

Food Habits and Factors Affecting Food Intake Among College Students in Kuwait

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Abstract

A cross-sectional study was conducted to assess food habits among college students at Kuwait University (KU) utilizing a written questionnaire, targeting first year to higher education level regardless of age. Participants were recruited from different colleges (n=678) (73%, females, and 27% males) with a response rate of 98.8%. Data showed that 48.6% buy their foods from campus, and 38.2% of them eat in college daily. The taste was the most influential factor that is affecting food choices (53.7%), while only 2.9% of students considered cost as an important element.

Most nutritional information was obtained from social media (44.8%). Ready sandwiches were preferred by 62% of the students on campus. Only 11.2% of students select fruits and vegetables conveniently. Our results indicate that an unhealthy lifestyle and food choices are correlated with obesity. It is the time to changes governmental actions on school's food policies. Food nutrition-related knowledge could have a significant impact.

Keywords: Food habits, Food choices, Nutrition, Obesity, College Students

List of Abbreviations: KU: Kuwait University; BMI: body mass index; NIH: National Institute of Health; WHO: World Health Organization; CHO: Carbohydrates

Introduction

College students are at risk of making poor dietary choices, which may cause significant health issues (1). Most college students eat at dining facilities with limited food options and varieties, which makes adopting healthy food habits a challenging matter. Furthermore, unhealthy eating behavior can lead to weight gain (2,3). One study reported that college students are expected to gain 2-5 kg in the first two years of college (1). Most health experts correlate food intake and lifestyle with obesity, and according to the World Health Organization (WHO) in 2018 (4), Kuwait ranks top of the hierarchy for obesity. Not only in Kuwait but also worldwide, the obesity rate has increased dramatically in recent decades. Therefore, it is imperative to study food habits among college students, factors that could affect their intake on campus, and students' awareness about healthy food choices and whether they check the nutritional information before making their food selection.

The adequate nutritional requirement is very important in college years to maximize academic and physical performance. A proper diet can provide many benefits such as preventing students from feeling tired as well as helping them focus, maintain their energy and weight. Despite the strong emphasis on meeting nutritional requirements every day to achieve optimal health, many college students tend to neglect or care less about their needs. Many students may save money by spending less on buying 'junk food' such as sweetened beverages, which can contribute to weight gain (5). Others may leave their parents' homes and be self-dependent in terms of food selections, build different social networks, and experience additional time availability. The transition period has held certain responsibilities and self-dependency. College students have to deal with specific stressors like fluctuating familial and societal roles that can involve greater independence. Difficult academic courses, the demand for an extra amount of commitment, and time management skills can all play a role in their lifestyle commitments. Many research studies have found that this period of change can be considered a chronic stressor throughout the students' academic years (6).

Research suggests that excess weight gain during college years is due to imbalances between energy input and energy output. Poor dietary choices and a lack of physical activity can also play a major role in said weight issues. Some studies suggest that if students gain weight during this period of their lives, it is generally an indicator that weight gain will continue after graduation (7). Brown and his colleagues stated that "Overweight college students are more likely to become overweight adults and are at a higher risk for diet-related chronic diseases such as cardiovascular disease, type 2 diabetes, some cancers, and hypertension" (1). Government institutions and universities' actions on food supply or educational interventions need to be considered to help students meet their daily nutritional requirements in choosing healthy options. Therefore, our aim of the study was focused on studying food habits among college students in Kuwait, factors that could affect their intake on campus, and students' awareness about healthy food choices and whether they check the nutritional information before buying their food items.

Materials and Methods

Design and Sample

A cross-sectional study was conducted in Kuwait University. Data was collected over two months. A total number of 678 consisting of both male and female students aged 17- 43 from the first year to higher education were chosen by convenience sampling method because access was easy, and all the students that were encouraged to participate were from a variety of study disciplines. College visitors were excluded. Informed consent was obtained from all participants. A minimum number of 385 participants was set statistically at a confidence level of 95% given the population size of 4 million. The University of Kuwait is the only governmental university available for all students from the six governorates of Kuwait.

Questionnaire Data Collection

A previously validated questionnaire of related studies was used (8,9). Some modification was done to meet the objectives and suit some culture differences, like food choices. The questionnaire included 24 total questions.

The response rate among students was 98.8%. The questionnaire was distributed conveniently between participants (n=678). Sociodemographic data and anthropometric measurements were used for data collection. The questionnaire was designed to study eating habits, factors influencing food choices (e.g., taste and cost), awareness of healthy food choices, food label knowledge, and food availability among college students. Prior to filling in the questionnaire, the students were requested to answer the entire questionnaire truthfully. Participants' names were not written on the survey document to keep their identities confidential. Anthropometric measurements, including height, weight, and body mass index (BMI) were conducted.

Body mass index (BMI), which is the ratio of weight in kilogram to height in meter squared, was used to assess weight status. According to the National Institute of Health (NIH), classification of weight status by BMI to underweight (BMI < 18.5), average weight (BMI 18.5 – 24.9), overweight (BMI 25 – 29.9), or obesity class 1 (BMI 30-34.9), obesity class 2 (BMI 35-39.9), and extreme obesity class 3 (BMI > 40) (10).

Data Analysis

The Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) version 24 was used to analyze the data obtained from the questionnaire and to calculate descriptive statistics of the sample. A Chi-square test was conducted to test whether or not students check nutritional information prior to buying food. A T-test was conducted to compare the mean of food perception scale among genders. The significant level in this study was set at < 0.05.

Results

A total number of 678 students took the survey. However, 3 survey responses were incomplete, therefore, withdrawn from the data.

Demographic Characteristics

Demographics and survey questions were analyzed using quantitative measures. The majority of participants (73%) were female students. All the participants were from ages 17- 43. All four years in college were well represented with the lowest (2.7%) higher education students and the highest (32.6%) senior students. A variety of study disciplines were represented in the study, among which, Medicine, Science, and Life Sciences dominated the group. For the weight category, the measurements of BMI indicated that the majority of the students (53.1%) had an average weight. Overweight and obese students represented 27.9% and 13.5%, respectively, whereas (5.5%) of the students were underweight. Demographic results are displayed in frequencies and percentages in Table 1.

| Variables | | f | % |
|-----------------|---------------------------|-----|-------|
| Gender | Females | 492 | 73.0% |
| | Males | 183 | 27.0% |
| Age range | 17 - 21 | 442 | 65.5% |
| | 22 - 43 | 233 | 34.5% |
| Class | Freshmen | 98 | 14.5% |
| | Sophomore | 153 | 22.6% |
| | Junior | 186 | 27.6% |
| | Senior | 220 | 32.6% |
| | Higher Education | 18 | 2.7% |
| Faculty | Petroleum and Engineering | 30 | 4.4% |
| | Medicine | 150 | 22.2% |
| | Science | 146 | 21.6% |
| | Life Sciences | 137 | 20.3% |
| | Business Administration | 93 | 13.9% |
| | Art | 119 | 17.6% |
| Weight Category | Underweight | 37 | 5.5% |
| | Normal | 359 | 53.1% |
| | Overweight | 188 | 27.9% |
| | Obese | 91 | 13.5% |

Table 1: Descriptive statistics for students' demographics and backgrounds.

Note: (N= 675)

Healthy Food Information Sources and Food Label

Healthy food information is available from different sources, some of which are reliable and others are not. Social media which could represent unreliable and misleading information was the most popular source used to seek information about nutrition among study participants (44.8%). Healthcare professionals, including nutritionists and dietitians, were the second used sources with a low percentage of 17.4%, followed by university friends and family with a percentage of 14.6% and 14.7%, respectively. Books and training courses were the least sources used when seeking nutrition information with a percentage of 5.8% and 2.7%, respectively. Figure 1 illustrates the various sources of nutrition information and the extent to which these sources were used by study participants.

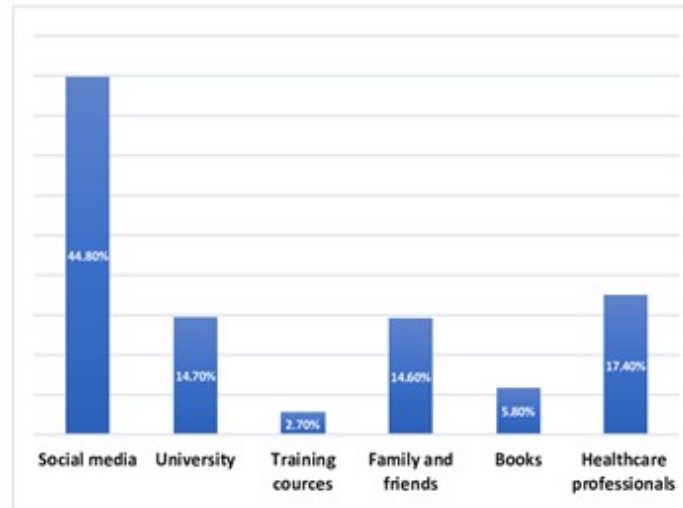


Figure 1: Nutrition information sources among college students

When students were asked about the use of food label as a source of information, both female and male participants reported that they often read food labels (32.1% and 32.2%), respectively. A percentage of 36.7% of male participants never read food labels compared to (26.9%) of female participants never did too.

In addition, 51.9% of the students think that food labels are easily found in the products and easily understood, while 48.1% of them stated that they were not. While reading food labels, total calories constitute the primary concern with a percentage of 50.4%, followed by the amount of fat 21.8%, protein 10.7%, carbohydrates (CHO) 7.6%, item ingredients 4%, Na 3.7%, and fiber 1.8%.

Students Eating Habits

Our data showed that college students eat their food at the campus dining facilities (48.6%) more than those who bring their food from home (30.2%) and those who buy their food from outside the campus (21.3%).

Students differ in how often they buy their food on campus. Approximately, 38.2% of the students purchase their food daily from different places within the campus including cafeteria, coffee shops, coffee machines and many other options. A 31% of them reported buying food from campus 1-2 times/week, 22.5% of the participants buy food from campus 3-4 times/week and 8.3% said they never purchase food from the dining facility.

Students were asked about the type of food they prefer to consume while they are in the college and most of them preferred to eat sandwiches (62%). Furthermore, 11.2% and 10.8% of the students preferred eating healthy snacks like fruits and vegetables or pasta and rice with protein ingredients. Few participants reported their preference to consume fried foods, unhealthy snacks and pastries at the dining facility with a percentage of (5.9%, 5.5%, and 4.6%) respectively.

Participants differ in their consumption pattern of fruits and vegetables. Around 40.3% of the students reported eating fruits and vegetables 1-2 times/week, 14.2% of them eat 3-5 times/week, whereas 34.4% of the students rarely eat fruits and vegetables, and 11.1% of the students reported that they never eat fruits and vegetables. Students food preference and consumption frequency are shown in Table 2.

Table 2: Food Preference and consumption frequency by college students

| I buy food from the dining facility (cafeteria, coffee shops, machines, etc.): | f | % |
|---|----------|----------|
| Daily | 258 | 38.2% |
| 1-2 times/week | 209 | 31% |
| 3-4 times/week | 152 | 22.5% |
| Never | 56 | 8.3% |

| In college, I prefer eating: | f | % |
|---|----------|----------|
| Sandwiches | 418 | 62% |
| Healthy snacks (e.g. fruits/ vegetables) | 76 | 11.2% |
| Snacks (chips, chocolate, etc.) | 37 | 5.5% |
| Pasta/rice (contains chicken, meat, or egg) | 73 | 10.8% |
| Fried foods | 40 | 5.9% |
| Pastries | 31 | 4.6% |

| I eat fruits and vegetables: | f | % |
|-------------------------------------|----------|----------|
| 1-2 times/week | 272 | 40.3% |
| 3-5 times/week | 96 | 14.22% |
| Rarely | 232 | 34.4% |
| Never | 75 | 11.11% |

Factors Influencing Students Food Choices

Many factors contribute to college students' dietary intake including energy obtained, weight control, cost, taste and the ease of preparation. The food taste was the highest factor influencing the students choices (53.7%) followed by how easy is the food to be prepared (17.6%), the amount of energy they gain after consumption (13.60%), and food that helps with weight control (12.20%). The least factor that influenced the participants was the food cost with a percentage of (2.9%).

Type of food available at the dining facility was evaluated by college students. The majority (81.80%) of study participants perceive food at the dining facilities as unhealthy compared to 18.20% who perceive food as healthy.

A T-test that was conducted to compare if there is a statistically significant relationship at the 0.05 level between gender and healthy food perception at dining facilities. It was found that female participants perceived that food at dining facilities is unhealthy significantly more than male participants (2.7 ± 1.08 points out of 5) (2.3 ± 1.1 points out of 5).

Around (54%) of the students reported that food items in the dining facilities deserve the value for the amount of money paid compared to 46% of them who perceived that it does not. Regardless of the price, 60 % of the students prefer healthy food options with 40 % preferring fast food.

University students face a lot of stress especially during exam periods. Around 32% of the participants experience emotional eating occasionally with a 45 % never went through it and 10.4% always experience it. Around half of the participants (47%) reported that their eating habits changed since starting college, 42% reported minimal changes and 11% did not experience any change at all.

Exercise and Weight Changes Among College Students

Out of all participants, 32.6% of students reported they never exercised, while 29% of them exercise once or twice a week, 24.4% exercise three to four times and only 14% exercise daily.

Furthermore, 76.7% of students noticed weight changes since starting university life out of which 38.7% reported weight gain and 38% reported weight loss. On the other hand, 23.3% of the students have not experienced any change in their weight.

Gender Differences in Term of the Use of Nutritional Information, Factors Affecting Food Choices

There were no significant differences between gender in term of concern about food labels. About 32% of both males and females answered yes for label checking before making their food choices. Our results indicated that 38.1% of male students “sometimes” refer to food labels before their purchasing decision compared to 41% of female students. Female participants perceived that food at dining facilities is unhealthy significantly more than male participants in our study (2.7 ± 1.08 points out of 5) (2.3 ± 1.1 points out of 5).

Conclusion

Our results showed that 38.1% of male students “sometimes” refer to food labels before their purchasing decision compared to 41% of female students. In a previous study, it was reported that “Only 21.6% of the students often used the food label during food purchasing decision” (11). The Mean difference of healthy food perceptions by gender was relatively different. It was significantly higher for females as compared to males (p -value < 0.05). Many related studies showed small percentages of students that use food labeling prior to making their food choices (11, 12). One study showed that females were more motivated to choose a meal based on the published calorie content. In other words, displaying calorie content does not substantially affect the types of meals that men order. Similarly, research showed that females are more likely than males to study calorie labels and nutrition information (13).

Additionally, we found that 51.9% of the students think that food labels are easily found in the products, while 48.1% of them stated that they're not easily found. Furthermore, while reading food labels, total calories constitute a significant concern with a percentage of 50.4%.

Around 48.6% of the students buy their foods from campus, and 38.2% of them eat at college on a daily basis. As a result, their eating habits, as well as the dietary choices, will be affected by the university feeding environment, which was considered unhealthy by nearly 82% of the students, and that may cause significant health problems. Many research papers concluded that most students skip breakfast that could be easily prepared at home and depend on food or snacks on campus (12).

Unfortunately, only 11.2% of students select fruits and vegetables conveniently at the campus, which may be attributed to the limited food options available. College students consume a diet lacking in fruits, vegetables, and dairy products. This fact has been supported by literature reviews that discussed gender differences in weight status and dietary practices among college students (14,15). This reflects a diet that is usually high in fat, sodium, and simple sugars as a result of snacking and consumption of fast food on campus (16).

Moreover, 34.4% of students stated that they rarely eat fruits and vegetables on a daily basis, which is a significant concern. On the other hand, more than half of the students with a percentage of 62% prefer to eat sandwiches, which might be a convenient option. Taste preference was notably mentioned by many students as an influential factor in determining food choices. 53.7% of the results indicated that taste is one of the main factors that contribute to the students' selection of food.

This finding comes in line with other studies that present similar views; for example, Abraham and others in 2018 reported that “choosing food according to taste preference seems to be the hallmark of college students” (17).

The cost was expected to be an influential factor when purchasing foods, especially healthy foods, since it tends to be more expensive. Our findings showed that 54% of students consider food items at the campus to be costly. However, 40% decided not to choose healthier choices, even if the cost was not an issue.

Referring to dietary habits our results were similar to another study (18), where they stated that “84.5% of students noted some modification since studying at the university”, we discovered that the majority of the students with a percentage of 89% reported changes in their food habits since starting university. As a result of changing dietary habits, 76.7% of students noticed weight change, whether increasing or decreasing. Specifically, 38.7% of the students reported weight gain, while 38% reported weight loss. On the other hand, 23.3% of the students have not experienced a change in their weight. As for weight gain, we think it is linked to students developing more unfavorable eating habits, stress, and lower physical activity following the transition from high school to university this can be correlated with the finding that 55% of the students practicing emotional eating as a result of stress, and 32.6% of the students admitted that they do not exercise.

It is well known that lifestyle, food choices, and calorie intake is correlated with obesity. College transition is a critical period in life since many lifestyle habits that are formed may continue to exist throughout adulthood. Nutritional knowledge becomes more important as food options change, and dietary challenges arise with more dependency on oneself among college students. This study showed the lifestyle of the students at KU, the factors that affect their food choices, and the awareness of healthy options among them. Our results indicate an unhealthy lifestyle and food choices at KU campus, and that the majority of students prefer ready to eat sandwiches and tasty foods that are typically high in fat, saturated fat, and simple sugars. One of the limitations of this study is that the sample size was small given the restricted time available. Additionally, males were not interested in participating as females were.

Most of the colleges did not move to KU new campus, thus they were not involved in this study. Furthermore, some contextual characteristics such as size, location, local environment might differ from one college to other. Therefore, more study is required once all campuses unify at the new location for KU, before generalization.

It is important to conclude or request governmental and educational actions regarding food policies of schools enforcement to create a healthier food environment and increase awareness of healthy food choices, which could have a significant impact on students' health and their academic performance. Nutritional interventions, including nutritional education, are certainly recommended.

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Declarations

Ethical Approval and Consent to Participate

This study was reviewed and approved by the Food Science and Nutrition Department at Kuwait University. Written informed consent was obtained from all participant.

Consent for Publication

The authors declared that they have no potential conflicts of interest with respect to research, authorship and/or publication of this article.

Availability of Data and Materials

Data will be available from the corresponding authors on reasonable request.

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Author's Contribution

All authors contributed to the research. Dr. Sharifa and Mrs. Asma conceived the research idea and supervised the study, and together with Dr. Fawaz and Dr. Dina they developed and put together the manuscript. Ms. Shaima and Ms. Hessa collected and analyzed the research data statistically. All the authors discussed the results and approved the final manuscript for submission to this journal.

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