake of foods containing the essential nutrients (*r=0.175***); and is positively correlated in terms of preference on healthy food choices (*r=0.152**). On the other hand, nutrition knowledge in terms of the different nutrition principles was found to be positively correlated with the respondents' eating habits in term of preference on healthy food choices since the computed *r* value is *0.136*.* It can be gleaned from the result that the nutrition knowledge of students is a good predictor of their eating habits, that, as the knowledge in nutrition increases the practice of good eating habits improves.

Table 6

Correlation Coefficient between Nutrition Knowledge with Eating Habits

Nutrition Knowledge	Eating Habits					
	Intake of Essential Food Nutrients		Practice of Good Nutrition Principles		Preference on Healthy Food Choices	
	r	Sig r	r	Sig r	r	Sig r
1. Essential Food Nutrients	**0.175****	0.004	0.047	0.443	**0.152***	0.013
2. Nutrition Principles	0.043	0.485	0.036	0.557	**0.136***	0.027
3. Healthy Food Choices	-0.005	0.932	0.018	0.775	-0.083	0.174

**, P < 0.01 Highly Significant

*, P < 0.05 Significant

This result coincides with the study conducted by De Vriendt, Mattyhs, Verbekke, Pynaert, and De Henauve (2009) when they investigated the association between nutrition knowledge and dietary behavior of Belgian women. They found out that there was a positive correlation between respondents' nutrition knowledge and consumption of fruits and vegetables, and that women who had examined with better dietary practices were those with better knowledge in nutrition.

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Also, Similar result was obtained by Milosavljević, Mandić, and Banjari (2015) when they investigated the relationship between nutritional knowledge and dietary habits survey in high school population. It showed that low nutritional knowledge among population is associated with unhealthy eating habits such as skipping meals, fad dieting, and high consumption of sweets, soft drinks, meat and meat products

No significant association was found between nutrition knowledge in terms of healthy food choices with all the categories of eating habits.

With consideration of the abovementioned results, the researcher came up with a matrix of the proposed nutrition education program for the school.

Proposed Nutrition Education Program

Figure 2 presents the matrix of the propose nutrition education program that was formulated based from the findings of the study. Since nutrition knowledge has significant effect on the eating habits of the respondents, intervention must be made in order to improve literacy of students on nutrition. Nutrition lessons are already part of elementary and high school curricula, and to enhance students' comprehension of the lessons they have acquired, it can be supplemented with Information Education Campaign (IEC) to make learnings more meaningful. Such IEC materials may contain nutrition tips, guidelines, and principles developed by concerned agencies.

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Objective	Strategies/ Procedures	Persons Involved	Resources	Time Frame	Budget	Verifiable Indicator
1. Improve students' knowledge of nutrition by gaining more insights on the essential nutrients and nutrition principles.	Develop and disseminate IEC materials introducing the essential nutrients and healthful nutrition principles. - *room to room campaign* - *distribution of IEC materials* - *posting of nutrition posters to College cafeteria & food areas*	Institute of Education Arts & Sciences (IEAS)	College fund	August 2018-July 2019	10,000	No. of IEC materials developed, posted and distributed Survey result
2. Promote healthy eating habits among students	Incorporate healthy food and beverage choices in the operation guidelines of food establishments in the college with reference to DepEd Order No.13,s.2017 (*see Appendix D*)	Director for Planning Director for IGP	Faculty and staff	June-July 2018	2,000	Printed operational guidelines Institutionalization of guidelines Monitoring reports
	Provide nutritionally adequate weekly menu plan, with reference to the FNRI Daily Nutritional Guide for Filipinos, which can serve as guide by the cafeteria manager, food stall owners and parents in planning healthy meals for the students. (*See Appendix F*) - *posting of tarpaulin print of menu in the cafeteria* - *distribution of fliers for parents and students*	BS Hospitality Management (BSHM) Department	College Fund	July 2018 – June 2019 (once every month)	3,000	No. of tarpaulin and fliers printed and distributed
	Conduct activities related to healthy food habits during Nutrition Month - *Gulay Cook fests* - *Fashion Gulay* - *Slogan/Poster making contest*	Institute Student Council (ISC)	ISC Fund	July 2018	10,000	Activity reports
3. Educate faculty and staff, parents, guardians food stall owners, and the whole college community on good nutrition practices	Conduct seminars related to nutrition and good eating habits - *Lectures* - *Cooking demonstration*	Extension and Training (ET) Office BSHM Department	College fund for ET Office	July 2018	10,000	Attendance sheets Activity reports
	Incorporate lectures on nutrition concepts and nutrition tips during parents' meetings	Office of Students Affairs (OSA)	College fund for OSA	June 2018 (High School) August 2018 (College)		Minutes of meetings Accomplishment reports
	Distribute IEC materials on good nutritional practices among stakeholders of the college	ET Office	College fund for ET Office	July 2018-June 2019	5,000	Logbook on IEC materials recipients
4. Increase awareness on physical activities and wellness	Provide lectures and seminars about physical fitness.	IEAS – P.E. Department	College Fund	August 2018	2,000	Activity reports
	Provision of area and facilities for students to conduct sports activities during free time	OSA	College Facilities	July 2018-June 2019		Log sheet in the use of facilities
	Conduct *Zumba* dancing session for faculty and staff	BASCFEA Office of Sports and Cultural Affair	Cayetano building, lights & sound system	August 2018 - July 2019 (once a week)		Attendance sheets

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1 - Figure 2. Matrix of the Proposed Nutrition Education Program

In the existing system of food service in BASC, there is no established operational guidelines yet for the operation of college cafeteria and other food establishments on the kind of foods and beverages to be served to students even though the Department of Education had already released an order about the policy and guidelines on healthy food and beverage choices in schools which are already being implemented in other schools, both public and private. The said guidelines are to be incorporated in the formulation of nutrition education program for the college to promote healthy eating habits among students. When students' exposure to foods is limited only to what is considered good and healthy, they will be guided in acquiring healthy eating pattern.

Result of the survey shows that high school students are prone to make unhealthy food choices since their choice of meals are not guided with standard of what is considered right food for them. Relative to this, a sample seven-day menu plan, guided by the Nutritionally Adequate Menu of the FNRI for male and female adolescents ages 13-18 years has been prepared as presented in Figure 3 and 4 to serve as guide by the students, as well as their food providers, in deciding on the kind and amount of food to take and to offer appropriate choices for their respective age and sex.

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	Break fast		Lunch		Supper		Snack	
Day 1	Ripe Papaya Fried Tinapa Hard Boiled Egg Rice Whole Milk	1 slice, 0x6x2cm 1 pc, 14x3.5cm 1 pc 2 c 1 c	Chicken Adobo Chopsuey Rice Sweetened Beans	1 ½ pc, leg, small 1 c 1 ¾ c 1/3 c	Steamed Alimasag Kangkong & Tokwa Guisado Rice Watermelon	1 pc, medium ½ c 1 c 1 c	AM: Taho PM: Boiled Camote Buco Juice	1 c 1 pc, 11cm long x 4.5 cm dia. 1 glass
Day 2	Latundan Sardine Omelette Rice Hot Chocolate	1 pc, small 1 pc, 8x1cm 2 c 1 c	Pork Sinigang Vegetable & Gabi Rice Ripe Langka	1 ½ match box size 1 c 1 ¾ c 3 segment	Fried Tilapia Laing Rice Rambutan	1 pc, 12x5cm 1/3 c 1 ¾ c 8 pc, 3 cm dia.	AM: Putong Puti PM: Pan de Coco	1 slice, 9.5x3.5cm 1 pc, 7x6 cm
Day 3	Melon Fried Dilis Scrambled Egg w/Onion Rice Whole milk	1 c 1/3 c 1 pc 2 c 1 c	Fried Chicken Patola w/ Miswa Rice Boiled Saba	1 ½ pc, leg, small 1 c 1 ¼ c 1 pc, med.	Sinigang na Bangus Vegetable Rice Tiesa	1 ½ match box size ¾ c 1 ¾ c 1 pc, med.	AM: Boiled Corn PM: Pansit Guisado Pineapple Juice	1 pc, 12cm long x 5 cm ½ c 1 glass
Day 4	Ripe Mango Fried Daing Bangus Rice Whole Mllk	1 slice, 12x7 cm ½ portion, 15x6cm 2 c 1 c	Nilagang Baka Vegetable & Potato Rice Avocado	1 ¼ match box size 1 c 1 ¼ c ½, 12x7 cm	Ginataang Tilapia w/ Pechay Rice Ripe Mango	1 ¼, 12x5 cm ½ c 1 c 1 slice	AM: Ensaymada PM: Camote Cue	1 pc, 8.5 m dia. x 2 cm thick 3 pc, 4cm x 1 cm /pc
Day 5	Ripe Papaya Scrambled Egg Pandesal Hot Chocolate	1 slice 1 pc 8 pc, small 1 c	Fried Galunggong Munggo w/ Malunggay Rice Pineapple	1 ¼ pc, 14x3 cm 1 c 1 ½ c 1 cup	Broiled Liempo Pinakbet Rice Chico	1 ¼ match box size 1 c 1 ½ c 1 pc,4 cm dia.	AM: Kutsinta Whole Milk PM: Turon	2 pc, 5 cm dia.x 1.5cm thick 1 c 1 pc, 9.5 x 3.5 x 1 cm
Day 6	Boiled Saba Fried Homemade Beef Patty Sunny Side Up Egg Rice Whole Milk	1 pc, med. 1 pc 1 pc 2 c 1 c	Menudo Carrot & Potato Rice Dalandan	¾ c ½ c 1 ¾ c 1 pc,6cm dia.	Adobong Pusit w/ Sitaw Rice Fresh Pineapple	3 pc, 7x3cm ½ c 1 c 1 slice, 10 x 6 x 2 cm	AM: Suman Cassava PM: Spanish Bread Calamansi Juice	½ pc, 15x3x2 cm 1 pc, 10x4 cm 1 glass
Day 7	Lakatan Fried Dried Tawilis Boiled Egg Camote Tops Salad Rice Whole Milk	1 pc, small 3 pc,small 1 pc ½ c 2 c 1 c	Chicken Tinola Papaya and Sili Leaves Rice Guava	1 ½ match box size ½ c 1 ¾ c 1pc, 6 cm dia.	Fried Dalagang Bukid Ginataang Sitaw and Squash Rice Dalandan	1 ¼ pc, 14x3 cm ½ c 1 ¼ c 1 pc	AM: Banana Cue PM: Peanut Butter Sandwich	1 pc, 9.5 x 4cm 1 pc loaf bread, 2 tsp. peanut butter

2 - Figure 3. One Week Sample Menu Plan for Adolescent Male, 10-18 Years Old

It can be observed that there is slight difference in the amount of protein and energy intake between male and female adolescents. The difference lies in the variation in maturation level, physiological needs, and body compositions (World Health Organization, 2014). As presented in Figure 4, the recommended carbohydrate and protein source requirements for female adolescent is lesser as compared to male adolescents' requirements as shown in Figure 3.

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	Break fast		Lunch		Supper		Snack	
Day 1	Ripe Papaya	1 slice,	Chicken Adobo	1 pc, leg, small	Steamed Alimasag	1 pc, medium	AM: Taho	1 c
	Fried Tinapa	1 pc, 10x6x2cm	Chopsuey	1 c	Kangkong & Tokwa	½ c	PM: Boiled Camote	1 pc, 11cm long x 4.5 cm dia.
	Hard Boiled Egg	1 pc, 14x3.5cm	Rice	1 c	Guisado			
	Rice	1 pc	Sweetened Beans	1/3 c	Rice	1 c	Buco Juice	1 glass
	Whole Milk	1 ½ c			Watermelon	1 c		
		1 c						
Day 2	Latundan	1 pc, small	Pork Sinigang	1 match box size	Fried Tilapia	1 pc, 12x5cm	AM: Putong Puti	1 slice, 5x3.5cm
	Sardine Omelette	1 pc, 8x1cm			Laing	1/3 c		
	Rice	1 ½ c	Vegetable & Gabi	1 c	Rice	1 c		
	Hot Chocolate	1 c	Rice	1 c	Rambutan	8 pc, 3 cm dia.	PM: Pan de Coco	1 pc, 7x6 cm
			Ripe Langka	3 segment				
Day 3	Melon	1 c	Fried Chicken	1 pc, leg, small	Sinigang na Bangus	1 ½ match box size	AM: Boiled Corn	1 pc, 12cm long x 5cm
	Fried Dilis	1/3 c						
	Scrambled Egg w/Onion	1 pc	Patola w/ Miswa	1 c	Vegetable	¾ c	PM: Pansit Guisado	½ c
	Rice	1 ½ c	Rice	1 c	Rice	1 c		
	Whole milk	1 c	Boiled Saba	1 pc, med.	Tiesa	1 pc, med.	Pineapple Juice	1 glass
Day 4	Ripe Mango	1 slice, 12x7 cm	Nilagang Baka	1 matchbox size	Ginataang Tilapia w/ Pechay	1 pc, 12x5cm	AM: Ensaymada	1 pc, 8.5 m dia. x 2 cm thick
	Fried Daing Bangus	½ portion, 15x6cm	Vegetable & Potato	1 c	Rice	½ c		
	Rice	2 c	Rice	1 c	Ripe Mango	1 c	PM: Camote Cue	3 pc, 4cm x 1 cm/pc
	Whole Milk	1 c	Avocado	½, 12x7cm		1 slice		
Day 5	Ripe Papaya	1 slice	Fried Galunggong	1 pc, 14x3 cm	Broiled Liempo	1 match-box size	AM: Kutsinta	2 pc, 5 cm dia.x 1.5cm thick
	Scrambled Egg	1 pc	Munggo w/ Malunggay	1 c	Pinakbet	1 c		
	Pandesal	4 pc, small	Rice	1 c	Rice	1 c		
	Hot Chocolate	1 c	Pineapple	1 cup	Chico	1 pc,4 cm dia.	Whole Milk	1 c
							PM: Turon	1 pc, 9.5 x 3.5 x 1 cm
Day 6	Boiled Saba	1 pc, med.	Menudo	¾ c	Adobong Pusit w/ Sitaw	3 pc, 7x3cm	AM: Suman Cassava	½ pc, 15x3x2cm
	Fried Homemade Beef Patty	1 pc	Carrot & Potato	½ c				
			Rice	1 c	Rice	½ c		
	Sunny Side Up Egg	1 pc	Dalandan	1 pc,6cm dia.	Fresh Pineapple	1 c	PM: Spanish Bread	1 pc, 10x4cm
	Rice	1 ½ c				1 slice, 10 x 6 x 2 cm		
	Whole Milk	1 c					Calamansi Juice	1 glass
Day 7	Lakatan	1 pc, small	Chicken Tinola	1 match box size	Fried Dalagang Bukid	1 pc, 14x3 cm	AM: Banana Cue	1 pc, 9.5 x 4cm
	Fried Dried Tawilis	3 pc, small	Papaya and Sili Leaves	½ c				
	Boiled Egg	1 pc			Ginataang Sitaw and Squash	½ c	PM: Peanut Butter Sandwich	1 pc loaf bread, 2 tsp. peanut butter
	Camote Tops Salad	½ c	Rice	1 c				
			Guava	1pc, 6 cm dia.	Rice	1 c		
	Rice	1 ½ c			Dalandan	1 pc		
	Whole Milk	1 c						

3 - Figure 4. One Week Sample Menu Plan for Adolescent Female, 10-18 Years Old

Students should be exposed with meaningful activities that will allow them to appreciate and practice healthy lifestyle. The celebration of Nutrition Month provides a wide array of activities that can help inculcate the value of good nutrition. Educating the other stakeholders of the college such as faculty, non-teaching staff, food stall operators and parents, is also part of the program. When everyone in the community is equipped with the necessary concepts and skills

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of proper nutrition, the objective of improving the eating habits of students will be facilitated. Proper intake of foods is not the only concern of the proposed program but also the improvement of the overall well-being of the entire community of BASC, that is why, physical activities among students, faculty and staff in the forms of sports and Zumba dance sessions are also its component.

With the proposed program and sincere support from the administration, the researcher believes that healthy eating habits and healthy lifestyle among students of BASC will be realized.

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