

ANALYSIS OF ATTITUDES AND WILLINGNESS TO HEALTHY FOODS AMONG STUDENTS OF NON STATE SECTOR HIGHER EDUCATIONAL INSTITUTES IN MALABE SUBURB

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ABSTRACT

Unhealthy dietary habits are major risk factors for chronic diseases, particularly if adopted during early years of adulthood. Limited studies have explored the food consumption patterns among young adults in urban private sector higher educational institutes. Our study aimed to examine common dietary patterns and their correlates among a large sample of university student population in Malabe suburb. Study was carried out on 105 students, using a self-administered questionnaire. Different dietary patterns were observed among male and female students. We observed significant differences between males and females in terms of their reported food intake and dietary patterns. The attitudes towards healthy foods are varying among female and male students. This survey results revealed that health promotion programmes are needed to address the dietary intake and life style behaviors of young adults in private higher educational institutes.

Key words: Healthy foods, dietary habits, higher educational institutes

1. INTRODUCTION

It is well known that unhealthy dietary habits are among the major risk factors for obesity and related chronic diseases. In particular if those dietary habits are adopted during early adulthood [1,2]. They are becoming more frequent due to the nutritional transition that is affecting populations across developing countries [3,4], where traditional healthy diets are replaced by westernized dietary patterns.

University students seem to be the most affected by nutrition transition. These dietary behaviors are mostly attributed to drastic changes in the environment and resources available, frequent exposure to unhealthy foods and habits [5]. Therefore healthy food consumption is an important factor that assists to maintain body's daily functions; optimal body weight; disease prevention and at a glance maintaining physical and mental wellbeing of the life.

According to Federal Drug Administration (FDA) healthy foods are "Foods which are low in fat and saturated fat, limited in amount of sodium and cholesterol and provide at least 10% of one or more of vitamin A, vitamin C, Calcium, protein and fiber (for single item foods).

Many factors impact a person's willingness to consume healthy food, from age to culture, from income level to tradition from location of residence to health knowledge and the food

choice varies with availability, cost, benefits and sensory appeal. This willingness and accessibility differs from adults to youth generation in consuming healthy food.

Youth generation usually develop their own system to buy what they need which reflects their personal ideology and beliefs from food products. Rapid changes in physical growth and psychosocial development have placed these young adults as nutritionally vulnerable groups with poor eating habits, that fail to meet dietary requirements [6,7]. This situation is more or less similar in Sri Lankan University context too. Therefore presents study is conducted with following objectives.

This research survey was designed to study, the attitude and awareness among students of private higher education institutes in Malabe suburb on consuming healthy food, to determine the willingness and accessibility to healthy food gender wise and the residence of students, and to identify what factors affects mostly to the student's willingness, necessity and accessibility in consumption of healthy food.

2. METHODOLOGY

2.1. Study Setting and Population

This cross-sectional study was conducted among 105 students at three private higher educational

institutes located in Malabe suburb, Colombo District of Sri Lanka by using universal sampling. Respondents were asked to participate in this study voluntarily. Objectives of the study was printed in the questionnaire and explained orally whenever necessary.

2.2. Study instruments

A self administered questionnaire was used as a survey instrument which included series of open ended questions where respondents were asked to mark their response on the sheet. The flow of the questions were concerned about the age group, residence, usual place of obtaining breakfast and lunch, usual composition of their diet, dependence of their willingness to healthy food based on body posture, health, and sexuality.

The validity of the questionnaire was assessed by conducting a pilot study. The sample survey carried out including the above mentioned facts provided us with a reliable amount of data to conduct the data analysis. The data were analysed on the basis of gender and residential places of the students.

2.3. Statistical Analysis

The Statistical Package for Social Sciences (SPSS) version 19.0 was used to analyze the data in this study.

3. RESULTS

105 students completed the questionnaire. Of these, 2 questionnaires were rejected due to improbable replies, resulting in 103 usable questionnaires. The analysis was carried out mainly based on the gender and residence of students. The relationship between the gender and residence with the willingness, accessibility, attitude and nutritional knowledge of the students was analyzed in depth. The sample population was assumed to be homogeneous, excluding the impact of other factors such as social status, money, existing disease conditions... etc

Demographic features of sampling group:

The majority of the sample was females (60.2%). Among three higher educational institutes, 56.9% of the respondents represented SAIMT where as 30.4% and 12.7% from SLIIT and CINEC respectively. Among the respondents 16.5% belong to 15-20 years age group, 81.6% were between 21-25 years and 1.9% belongs to 26-30 years category. One of our main objectives was to find whether the residence of students affect their dietary pattern and healthy eating habits.

Majority of students (66.7%) reside at boarding or rental places in comparative to 21.6% respondents reside at home. The rest of the sample which comprise 11.8% respondents reside at their relatives' places.

Eating patterns and food choices:

Regular breakfast consumption among university students is important for sufficient energy intake to overcome fatigue due to busy (daily) learning schedule. In this study, majority of respondents had breakfast daily. According to the survey analysis 7.9% male respondents and 6.8% female respondents usually miss their breakfast. Data revealed that 39.5% of male respondents and 54.2% of female respondents usually have rice and curry for their breakfast. Very less amounts from both genders have string hoppers (7.9% male and 3.4% females) for their breakfast. 15.8% of males and 8.5% of females have bread for their breakfast. There are considerable amounts of respondents who have short eats for their breakfast as a habit representing 28.9% males and 27.1% females. This revealed the change in the dietary habits among young generation.

Changes in living arrangements are considered as one of the main factors influencing dietary habits of university students. Mainly those who live away from the parental home develop more undesirable nutritional habits..Most of the respondents coming from home have rice and curry for their breakfast (50%). 13.6% of them usually have string hoppers and bread. A considerable amount (18.2%) has short eats for their breakfast. 4.5% of them do not have their breakfast. Respondents who live at boarding houses, 44.4% usually have rice and curry for their breakfast, 3.2% have string hoppers and 11.1% usually eat bread. A considerable amount of students residing at boarding houses (34.9%) eat short eats for breakfast . 6.3% of them do not have breakfast. Those who are coming from relative's house, 63.6% have stated that they usually eat rice and curry, 0.0% are usually eating string hoppers ,another 9.1% are usually eating bread , 9.1% eat short eats while 18.2% are not having their breakfast.

One of our objectives was to find out whether the student's having a healthy dietary pattern. According to the survey analysis 2.8% male respondents and 1.6% female respondents don't have their lunch usually. From the analyzed data it can be clearly seen that 80.6% from male respondents and 90.2% from female respondents usually have rice and curry for their lunch. The

general dietary habit during lunch time is shown in the Figure 1.

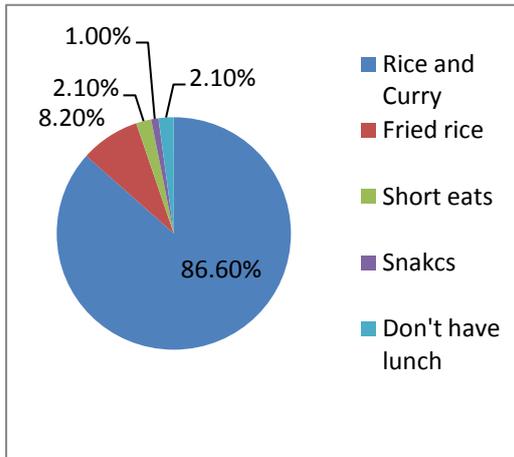


Figure 1: Dietary patterns during lunch

The frequent consumption of snacks and light meals is a recognizable aspect of teenage food behavior [8]. Of the 21.4% of respondents who come from home, 13 have only short eats for intervals and 4.5% have only soft drinks. A fair amount of students (50.0%) eat both short eats and soft drinks during interval. 31.8% drink tea or coffee. Out of the 68 students who come from boarding houses, 4.6% have only short eats for intervals and 13.8% have only soft drinks. A considerable frequency of students (50.8%) have both short eats and soft drinks. 21.5% drink tea or coffee and 9.2% have stated that they are taking other food. From the students who come from relative's house, 25.0% have only short eats for intervals, 33.3% eat both short eats and soft drinks, 25.0% drink tea or coffee and 16.7% have other food types. Here the impact of religious and ethnical beliefs on food choice of the students and probability of having students with chronic diseases which restrict diet was neglected. The results show that majority of the respondents had traditional rice and curry for breakfast and lunch. Most of them were not affected by availability of junk food.

34.1% from all male respondents and 30.6% from all female respondents haven't consumed whole grains during the week of survey. Only 1 student from all the male students have consumed whole grains more than 4 days during the week of survey. None of the female respondents have consumed whole grains more than 4 days during the week of survey. So from the analysed data it is clear that the consumption of whole grains among the respondents were considerably in a low amount. From all the respondents 32.0% hadn't consumed whole

grains at all, proves that. None of the respondents coming from home have eaten whole grains more than 4 days during the week of survey. 36.4% have eaten whole grains one day, 22.7% for 2-3 days and 27.3% students for 4 days. Of the students who are boarded, 38.7% haven't eaten whole grains last 7 days while, 33.8% have eaten only in a day, 27.9% in 2-3 days, and no one has eaten for 4 days or more than 4 days. From the students who come from relative's house 25.0% haven't eaten whole grains during last 7 days while, 16.7% have eaten only in a day, 25.0% in 2-3 days, 25.0% in 4 days and 8.3% Of the respondents have eaten more than 4 days.

From all Female respondents 26.2% hadn't consumed milk products during the week of survey. From all male respondents 22.0% hadn't consumed milk products during the week of survey. 19.5% from male respondents and 18.0% of female respondents have consumed milk products around 5-7 days. When comparing the analyzed data of consumption of milk products and consumption of whole grains, it can be clearly seen that more amount of students had consumed milk products more than whole grains

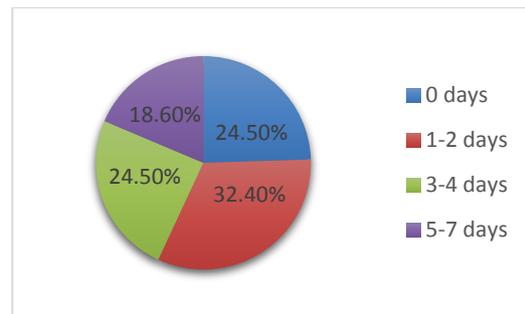


Figure 2: Consumption of fat free or low fat milk products by students within a week

From those who are coming from home 27.3% haven't consumed milk products during last 7 days. A similar amount of students (27.3%) have consumed milk products for 1-2 days and 5-7 days. 18.2% of students have taken milk products for 3-4 days. Out of the respondents who come from boarding house 22.4% haven't consumed milk products during last 7 days. A considerable amount (32.8%) have consumed milk products for 1-2 days. 26.9% have taken milk for 3-4 days and 17.9% for 5-7 days. From those who are coming from relative's house 25.0% haven't consumed milk products during last 7 days, 41.7% have consumed in 1-2 days, 25.0% in 3-4 days and 8.3% in 5-7 days. As a whole more students have taken milk products for 1-2 days.

From all Female respondents 16.1% hadn't consumed fruits during the week of survey. From all male respondents 14.6% hadn't consumed fruits during the week of survey. Higher percentages of both female respondents and male respondents consume fruits 1 – 2 days .From the total respondents it is about 47.6%.From the analyzed data it can be seen that 15.5% from total respondents hadn't consumed at least one piece of fruit during the last week. So it proves 15.5% from total respondents won't get essential nutrients which fruits contain.

A considerably large amount of students coming from home (45.5%), boarding houses (48.5%) and relative's place (50%) have consumed at least one piece of fruit for 1-2 days during the week of survey. 3 students coming from home, 12 students from boarding houses and 1 student from relative's house haven't consumed at least one piece of fruit during the week of survey.

When considering about the consumption of vegetables except for 1 male respondent all the other respondents contained more than 3 types of vegetables in their meal. 34.1% of male from male respondents and 43.5% of female from female respondents had had a meal with more than 3 types of vegetables in 5 -7 days in their meal. As a total 39.8% respondents have a meal containing more than 3 types of vegetables. Those who are coming from home have responded that all are having more than 3 types of vegetables in their meals. Out of them 18.2% are having more than 3 types of vegetables in 1- 2 days. 27.3% in 3-4 days and 54.5% in 5-7 days. Those who are coming from boarding house have responded that except for 1.5% all the others are having more than 3 types of vegetables in their meals. Out of them 22.1% are having more than 3 types of vegetables in 1- 2 days. 42.6% in 3-4 days and 33.8% in 5-7 days. Those who are coming from relative's house have responded that all are having more than 3 types of vegetables in their meals. Out of them 41.7% are having more than 3 types of vegetables in 1- 2 days. 8.3% in 3-4 days and 50.0% in 5-7 days.

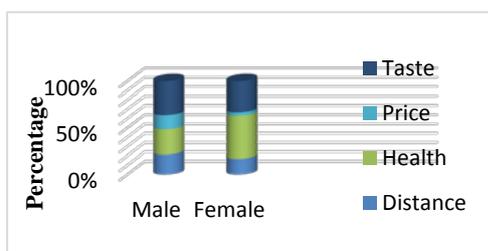


Figure 3: Reasons considered by students when selecting an outside place to buy food

Accessibility to food:

When comparing the places of having the breakfast majority of the respondents (39.8%) use institute canteen to have their breakfast, according to the analysed data. Least amount of respondents have their breakfast from an outside shop. It is about 11.2% from all the respondents. 24.5% respondents have their lunch from the boarding place. From the male respondents' majority of the students around 45.9% have their breakfast from institute canteen. Very few amount of male respondents have their lunch from boarding place. From female students least amount of students have their breakfast from an outside shop. When comparing the places of having the lunch majority of the respondents use institute canteen to have their breakfast, according to the analyzed data.46.3% from all male respondents and 37.7% from all female respondents use the institute canteen to have their lunch. Least amount of male respondents have their lunch from the boarding house. It is about 4.9% from all the male respondents. 12.7% respondents have their lunch from the boarding place. When comparing more amount of respondents have their breakfast from the boarding house than their lunch. From the male respondents' majority of the students around 46.3% have their lunch from institute canteen. Very few amounts of male respondents have their lunch from boarding place. From female students least amount of students has their lunch from an outside shop.

One of our survey objectives was to find which factor mostly affect when buying food from an outside place. According to the respondents majority from male respondents consider "Taste" when buying a food. It had been recorded as 36.4% from all the male respondents. The factor which is least considered among male respondents was the "price of the food". According to the female respondents majority consider "Health" when buying food from an outside place. It can be seen from the percentage 46.3% which has been recorded out of all the female respondents. According to the chart it can be seen which factor mostly affected in each male and female categories.

Dietary patterns:

Majority of the respondents from both genders were non vegetarian. None of the Male respondents didn't represent the lacto vegetarian (who don't eat eggs, but eat dairy products) dietary pattern. Only 1 female respondent represented the lacto vegetarian dietary pattern.70.7% of male respondents represented

the non-vegetarian pattern from the male respondents and least male respondent amount was represented by the lacto ovo vegetarian group. From female respondents majority represented non vegetarian group while only 8.1% represented semi vegetarian (those who eat mostly vegetable and occasionally eat meat) dietary pattern. More female respondents represented the lacto ovo vegetarian group compared to the male respondents. When compared more percentage of male respondents represented the semi vegetarian groups than the female respondents. In the survey 58.6% of female respondents were non vegetarian and 41.4% of male respondents were non vegetarian when compared gender wise. The type of dietary pattern was considered because it plays a major role in healthy eating

Access to healthy food:

In this research one of our main objectives was to confirm whether the students have ability to get healthy food from their institute canteen. From the male respondents 17.1% agreed that they have access and ability to get healthy food from the canteen. 82.9% denied and opposed to the idea of having access to healthy food in their canteens. From the female respondents 27.9% agreed they have access and ability to get healthy food from the canteen. 72.1% female respondents from all the female respondents denied and opposed to that idea of having access to healthy food in their canteens. Also 73.7% SAIMT students, 77.4% SLIIT students and 84.6% CINEC students have agreed that they do not have access to buy healthy food in their institute canteen. So as the majority of respondents opposed to the idea of having the accessibility to healthy food in their canteens, we can presume students are not exposed to an environment having healthy food in their educational institutes.

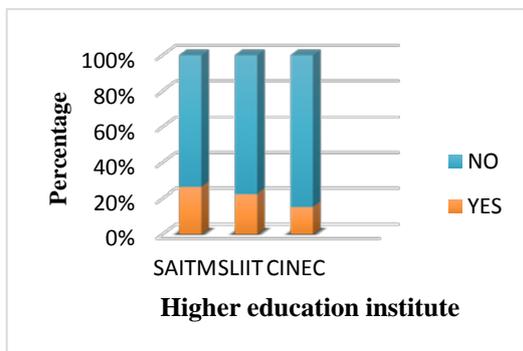


Figure 4: Students response to availability of healthy food in canteen

In this research one of our main objectives was to

confirm whether the students have ability to get healthy food from their institute canteen. From the male respondents More than half of the students were affected by lack of food to buy which leads to missed meals and intake of low nutritional value foods.

Willingness to consume healthy food:

A majority of both male (58.5%) and female (71%) respondents are willing to buy herbal porridge if they have easy access. A fair amount of male respondents (41.5%) are not willing to buy herbal porridge, on the other hand it is 29% among female respondents. A fairly lower frequency of male students (38.8%) and a comparatively higher frequency of female students (61.3%) are willing to consume cereals. A fair amount of both male (43.5%) and female (56.5%) participants are not willing to buy cereals even if they have gained easy access. As the method of intake of the cereals are varying, from all the male respondents 40.0% liked processed cereals 26.7% liked cereal related food, 23.3% liked homemade cereals and 10.0% liked prepared curries. Considering all the female respondents 46.0% liked processed cereals 22.0% liked cereal related food, 26.0% liked homemade cereals and 6.0% liked prepared curries. When considering all the respondents, 34.3% male and 65.7% female respondents liked to consume processed cereals, 42.1% male and 57.95 female respondents liked to consume cereal related food, 35.0% male and 26.0% female respondents liked to consume homemade cereals and 50% from both male and female respondents liked to consume cereals as prepared curries. From those who are coming from home, 61.1% are taking in cereals as processed cereals, 16.7% as cereal related food, 11.1% as homemade cereals and another 11.1% as prepared curries. From those who are coming from boarding house, 39.2% are taking in cereals as processed cereals, 27.5% as cereal related food, another 27.5% as homemade cereals and 5.9% as prepared curries. From those who are coming from relative's house, 30.0% are taking in cereals as processed cereals, 20.0% as cereal related food, 40.0% as homemade cereals and 10.0% as prepared curries.

Nutritional knowledge:

A considerably large amount of both male (57.5%) and female (70%) agreed that having a variety of fruits and vegetables is important in a healthy diet. 20% of male respondents and 15% of female respondents disagreed with this fact whereas 10% of male students and 6.7% of female students were not sure about this fact. A lower amount of male participants (12.5%) and female

participants (10%) said that sometimes this fact is not important. As a whole a majority of the respondents are quite knowledgeable about nutrition.

Idea on selecting healthy food:

Respondents were asked for their preferences in four categories. The first investigated category was how the selection of healthy food affects the Body posture. From all the male respondents 8.3% said that they wanted to be slim, 36.1% said that they wanted to improve their current weight, 19.4% said that they wanted to improve their flexibility and coordination and 36.1% said that they wanted to improve overall body shape. From all the female respondents, 18.3% said that they wanted to be slim, 20.0% said that they wanted to improve their current weight, 35.0% said that they wanted to improve their flexibility and coordination and 26.7% said that they wanted to improve overall body shape.

The second category was Health Dependant. According to the survey analysis from all the male respondents, 10.0% said that they wanted to be resistant to diseases, 5.0% said that they wanted to improve their cardiovascular system, 32.5% said that they wanted to improve their health, and 47.5% said that they wanted to improve their overall health. From all the female respondents, 16.7% said that they wanted to be resistant to diseases, nobody said that they wanted to improve their cardiovascular system, 18.3% said that they wanted to improve their health, and 65.0% said that they wanted to improve their overall health.

The third category was Sexuality Dependant. According to all male respondents, 15.8% said that they wanted to be attractive to opposite sex, 18.4% said that they wanted to be sexually desirable, 28.9% said that they wanted to improve their attractiveness, and 36.8% said that they wanted to improve their muscle tone. From all the female respondents, 8.5% said that they wanted to be attractive to opposite sex, 5.1% said that they wanted to be sexually desirable, 66.1% said that they wanted to improve their attractiveness, and 20.3% said that they wanted to improve their muscle tone.

Majority of the female students wanted to improve their attractiveness whereas a majority of male respondents wanted to improve their muscle tone.

As the final category we looked in to other factors that affect for the selection of healthy

food. From all the male respondents 2.4% said that it is due to influence by another person, 7.3% said that they wanted to improve their mood, 75.6% said that it is to their overall wellbeing and 14.6% said that other. From all the female respondents, 3.3% said that it is due to influence by another person, 9.8% said that they wanted to improve their mood, 80.3% said that it is to their overall wellbeing and 6.6% said that other.

Attitude towards healthy food:

Respondents were asked to select a statement among five statements to find out the attitude about healthy food. As a total, the most selected statement was "Food containing all main nutrients in appropriate proportions." From all the respondents, 76.9% male and 23.1% female respondents think that any type of natural food which is made without artificial ingredients as healthy food. 34.0% male and 66.0% female respondents think that healthy food is a food containing all main nutrients in appropriate proportions. 37.5% male and 62.5% female respondents think that a food suitable for physical and mental health is a healthy food. 36.0% male and 64.0% female respondents think that healthy food is a food which can maintain a healthy lifestyle.

Satisfaction: Considering the satisfaction of the healthiness of the food, from all the male respondents 41.5% said that they are satisfied and 58.5% said that they are not satisfied. From all the female respondents, 37.1% said they are satisfied and 62.9% said they are not. From all the respondents it can be clearly seen that majority of the respondents, 61.2% are not satisfied with the healthiness of the food they consume. Results show that more than half of both male and female respondents were not satisfied with the healthiness of the food that they eat.

4. CONCLUSION

In conclusion, we found that dietary patterns differed among university students; students who are coming from their home has more access to healthy foods.. Health promotion programs and evidence based educational interventions are needed to promote healthy eating and active lifestyle behaviors among young adults in urban higher educational institutes. Furthermore, given the importance of exploring dietary patterns rather than the intake of individual nutrients and foods in relation to health, further studies are needed to explore determinants of dietary

patterns among various populations, and more importantly, the association between identified dietary patterns and health outcomes, including obesity and chronic diseases.

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