



Assessment of Nutrition Knowledge of Students Enrolled in Human Performance and Leisure Studies Courses at Historically Black Colleges University

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Abstract

Introduction: Approximately one-third of all college students aged 18-29 were classified as overweight or obese, increasing their risk for chronic disease. Nutritional knowledge is an important first step to developing strategies to improve the food choices of college students and promote healthy lifestyle behaviors. Therefore, the purpose of this study was to determine the current nutritional knowledge of students enrolled in courses within the Human Performance and Leisure Studies (HPLS) Department at an HBCU.

Methods: Paper based surveys were used to administer the 56-question Nutritional Knowledge Questionnaire (NKQ) for students enrolled in HPLS courses in Spring 2017.

Results: Response rate was 65.6% (n=236). Gender distribution was equal among the surveyed students (45.3% male vs. 53.8% females). The majority reported majoring in sports science and fitness management (SSFM) (76.7%), were between 18-24 years old (86.9%) with a self-identified ethnic origin of Black or African American (89.8%). The average nutritional knowledge score was 49.2 +/- 9.8 or 44.8%. Knowledge of diet-disease relationship was higher in females (5.4 +/- 1.9) compared to males (4.8 +/- 2.3), p = 0.03.

Conclusion: In this study, we found a need to improve nutritional knowledge in college students enrolled in select HPLS courses in the spring of 2017 at an HBCU. The findings highlight a gap in nutrition education and the opportunity to develop courses or programs aimed at healthful eating for students majoring in SSFM or attending an HBCU.

Introduction

Obesity is a major public health concern in the United States. Two-thirds of Americans are considered overweight or obese. Obesity is highly associated with chronic diseases such as cardiovascular disease, hypertension, certain cancers and non-insulin dependent diabetes mellitus. Currently, over half of Americans are living with at least one of the chronic diseases related to obesity [1]. The rise of obesity and chronic disease in America affects not only the adult population, however has an impact on children, adolescents and in particularly college-aged young adults. In a recent national survey on college campuses, approximately one-third of all college students aged 18-29 were classified as overweight or obese [2], increasing their risk for significant health problems [3].

The transition to college also represents a critical time for dietary interventions. College students are establishing

independence and forming lifelong dietary habits [4, 5]. Students are at risk of gaining unwanted weight largely due to University dining halls offering energy dense foods in high volumes [6-8]. Studies of student diets show that the first few years in college are often marked by overeating, meal skipping, and consumption of comfort foods that are familiar and often fit the definition of less than healthy or “junk” [9-10].

A study of 204 students found that 70% reported eating less than five servings of fruit and vegetables per day, and more than half ate fried or high fat foods at least three times a week[8]. Similarly, a survey of 117 universities conducted by the American College Health Association reported only about 8% of their students ate the daily recommended five servings of fruit and vegetables [11]. A study by Wald and colleagues [12] of 16,095 undergraduates from 40 colleges/ universities found that substantial percentages of students ate less than the recommended levels of fruits and vegetables per day.

In order to improve the food choices of college students and promote healthy lifestyle behaviors, we first must determine the current level of nutritional knowledge. Research has shown college students may be knowledgeable of nutrition, however the knowledge may only translate to certain food choices [5]. There are some studies published on nutritional knowledge in college students [5, 13-14], but none were found at a Historically Black Colleges or University (HBCU). This provides a unique opportunity to address health at a time when students are transitioning to adults and forming lifelong-dietary habits. Therefore, the purpose of this study was to determine the current nutritional knowledge of students enrolled in courses within the Human Performance and Leisure Studies (HPLS) Department at anHBCU. Additionally, we will assess differences in nutritional knowledge between genders and majors.

Methods

Students were recruited from select courses in the Department of HPLS (n=360) to give a maximum representation of the HPLS majors. Participation in the study was voluntary and no incentives were offered to prevent perceived coercion of grades. The study was reviewed and approved by the Institutional Review Board (# 17-0047).

All participants signed a written informed consent prior to starting the survey. Paper based surveys were used to administer the 56-question Nutritional Knowledge Questionnaire (NKQ) [15] during the last week of the spring 2017 semester. The previously validated questionnaire was adapted for the American food system. Permission was granted from the authors to use their survey prior to this study. Data were into qualtrics, checked and downloaded into Excel for analysis.

The NKQ survey contains four sections: I-Dietary Recommendations (maximum score=11), II-Sources of Foods/Nutrients (maximum score = 69), III-Choosing Everyday Foods (maximum score = 10), and IV-Diet/Disease Relationship (maximum score = 20) with a total score of 110.

Descriptive statistics (total response and percentage) were used to report demographic data and nutritional knowledge. One-way analysis of variance (ANOVA) was used to determine differences in nutrition knowledge between gender and major. Statistical Package for the Social Science (SPSS) software (IBM SPSS Statistics for windows version 24.0. Armonk, NY: IBM Corp released 2018) was used to analyze data. Results were reported as the mean + standard deviation, significance set at p<0.05.

Results

The response rate for students enrolled in HPLS courses in Spring 2017 was 65.6% (n=236). Demographics are presented in (Table 1). The students were equally distributed with respect to gender distribution (45.3% male vs. 53.8% females). The majority of students reported majoring in sports science and fitness management (SSFM) (76.7%) with the remaining student's majoring in other disciplines across the campus. The demographics of the college students were between 18-24 years old (86.9%) with a self-identified ethnic origin of Black or African American (89.8%).

	Response Percentage (n)
Gender (no response n=2)	
Male	45.3% (107)
Female	53.8% (127)
College Major (no response n=5)	
Sports Science and Fitness Management	76.7% (181)
Other	21.2% (50)
Ethnic Origin (no response n=5)	
Non-Hispanic White	3.4% (8)
Hispanic	0.4% (1)
Black or African American	89.8% (212)
Other	4.2% (10)
Marital Status (no response n=4)	
Single	94.5% (223)
Married	2.1% (5)
Living as Married	1.3% (3)
Widowed	0.4% (1)
Courses in Spring 2017 (n = 236)	

Table 1: Demographic Data of Students Enrolled in Select Human Performance and Leisure Studies.

The average nutritional knowledge score was 49.2 +/- 9.8 or 44.8% (Table 2). A subgroup analysis of nutrition knowledge scores between genders revealed females (5.4 +/- 1.9) scored higher on Section IV: Diet-Disease relationship compared to males (4.8 +/- 2.3), p = 0.03. Additionally, students who selected other majors scored higher on Section I: Dietary Recommendations compared to sports science and fitness management (SSFM) majors (6.2 +/-1.3 versus 5.6 +/- 1.3, p = 0.05, respectively)

	Nutrition Knowledge Score Mean +/- standard deviation (%)
Section I: Dietary Recommendations (maximum score 11)	5.7 +/- 1.6 (52.0%)
Section II: Sources of Food/ Nutrients (maximum score 69)	34.3 +/- 7.3 (49.7%)
Section III: Choosing Everyday Food/ Nutrients (maximum score 10)	4.1 +/- 1.7 (41.2%)
Section IV: Diet-Disease Relationships (maximum score 20)	5.1 +/- 2.2 (25.3%)
Total Nutrition Knowledge (maximum 110 points)	49.2 +/- 9.8 (44.8%)
Studies Courses in Spring 2017 (n = 236)	

Table 2: Nutrition Knowledge Scores of Students Enrolled in Select Human Performance and Leisure.

Discussion and Conclusion

The rise of obesity in young adults (18-29 years of age) in America has led to an increased risk of chronic disease at an earlier age which places a significant burden on the national health care system [16]. Increasing nutritional knowledge in college-aged students may be the first step in helping improve dietary intake. The current dietary pattern in the United States consists of low intake of fruits, vegetables, dairy and heart healthy oils with excess intake of refined carbohydrates, protein, saturated fats, added sugars and sodium [17]. Added sugars and solid fats, including sugar sweetened beverages, account for approximately 40% of daily energy intake of American youth [18]. Soda, fruit drinks, dairy desserts, grain desserts, pizza and whole milk are the six main sources for added sugar and solid fat intake. Lastly, American youth are below the recommendation for total water consumption [19].

One study reported that 30% of males and females graduating from HBCUs were overweight [20]. In another study, food consumption behaviors of students attending an HBCU were less than ideal [21]. The majority of the students sampled ate fewer than three meals a day, over half did not

consume any skim/low fat milk on a daily basis, only about a fourth consumed recommended amounts of water each day and the most frequently consumed foods were pizza and French fries [21]. Similar findings from a study of African American females attending an HBCU, food consumption preference was found to high-fat foods and they consumed more than 30% of their daily caloric intake from fat [22].

Improving dietary intake may help reduce the risk of unwanted weight gain and chronic disease. College is often the first time young adults are living on their own and making food choices independently. Research addressing the food choices of college students especially aimed at increasing awareness of healthful foods is sparse. This provides colleges and universities a prime opportunity to lay the foundation of lifelong healthful eating habits through multifaceted approaches.

In this study, we found a lack of nutritional knowledge in college students enrolled in select HPLS courses in the spring of 2017 at an HBCU. The average nutritional knowledge score from the validated questionnaire [15] was 44.8%. The highest scoring sections of the nutritional knowledge questionnaire were sections I (dietary recommendations) and II (sources of foods/ nutrients). Section IV assessing knowledge of diet-disease relationship had the lowest scores. Although, females scored significantly higher than males on section IV suggesting females have a better understanding of the diet-disease relationship. Additionally, SSFM majors scored significantly lower in section I (dietary recommendations) knowledge compared to other majors such as psychology, animal science and biology. Overall, the scores are comparable to other research studies assessing nutritional knowledge in college students [5, 13-14].

In a similar study, nutritional knowledge was assessed in students enrolled in the sports teaching and coaching department [13]. The researchers assessed nutritional knowledge in first-year students (no prior enrollment in a college nutrition course) compared to fourth-year students (completion of some college nutrition courses). Students in the first-year scored statistically lower than those students in fourth-year, 53% versus 64%, p = 0.000, respectively, with no differences between the genders. In another study assessing nutritional knowledge in college students (n = 237) using an eight question survey, found nutritional knowledge in females was significantly higher than males, (69% versus 64%, respectively, p = 0.05) [14]. Lastly, a different eight question survey was used to assess knowledge of nutritional requirements in college students found taste preference and convenience dictated their eating habits [5]. The students in the previous studies identified primarily as non-Hispanic White. The majority of our students identified as black or African American. Ultimately, health and nutrition education courses may help improve nutritional knowledge and promote healthful eating habits.

Limitations to the study include the use of a convenience sample to obtain data which may not represent a true nutritional knowledge of students majoring in SSFM or attending an HBCU. Additionally, the questionnaire used may not be culturally relevant to American college students. The nutritional knowledge survey used in this study was created and validated in the United Kingdom. The questionnaire was chosen because it is one of the few validated and most frequently used nutritional knowledge questionnaires for research.

The findings in this study highlight a gap in nutrition education. Thus providing the opportunity to develop courses or programs aimed at healthful eating for students majoring in SSFM or attending an HBCU. Future research will focus on broadening our sample base to gain a better understanding of student's nutritional knowledge and eating habits across various campuses. This will help the researchers to create interventions aimed at the promotion of healthful eating, reduction of excess weight-gain and chronic disease risk.

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