Overweight and Physical Inactivity Among African American Students at a Historically Black University

Jaesin Sa, Ph.D., James Heimdal, Ph.D., Tracy Sbrocco, Ph.D., Dong-Chul Seo, Ph.D., Beatrice Nelson, M.S.

Abstract: Background: Little is known about correlates of overweight, obesity, and physical inactivity among African American students at historically Black colleges and universities.

Objective: To assess overweight, obesity, and physical inactivity among African American college students at a historically Black university in Maryland in the USA.

Methods: Data were collected from 268 African American college students in 2013. Data were analyzed with percentage difference z-tests, chi-square tests, and multiple logistic regression.

Design: Cross-sectional survey (student response rate = 49.9%).

Results: The overweight/obesity rate of participants was 47.5%, which was higher than that of the U.S. college student population overall (34.1%) and a representative sample of African American college students (38.3%). When age and sex were controlled, a family history of obesity, skipping breakfast, drinking caffeinated drinks, lower family income, and smoking a pipe, cigars, or cigarettes daily were significant correlates of overweight (obesity included). The percentage of physical inactivity was 68.3, and physical inactivity was higher among women and overweight or obese students.

Conclusion: Given the high overweight and obesity prevalence among African American college students, historically Black colleges and universities in the USA should increase health promotion efforts targeting weight-related behaviors, particularly physical activity.

Keywords: Overweight■physical inactivity■African American■college students■historically Black university

Author affiliations: Jaesin Sa, Touro University, Vallejo, California, USA; James Heimdal, Tennessee State University, Nashville, Tennessee, USA; Tracy Sbrocco, Uniformed Services University of the Health Sciences, Bethesda, Maryland, USA; Dong-Chul Seo, Ewha Womans University, Seoul, South Korea; Beatrice Nelson, University of Maryland Eastern Shore, Princess Anne, Maryland, USA

Corresponding Author: Dong-Chul Seo, Ph.D., FAAHB, Professor, College of Health Sciences, Ewha Womans University, 52, Ewhayeodae-gil, Seodaemun-gu, Seoul, 120-750, South Korea, tel: 82-2-3277-2578, fax: 82-2-3277-2867, email: dseo@ewha.ac.kr

INTRODUCTION

The prevalence of overweight in the USA, defined as a body mass index (BMI) 25.0-29.9 kg/m², has increased gradually over the last 3 decades regardless of sex, age, race/ethnicity, and educational levels.[1,2] From 2009 to 2010, an estimated 69.2% of U.S. adults aged 20 years or older were overweight or obese.[3] Overweight has been a serious public health problem because it increases the risk of diabetes, cardiovascular disease, and most forms of cancer.[4] In addition to the major chronic diseases, overweight during adolescence is related to low academic performance[5] and low self-esteem.[6] While people of all racial/ethnic origins are affected by the epidemic, disparities in overweight are pronounced among racial/ethnic minority populations, particularly among African Americans. According to the results from the latest U.S. National Health and Nutrition Examination Survey,[1] 76.6% of African American adults were overweight or obese compared with only 68.0% of Whites.

Data from the American College Health Association showed that 21.6% and 12.5% of U.S. college students (N = 80,121) were overweight and obese, respectively.[7] Disparities in overweight exist among U.S. college students.[8] Although a large proportion of college students, irrespective of race/ethnicity, is at risk for poor health habits,[9,10] African American college students are significantly heavier and gain more weight during college than other racial/ethnic groups.[8-10] In a U.S. national study of 24,613 students from 119 four-year colleges,[8] overweight (obesity included) was more prevalent among African American college students (38.3%) compared with their White (26.7%), Asian (16.4%), Native American (30.6%), and Hispanic (30.2%) counterparts.

Although overweight among college students results from a variety of factors, such as TV viewing[8] and "all-you-can-eat" dining halls on campus,[11] physical inactivity is a main determinant of overweight and is most amendable to change.[12] Despite the benefits of physical activity (PA),[13] most college students do not meet the PA guidelines[14] [i.e., 150 minutes of moderate-intensity aerobic activity (e.g., brisk walking) and muscle-strengthening activities on 2 or more days per week or 75 minutes of vigorous-intensity aerobic activity (e.g., jogging) and

muscle-strengthening activities on 2 or more days per week] recommended by the Centers for Disease Control and Prevention (CDC). In a study of college students ($N = 903$),[15] a substantial proportion (42%) did not engage in moderate PA for at least 30 minutes on 3 or more days a week. Disparities were also found in physical inactivity among U.S. college students. A study[16] reported that African American college students showed higher rates of physical inactivity (23.5%) than their White (17.4%) and Hispanic (20.3%) counterparts.

The transition from high school to college may be a stage of particular risk of overweight and excessive weight gain.[17] College students start making decisions about their PA and eating behaviors[8] during this transition period establishing health habits are established.[18] Studies found that this transition period is a time for engaging in unhealthy behaviors, including low PA[17] and poor diet.[10,17] Colleges and universities are considered an important setting for impacting this early stage of behavior change[8] because they have resources (e.g. fitness centers, swimming pools, and student wellness programs) to promote health for their students.[16] However, most research on overweight and obesity has been focused on primary and secondary schools rather than colleges and universities.[8] Furthermore, few studies regarding correlates of overweight and obesity have been conducted at historically Black colleges and universities[19] and little is known about PA among African American college students.[19] The purpose of this study was to examine overweight, obesity, and physical inactivity among African American college students at a historically Black university in the USA.

METHODS

Data Collection

Participants in this study were from a purposive sample of African American students at a historically Black university located in a rural area on the eastern shore of Maryland in the USA. The study protocol was approved by the institutional review board from the authors' institutions. A Personal Wellness Profile, a 75-item questionnaire, was administered to 537 students who were enrolled in health courses, and it was completed by 268 students (response rate: 49.9%) from January to March 2013. A study[20] reported that the Personal Wellness Profile is a valid and reliable tool that can be used to help eliminate health disparities among African Americans. To reduce response bias, voluntary participation in the survey was emphasized several times. All participants provided written informed consent. The questionnaire included a variety of questions about demographics (e.g., sex, age, and race) and health behaviors (e.g. PA, drinking, and smoking). Students who were not African Americans were excluded from this study. The study protocol was approved by the Institutional Review Board of the lead author's institution.

Measures

Using a Detecto scale with height rod (Detecto Scale Company), participants' actual weights and heights were measured with participants wearing light clothing without shoes. To remove inter-observer error in anthropometry, the same researcher measured weights. The scale was recalibrated by returning the scale to the zero position before each participant was weighed. BMI (calculated as kg/m^2) was categorized into six groups: underweight (BMI < 18.5), normal ($18.5 \leq$ BMI < 25.0), overweight ($25.0 \leq$ BMI < 30.0), class I obesity ($30.0 \leq$ BMI < 35.0), class II obesity ($35.0 \leq$ BMI < 40.0), and class III obesity (BMI ≥ 40.0). Physical inactivity was measured by two questions: (1) asking on how many days per week participants engaged in aerobic exercise (e.g. brisk walking) of at least 20 to 30 minutes in duration and (2) asking participants to select one of the four responses that best described their current PA levels (see Table 2). Participants who selected the last response [i.e., I participate regularly in more active physical exercise (e.g., jogging and swimming)] were asked to indicate how much time they spend participating in more active physical exercise each week. Based on the PA guidelines from the CDC,[21] physical inactivity was defined as engaging in either 0-4 days of moderate-intensity aerobic exercise (e.g., brisk walking) of 20-30 minutes and 0-1 day of muscle-strengthening activities per week or 0-1 hour of more active physical exercise (e.g., jogging) and 0-1 day of muscle-strengthening activities per week.[21]

Data Analysis

Statistical analyses were performed using SPSS Windows version 20.0. Percentage difference z-tests and chi-square tests were employed to examine proportional differences in demographics and PA between men and women. Multiple logistic regressions were conducted to compute odds ratios and 95% confidence intervals (CIs) of correlates of overweight (obesity included). Two control variables (i.e., age and sex) were selected based on prior research.[22] Chi-square significance tests were performed to find potential correlates that are significantly associated with overweight (obesity included), and nine correlates were identified. Each correlate was tested separately with the two control variables in the multiple logistic regression models. The Hosmer-Lemeshow test χ^2 value ranged from 0.16 ($p = .98$) to 6.47 ($p = .60$), indicating the good model fit of each of the logistic regression models.