Priority Health Behaviors Among South African Undergraduate Students

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Abstract

This study examined the priority health behaviors of South African youth by administering a questionnaire to 635 undergraduate students enrolled in a large metropolitan university in South Africa. Results indicate that 65.5% of the participants tried cigarettes at least once during their lifetime, over 15.2% had their first cigarette and 31.2% had their first alcoholic drink before age 15, and over 95.4% consumed their first alcoholic drink by age 18. During the month preceding the survey, 37.0% consumed five or more alcoholic drinks on a single occasion and 10.3% carried a weapon at least once. Over 83.3% percent had at least three servings of fruits and vegetables the day before the survey, 44.3% engaged in vigorous physical activity on three or more of the seven days preceding the survey, 10% rarely or never wore a seatbelt when driving, 10% seriously considered attempting suicide, and 46.7% had sexual intercourse in their lifetime. Results were analyzed by demographic variables including sex, race and age. Recommendations for campus wellness programs addressing these issues are included.

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Key words: *College Students, Health Behaviors, South Africa, Youth.*

Introduction

The global prevalence of chronic diseases has increased dramatically over recent years, causing approximately 60% of the 56.5 million reported deaths globally each year.[1] The total number of people dying from chronic diseases worldwide is double that of all infectious diseases (including HIV/AIDS, tuberculosis and malaria), maternal and perinatal conditions, and nutritional deficiencies combined.[2] An estimated 80% of all chronic disease-related deaths occurs in low or middle income countries and chronic diseases associated with unhealthy behaviors (i.e., unhealthy diets, caloric excess, inactivity, and obesity) are now the greatest public health problem in most countries of the world.[3] Without research and prevention efforts to address risk behaviors, global deaths caused by chronic diseases are expected to rise to 73% by 2020.[4] Numerous studies conducted in the United States have demonstrated that the leading causes of death, such as heart disease and cancer, are largely caused by a relatively small number of preventable behaviors. These behaviors (such as smoking cigarettes, drinking alcohol and sedentary lifestyle) identified by the Centers for Disease Control and Prevention (CDC) are often interconnected, started during adolescence, and continued into adulthood.[5,6,7]

While AIDS continues to be the leading cause of death in South Africa, deaths from chronic diseases, such as stroke and heart disease, remain a major public health issue.[8] It is believed that the chronic disease epidemic is emerging in developing countries.[9] Similar patterns of risk behaviors that contribute to chronic diseases, such as diet and physical inactivity, have also been observed in developing countries. Choi, Bonita, and McQueen[10] suggested that chronic diseases are sometimes communicable at risk factor levels because the patterns of risk behavior practices travel across countries, resulting in transmission from one population to another and affecting disease patterns worldwide.[11] This phenomenon is a result of globalization which is marked by increased migration of populations, particularly to urban communities, as well as a significant increase in the transportation of goods and services. The result is an exposure to new risk factors and changes in behavior which may lead to chronic disease. WHO has claimed that chronic diseases associated with unhealthy behaviors (i.e., unhealthy diets, caloric excess, inactivity, and obesity) are now the greatest public health problem in most developed as well as developing countries.[3] In South Africa, diseases that are primarily caused by unhealthy behaviors such as cardiovascular disease, injuries (unintentional and intentional), cancers, chronic obstructive lung diseases, and diabetes are the primary causes of mortality after HIV/AIDS.[8]

Surveys revealed that, among South African adults aged 18 to 69 years, nearly half (44.9%) are physically inactive and over two-thirds (70.6%) consume fewer than five servings of fruits and vegetables everyday.[11] The high rates of physical inactivity and low rates of adequate fruit and vegetable consumption, together with poor environmental conditions (e.g., lack of facilities, high crime rates) and the belief that a heavier body weight is a sign of well-being[12,13,14] have contributed to the high rates of obesity and overweight (45%), especially among female adults (56.2%),[15] rural adults (51.7%) and rural female adults (58.7%).[16] It is often the case that thin women are the subject of ridicule and gossip, further perpetuating poor dietary practices and lack of adequate physical activity among this population. As a result, chronic diseases associated with obesity such as diabetes, high blood pressure, and coronary heart disease are increasingly more prevalent among all population groups in South Africa.[17,18]

Recent studies have revealed serious problems of alcohol, tobacco, and other drug use among various groups of South Africans with varying results. For example, the reported rates of current drinkers range from 19.9% overall,[11] to 26.4% overall,[19] 30% among women, 55% among men,[20] 51% among white women and 71% among white men.[21] The proportion of South Africans who engage in binge drinking behaviors ranges from as low as 3.1% in one study[11] to as high as 33% in another.[21] The rates of illegal drug use range from 19.8% among high school students[22] to 24.7% among men.[19] Similarly, cigarette smoking rates have been reported inconsistently including 10.6% for lifetime smokers among high school students,[22] 15.5% for current frequent smokers,[11] 15% of men and 4% of women for lifetime and current frequent smokers combined among university students,[23] and 38% of blacks and 42% whites for lifetime smokers among adults.[24]

Studies that examined sexual behaviors in South Africa have revealed high rates of sexual intercourse and low rates of condom use among high-school-

aged students[25,26] and among young adults between the ages of 14 and 35 years old.[27] Several studies have reported that a large proportion of certain groups of South Africans engage in poor dietary behaviors, physical inactivity,[28,24,11] and behaviors that contribute to intentional and unintentional injuries.[29,24]

The South African Youth Risk Behavior Survey conducted among high school students in 2002[30] identified serious risk behaviors among South African youth. The limited number of studies have reported the unhealthy practices of alcohol, tobacco, and other drug use; poor diet and physical inactivity; and risky sexual behaviors among various South African population groups. Although the majority of South Africans consider chronic diseases and HIV/AIDS to be two of the most important public health issues for their government to address,[31] no study has been found that systematically examines the six priority health behaviors that contribute to chronic diseases, HIV/AIDS, and other major health problems of among South African adults. This study was designed to examine the six priority health behaviors identified by the CDC:[5] tobacco use; alcohol and other drug use; dietary behaviors; physical activity; behaviors contributing to unintentional injuries and violence; and sexual behaviors contributing to unintended pregnancy and STI/HIV among university undergraduate students in South Africa.

Method

A cross-sectional survey was administered to examine the six priority health behaviors among undergraduate students enrolled in a large, metropolitan university in Pretoria, South Africa. Approval of research involving human participants was obtained from the Institutional Review Board of the university where the researchers are employed and Ethics Committee of the university where data collection took place.

The self-administered paper-pencil survey instrument was based on the National College Health Risk Behavior Survey[32] that was last used in 1995. Reliability data on the items that measure the six groups of priority health behaviors in this survey are reported elsewhere.[33] Because South Africans use British English, the instrument was formatted using British English and pilot-tested among 20 South African undergraduate students to ensure the readability of the instrument. The reliability of measurement items were evaluated using Cronbach's Alpha.[34] The Cronbach's Alpha value for items measuring tobacco use was 0.8, alcohol and other drug use was 0.6, dietary behaviors and physical activity was 0.6, injuries was 0.5, and for sexual behaviors was 0.8. Since this instrument was used to measure the priority behaviors among South African undergraduate students for the first time, this study is of an exploratory nature. Nunnally[35,36] recommends an alpha threshold of 0.5 for exploratory work.

The six health behaviors assessed include tobacco use, alcohol and other drug use, dietary behaviors, physical activity, behaviors contributing to unintentional injuries and violence, and sexual behaviors contributing to unintended pregnancy and STI/HIV. Response bias was reduced by adding an item at the end of the survey that asked whether or not the questions were answered truthfully. Responses from those who answered "not truthfully" to this question were excluded.

Study Setting and Sample Selection

The setting for this study was a large comprehensive metropolitan university in South Africa. It was determined that about 5% of the undergraduate student population within each of the faculties (i.e., colleges) that offer undergraduate degree programs other than medicine, law, veterinary science, or theology would be purposefully selected by instructional module.[1] Faculties that participated in the survey include: Economic and Management Sciences (6,071 undergraduate students); Education (2,383); Engineering; Built Environment and Information Technology (5,362); Humanities (3,950); and Natural and Agricultural Sciences (3,737). Therefore, a total of approximately 1,000 students were selected to represent the general non-professional undergraduate student body in the university. Undergraduate students seeking professional degrees were excluded from the sample due the high number of non-traditional students who were not reflective of the general undergraduate campus culture.

Data Collection and Data Analyses

Data were collected in the first and second terms (February ~ July) in 2007.[2] The instructors of the

[1] In the university where the survey took place, academic courses are offered in the modular format.

[2]The university being studied has a quarter system and there are four quarter terms per year with the first quarter term starts in the beginning of each calendar year.

modules selected were asked to assist with the survey administration. Each instructor was asked to select one of his or her regularly scheduled class periods during the term and inform the researchers of the date, time, and location of the class for survey administration. During the scheduled class, one of the researchers delivered the survey booklets and 10-choice answer sheets to the classroom, informed the students that their responses would be anonymous and their participation would be completely voluntary and would in no way affect their grade for the course.

Although a sample of about 1,000 university students from various faculties were purposefully selected to represent the general population of the student body in the university, due to exams and absences, only 635 students participated in the survey and all of them completed the survey. Responses from 600 of the participants who indicated that they had answered the questions truthfully were included in the data analyses (94.4% usable). Data were analyzed using descriptive statistics and Chi-square analyses. Frequencies and percentages by age, sex and race were compared and reported.

Results

Demographic Characteristics and Background Information

Of the 600 respondents, 58.3% were females, 95.7% were 22 years or younger, 78.7% were Caucasian, and 92.5% were unmarried (Table 1). Over 59% of the participants reported that their weight was normal and 79.7% described themselves to be in good or excellent health. The majority of the participants indicated that they slept seven to eight hours per night (64.2%), yet they still felt somewhat stressed (58.3%). In terms of their perceived academic performance, 88.7% of the respondents indicated that their grades were average or better.

Tobacco Use

Over 65% of the respondents were lifetime smokers (having tried at least one or two puffs of cigarettes during their lifetime), 32.7% had smoked cigarettes daily (at least one cigarette every day for 30 days) at some time during their lifetime, 25.8% were current smokers (had smoked one or more cigarettes during the 30 days preceding the survey), 15.8% were current frequent cigarette smokers (had smoked more than five cigarettes a day during the 30 days preceding the survey), and 50.3% had tried cigars sometime during their lifetime (Table 2). Males and white students were significantly more likely than their counterparts to be lifetime smokers. Lifetime daily smoking, current smoking and current frequent smoking all varied by age, race and gender with white students, older students (> 22 years), and male students significantly more likely to smoke.

Among the lifetime smokers, 5.5% tried their first cigarette before age 11, 29.6% had their first cigarette between ages 11 and 14, and 53.1% smoked for the first time between the ages of 15 and 18 (Table 3). The age at which students smoked their first cigarette varied by age group, however, there was not a significant variation by race or gender. Among lifetime daily smokers, 3.6% smoked cigarettes regularly (at least one cigarette every day for 30 days) before they reached age 11, 18.9% became lifetime daily smokers between the ages of 11 and 14, and 60.2% started smoking regularly between the ages 15 and 18. The age at which participants became a lifetime daily smoker again varied significantly by age group but not by race or gender.

Alcohol and Other Drug Use

Nearly nine out of ten respondents were lifetime drinkers (had at least one drink of alcohol sometime in their lifetime). Participants who are male, white, and older (> 20 years) were significantly more likely than their counterparts to be lifetime drinkers (Table 4). Although only 3.5% of the respondents were current frequent alcohol drinkers (alcohol use at least 20 of the 30 days preceding the survey), over 37.0% of the respondents reported current episodic heavy drinking (consuming five or more drinks of alcohol on at least one occasion during the 30 days preceding the survey). Male students were significantly more likely than female students to engage in current frequent drinking of alcohol. When compared to their counterparts, participants who were males or indicated their race as white were significantly more likely to engage in current episodic heavy drinking of alcohol (Table 4). Among all respondents, 7.9% had their first drink of alcohol at age 10 or younger, 26.5% between 11 and 14, and 61.0% between ages 15 and 18 (Table 5). Overall, 95.4% of the respondents had their first drink of alcohol when they were 18 years of age or younger. Male participants who indicated their race as Asian, Indian or bi-racial, and older students (> 22 years) were significantly more likely than their counterparts to consume alcohol for the first time at an early age.

Over one-fourth of the respondents (27.5%) reported having tried an illegal drug during their lifetime (Table 6). Students older than 22 years of age and males were significantly more likely than younger or female students to have tried illegal drugs. Over three-fourth of the respondents (77.7%) indicated that they personally knew someone who had tried illegal drugs. Male students were significantly more likely to know someone who had tried illegal drugs than their female counterparts. A total of 14.7% of participants indicated that they would try an illegal drug if offered. Asian, Indian, or bi-racial students and male participants were significantly more likely to experiment with illegal drugs if offered in the future than their counterparts.

Dietary Behaviors and Physical Activity

A large proportion of the respondents (83.3%) reported having eaten three or more servings of fruits and vegetables during the day preceding the survey (Table 7). The likelihood of eating three or more servings of fruits and vegetables during the day preceding the survey did not vary significantly by gender, age or race. Having breakfast daily during the 30 days preceding the survey was reported by 31.2% of the respondents. Younger students (18 to 19 year olds) were significantly more likely than older students to have had breakfast daily during the 30 days preceding the survey.

Among all respondents, 44.3% reported having engaged in vigorous physical activity "that made you sweat and breathe hard" for at least 20 minutes on three or more of the seven days preceding the survey and 38.5% reported having participated in moderate physical activity such as walking or bicycling for at least 30 minutes at a time on five or more of the seven days preceding the survey. Participation in vigorous physical activity was significantly higher among male students and white students, but did not vary by age group. Black students were significantly more likely to participate in moderate physical activities than white students.

Unintentional Injury

Of the 83.5% of respondents who drove a car in the past 12 months, 12.0% reported rarely or never wearing their seatbelt (Table 8). In the 30 days preceding the survey, 48.6% of those who drove a car reported driving a vehicle after consuming alcohol. Participants who are male, older (> 22 years of age), and white were significantly more likely to drive after drinking alcohol than their counterparts. Of the 25.7% of respondents who rode a motorcycle during the 12 months preceding the survey, 20.4% rarely or never wore motorcycle helmets. Male students and students who identified their race as either Asian, Indian or bi-racial were less likely to wear motorcycle helmets during the last 12 months. Over 35% of the students reported having ridden bicycles during the 12 months preceding the survey. Of those, 1.4% of the bicycle riders reported having had at least one bicycle accident, and 17% of those accidents required treatment by a doctor or nurse. The male participants and older students (> 22 years old) were significantly more likely than their counterparts to have more severe bicycle injuries requiring medical attention.

Intentional Injury

Among all respondents, 10.3% reported carrying a weapon, such as a gun, knife or club, at least one day during the 30 days preceding the survey and 12.0% had been involved in at least one physical fight during the prior 12 months (Table 9). Male students were significantly more likely than female students to have carried a weapon or been in a physical fight. Students younger than 20 years of age were significantly less likely to have carried a weapon than older students. Race did not have a significant impact on the likelihood of carrying a weapon or having engaged in a physical fight. Over one-tenth (13.2%) of the respondents who reported having been involved in a physical fight in the last year were injured at least once and needed treatment by a doctor or nurse. Injuries from fighting that required medical attention varied significantly by gender and age group, with males and older students (> 22 years of age) more likely to have injuries requiring medical attention than their counterparts, but not by race.

Students were asked about suicidal thoughts and suicide attempts during the last 12 months. Among all respondents, 10.0% reported having seriously considered suicide. Of those who reported having seriously considered attempting suicide, 33.9% had made specific plans to attempt suicide, and 20.7% had attempted suicide (Table 10). Suicide thoughts and attempts did not vary significantly by gender, age group, or race except that significantly more female participants had seriously considered suicide than their male counterparts.

Sexual Behaviors

Among all respondents, 46.7% reported having had sexual intercourse and 9.0% indicated being told by a

doctor or nurse that they had a sexually transmitted infection (Table 11). Respondents who were male, older than 22 years of age or black were significantly more likely than their counterparts to have had sexual intercourse. Among all participants, 85.8% reported receiving sexuality education, including instruction on AIDS/HIV, prior to the survey.

Of those participants who had engaged in sexual activity, 7.5% had their first sexual experience before age 13, 15.0% had sexual intercourse for the first time between ages 14 and 15, 31.8% between ages 16 and 17, and 45.8% had their first sexual experience after age 18 (Table 12). Age of first sexual intercourse did not vary by gender or age group; however, black students were significantly more likely to have had sexual intercourse at a younger age than their counterparts. Of those sexually experienced students, over 64% reported using a condom during their last sexual experience and 60.6% were under the influence of alcohol at the time. Although condoms were the most frequently cited pregnancy prevention method (29.9%), over one fifth (21.1%) of respondents indicated that they used no method to prevent pregnancy during their last sexual episode. Over half (58.7%) of the respondents who were sexually experienced had two or more partners in their lifetime. More than one in ten (11.2%) indicated having had six or more lifetime sexual partners. When compared to their counterparts, male students, older students and Caucasian students were more likely to have been sexually active in their lifetime. Older students and those who indicated their race as black were significantly more likely than their counterparts to have had six or more sexual partners.

Discussion and Conclusions

This study revealed that many college students in South Africa have engaged in risk behaviors that make them susceptible to serious health problems. Such risk behaviors include the top three actual causes of death in the United States in 2000 (tobacco use, alcohol use, and diet and physical inactivity) that contributed to over one-third (38%) of all U.S. deaths.[6] Specifically, this study found that 65.5% of the participants reported having tried cigarettes during their lifetime, over a third (35.1%) tried their first cigarette before they reached age 15, and 88.3% tried their first cigarette before age 18. Such a pattern of first use is similar to that of American youth reported by the U.S. Surgeon General.[37] Although the rates of lifetime and current frequent smokers are lower among South African university students than among U.S. university students (65.5% vs. 74.8% and 15.8% vs. 17%, respectively),[32] they are more than double that of South African high school students (65.5% vs. 30.5% and 15.8% vs. 6.5%, respectively).[30] This suggests that the period between high school and university is critical for antismoking education in South Africa. The U.S. Surgeon General indicated that the earlier the age young people begin using tobacco, even with low levels of tobacco use, the higher the risk of long-term addiction and the more likely young people are to have negative respiratory and non-respiratory health consequences.[37] The survey results confirm that reducing the number of new smokers remains a major public health challenge in South Africa.

This study revealed that South African university students had a serious problem with alcohol use, especially the age of first use. The majority (95.4%) of the South African undergraduate students surveyed reported having had at least one drink when they were age 18 or younger. It is more alarming that nearly one-third of the participants had their first drink of alcohol by the age of 14. Research in the U.S. has discovered that the younger the age when an individual begins drinking alcohol, the more likely they will become alcohol dependent later in life.[38] The long term overuse of alcohol may result in a number of negative health problems. The prevalence of having one or more drinks of alcohol in at least 20 days during the last month was similar among South African university students and their U.S. counterparts (4.5% vs. 4.0%), as was the percentage of students who consumed five or more drinks of alcohol on a single occasion during the past month (37.0% vs. 35.5%).[32] Significantly more South African university students surveyed had consumed alcohol at least once in their lifetime and engaged in binge drinking in the past month as compared to that among South African high school students (90.5% vs. 49.1% and 37.0% vs. 23%, respectively).[30] Again, the transition from high school to university is a critical time for alcohol education targeting South African youth.

For dietary behaviors and physical activities, over 83.3% of the South African university students consumed at least three servings of fruits and vegetables on the day prior to the survey. Only 31.2% of South African participants ate breakfast daily during the past month. When compared with U.S. college students,[32] a higher proportion of South African university students participated in vigorous or moderate physical activity (44.3% vs.38.8% and 38.5% vs. 20.0%, respectively). The rates of vigorous and moderate physical activity are similar between

the university students surveyed in this study and high school students in South Africa (44.3% vs. 44.6% and 38.5% vs. 33.5%, respectively).[30] This may be explained by the fact that the South Africa government has encouraged mass participation in sports among its citizens and playing sports appears a common theme in South Africa.[14]

The South African university students surveyed seemed to be more likely than their U.S. counterparts to have engaged in behaviors that place them at high risk of unintentional injuries. This study revealed that the proportion of South African university students surveyed who rarely or never wore their seatbelt was slightly higher than that among U.S. college students (10.0% vs. 9.2%).[32] Another problem behavior was the high rate of driving after drinking which was nearly twice the rate of U.S. students (48.6% vs. 27.4%).

The proportion of South African students engaged in behaviors that contributed to intentional injuries was higher than that of U.S. college students, particularly for carrying a weapon (10.3% vs. 8.1%) and for participating in a physical fight (12.0% vs.10.2%).[32] When compared with U.S. college students, the same proportion of South African participants had seriously considered suicide (10.0% vs. 10.3%), and a higher percentage of South African respondents made a suicide plan (9.5% vs. 6.7%). In addition, South African participants attempted suicide at a much higher rate than their U.S. counterparts in the past year (5.3% vs. 1.5%). The high rates of suicidal thoughts or attempting suicide among South African participants could be caused by a high stress level among South African young adults and/or perceived inadequate mental health services.[39]

It appears that the South African university students surveyed were less likely to be sexually active than their U.S. counterparts. This survey found that 46.7% of the South African university students had sexual intercourse compared to the 86.1% of the U.S. students.[32] Although a higher percentage (7.8%) of South African university students began sexual activity before the age of 13 than U.S. college students (2.8%), there is a significant difference in the percentage of South African students with six or more partners in comparison to U.S. students (11.2% vs. 34.5%).

Similar to the findings from the U.S. National College Health Risk Behavior Survey[32] and the South African Youth Behavior Risk Survey,[30] certain subgroups of South African university students were more likely to engage in certain risk behaviors. Among the undergraduate students surveyed, males were significantly more likely than females to participate in current frequent smoking, current frequent drinking, current episodic heavy drinking, and physical fights. Male students were also more likely than female students to have tried a cigarette, a cigar, an illegal drug; drunk alcohol in their lifetime; engaged in vigorous physical activity; have driven a car after drinking; carried a weapon; and had sexual intercourse. By contrast, females were significantly more likely than males to have ever considered suicide in the past year.

Students older than 22 years of age were significantly more likely than younger students to have tried a cigarette or a cigar in their lifetime, be a current smoker, be a current frequent smoker, participate in current episodic heavy drinking or physical fight, and have ever had sexual intercourse. Caucasian students were significantly more likely than their counterparts to have tried a cigarette in their lifetime, be a current frequent smoker, be a current frequent drinker, and participated in current episodic heavy drinking.

Limitations and Recommendations

As in all studies, certain limitations apply and need to be taken into consideration. First, although this study has a relatively large sample size and high response rate, the number of participants was smaller than the researchers initially intended and the sample was not randomly selected. Therefore, the generalization of the survey results to all South African undergraduate students should be done with caution. Future studies should employ randomized sampling methods, such as the one used by the U.S. National College Health Risk Behavior Survey (CDC, 1997), and include other South African institutions, to have a representative sample of all South African university students.

Second, although the overall prevalence of any illegal drug use was very low, no additional items were included to examine the commonly used illicit drugs among South African university students. Similarly, no items were included to examine the weight problems, means of controlling weight, or high fat dietary behaviors among South African university students. Future studies need to examine these specific practices.

In spite of this study's limitations, the findings revealed that many South African university students engaged in behaviors that increasingly put their health at risk and lives in danger. In addition, little is

being done to address these risk behaviors by college officials. Although this metropolitan university has a strong intramurals program, the fitness facilities are inadequate and obsolete. Undergraduate students are not required to take a course on fitness or personal health as part of the general education requirements. In addition, there is no centralized campus office to address student health and wellness concerns and issues or oversee peer health education programs. The current status of health education and promotion programs on other South African university campuses is unclear and needs to be examined in future studies. Health promotion efforts that address the priority health behaviors need to be developed and consistently implemented on all South African university campuses. Educational and intervention-based strategies must be further strengthened to prevent the development of high risk behaviors, especially among youth and young adults. South African universities must examine and expand their campus programs to include initiatives and strategies that reduce high risk health behaviors among their student population.

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Table 1. Percentage Distribution of Demographic and Background Data

Category	Total	Female 58.3	Male 41.7
Age group			
18-19 years	62.5	71.7	49.6
20-22 years	33.2	25.1	44.4
> 22 years	4.3	3.1	6.0
Race			
White	78.7	77.1	80.8
Black	17.7	18.0	17.2
Indian	1.5	2.0	0.8
Asian	0.8	1.4	0.0
Other	1.3	1.4	1.2
Class standing			
First year	74.8	80.3	67.2
Second year	13.3	10.9	16.8
Third year	10.8	8.0	14.8
Fourth year	0.8	0.9	0.8
Post graduate	0.2	0.0	0.4
Marital Status			
Unmarried	92.5	93.7	90.8
Married	2.0	1.1	3.2
Divorced	0.3	0.6	0.0
Other	5.2	4.6	6.0
Weight			
Underweight	12.2	10.9	0.6
Normal weight	59.0	59.4	14.0
Overweight	22.7	22.3	23.2
Unknown	6.2	7.4	4.4
Perceived health status			
Good	79.7	76.0	84.8
Average	17.8	20.9	13.6
Poor	2.5	3.1	1.6
Mean # of hours of sleep/day			
< 7 hours	25.5	28.3	21.6
7-8 hours	64.2	62.3	66.8
> 8 hours	10.3	9.4	11.6
Perceived stress level			
Very stressed	7.3	8.3	6.0
Somewhat stressed	51.0	59.4	39.2
Not stressed	41.7	32.3	54.8

Table 2. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Having Used Tobacco, by Gender, Age and Race

Category	Cigarette use				Cigar Ever Used
	Lifetime (a)	Lifetime daily (b)	Current (c)	Current frequent (d)	
Gender	$\chi 2$=6.602**	$\chi 2$=7.920**	$\chi 2$=3.883*	$\chi 2$=6.707**	$\chi 2$=47.621***
Female	61.1	27.8	22.9	12.6	67.2
Male	71.6	39.5	30.0	20.4	38.3
Age group	*ns*	$\chi 2$=8.659*	$\chi 2$=7.250*	$\chi 2$=12.638**	$\chi 2$=8.692*
18-19 years	62.7	28.7	22.1	12.0	45.9
20-22 years	70.9	37.4	31.7	21.1	58.8
> 22 years	65.4	52.0	34.6	30.8	50.0
Race	$\chi 2$=17.073***	$\chi 2$=16.548***	$\chi 2$=9.378**	$\chi 2$=11.219**	$\chi 2$=51.383***
White	69.5	36.7	27.5	18.4	57.6
Black	48.0	15.1	14.3	6.1	18.4
Other	60.0	28.6	36.7	6.7	40.0
Overall	65.5	32.7	25.8	15.8	50.3

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Ever smoked at least one or two puffs of a cigarette.
b) Ever smoked at least one cigarette every day for 30 days.
c) Smoked cigarettes on ≥ 1 of the 30 days preceding the survey.
d) Smoked cigarettes on ≥ 20 of the 30 days preceding the survey.

Table 3. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported the Age of First Cigarette Use and Regular Use, by Gender, Age and Race

Category	Lifetime (a)				Lifetime Daily (b)			
	≤ 10 years	11-14 years	15-18 years	≥ 19 years	≤ 10 years	11-14 years	15-18 years	≥ 19 years
Gender			*ns*				*ns*	
Female	3.2	27.2	57.6	12.0	1.0	16.5	60.8	21.6
Male	8.1	32.2	48.3	11.4	6.1	21.2	59.6	13.1
Age group			$\chi 2$=29.747**				$\chi 2$=18.042**	
18-19 years	5.0	31.5	56.9	6.6	1.9	22.2	65.7	10.2
20-22 years	3.6	30.4	47.3	18.8	4.0	17.6	54.1	24.3
> 22 years	28.6	0.0	50.0	21.4	14.3	0.0	50.0	35.7
Race			ns				*ns*	
White	4.9	28.6	55.3	11.3	3.0	17.3	61.9	17.9
Black	10.3	31.0	41.4	17.2	5.6	27.8	50.0	16.7
Other	8.3	50.0	23.3	8.3	10.0	30.0	50.0	10.0
Overall	5.5	29.6	53.1	11.7	3.6	18.9	60.2	17.3

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Among the 65.5% of respondents who reported having ever tried cigarette smoking.

b) Ever smoked at least one cigarette every day for 30 days.

Table 4. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Having Drunk Alcohol, by Gender, Age and Race

Category		Alcohol use		
		Lifetime (a)	Current frequent (b)	Current episodic Heavy drinking (c)
Gender		$\chi 2$=10.094***	$\chi 2$=6.712**	$\chi 2$=17.216***
	Female	87.1	1.7	28.6
	Male	95.2	6.0	47.0
Age group		$\chi 2$=11.990***	*ns*	*ns*
	18-19 years	88.3	2.7	33.4
	20-22 years	96.0	4.5	41.8
	> 22 years	80.8	7.7	47.4
Race		$\chi 2$=85.534***	*ns*	$\chi 2$=6.195*
	White	96.2	3.8	39.1
	Black	67.3	1.0	21.3
	Other	76.7	6.7	30.0
Overall		90.5	3.5	37.0

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Ever drank at least one drink of alcohol.
b) Drank alcohol on > 20 of the 30 days preceding the survey.
c) Drank ≥ 5 drinks of alcohol on at least one occasion on ≥ 1 of the 30 days preceding the survey.

Table 5. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Age of First Alcohol Use by Gender, Age and Race

Category	Alcohol Use (a)			
	≤ 10 years	11-14 years	15-18 years	≥ 19 years
Gender			$\chi 2$=37.495***	
Female	3.9	20.3	69.2	6.6
Male	13.0	34.5	50.4	2.1
Age group			$\chi 2$=23.995***	
18-19 years	6.9	27.5	64.0	1.5
20-22 years	8.4	26.2	56.0	9.4
> 22 years	19.0	14.3	57.1	9.5
Race			$\chi 2$=18.261***	
White	6.6	27.1	61.7	4.6
Black	9.1	24.2	60.6	6.1
Other	30.4	21.7	47.8	0.0
Overall	7.9	26.5	61.0	4.6

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Among the 90.5% of respondents who reported having ever consumed alcohol.

Table 6. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Illegal Drug Use, Peer Drug Use and Future Drug Use Intentions, by Gender, Age and Race

		Lifetime Illegal drug use(a)	Peer Illegal drug use (b)	Illegal drug use Intentions
Gender		$\chi 2$=31.372***	$\chi 2$=8.693*	$\chi 2$=17.155***
	Female	18.9	75.1	9.7
	Male	39.6	81.2	21.6
Age group		$\chi 2$=18.607***	*ns*	*ns*
	18-19 years	21.1	77.1	11.7
	20-22 years	36.2	79.4	18.6
	> 22 years	46.2	73.1	26.9
Race		$\chi 2$=7.827*	*ns*	$\chi 2$=17.004***
	White	28.8	79.4	16.5
	Black	17.3	68.4	5.1
	Other	40.0	80.0	16.7
Overall		27.5	77.7	14.7

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Every tried an illegal drug.

b) Ever known someone who has tried an illegal drug in their lifetime.

c) Intend to try an illegal drug if offered in the future.

Table 7. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Participated in Selected Dietary Behaviors and Physical Activities, by Gender, Age and Race

		Had ≥ 3 servings of fruits and vegetables	Daily breakfast	Participated in vigorous physical activity	Participated in moderate physical activity
Gender		*ns*	*ns*	$\chi 2$=19.759***	*ns*
	Female	84.9	32.9	36.6	36.9
	Male	81.2	28.8	55.2	40.8
Age group		*ns*	$\chi 2$=17.792***	*ns*	*ns*
	18-19 years	84.0	37.3	42.4	42.1
	20-22 years	80.9	20.6	48.7	32.2
	> 22 years	92.3	23.1	38.5	34.6
Race		*ns*	*ns*	$\chi 2$=24.678***	$\chi 2$=13.662***
	White	84.1	32.6	49.6	35.2
	Black	79.6	25.5	24.5	55.1
	Other	81.8	36.7	26.7	37.6
Overall		83.3	31.2	44.3	38.7

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) During the day preceding the survey.
b) Had breakfast daily for the 30 days preceding the survey.
c) Activities that cause sweating and hard breathing for ≥ 20 minutes of three or more of the seven days preceding the survey.
d) Walked or bicycled for ≥ 30 minutes on five or more of the seven days preceding the survey.

Table 8. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Participated in Selected Behaviors that Contributed to Unintentional Injury, by Gender, Age and Race

	Rarely/never wore seatbelt (a)	Rarely/never wore motorcycle helmet (b)	Had ≥ bike injury to be treated by doctor/nurse (c)	Drove a car after drinking alcohol (d)
Gender	$\chi 2$=7.360**	$\chi 2$=28.742***	$\chi 2$=5.177*	$\chi 2$=28.974***
Female	8.4	16.4	9.0	37.6
Male	16.3	23.1	22.7	61.5
Age group	*ns*	*ns*	$\chi 2$=7.471*	$\chi 2$=11.095**
18-19 years	11.3	18.5	13.2	42.8
20-22 years	12.6	21.2	18.3	57.5
> 22 years	17.6	37.5	45.5	61.1
Race	*ns*	$\chi 2$=16.326***	*ns*	$\chi 2$=12.604**
White	11.2	16.9	15.3	51.4
Black	20.6	66.7	30.4	29.3
Other	15.8	75.0	12.5	22.2
Overall	12.0	20.4	17.0	48.6

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Among the 83.5% of the respondents who drove a car in the 12 months preceding the survey.
b) Among the 25.3% of respondents who rode a motorcycle during the 12 months preceding the survey.
c) Among the 35.2% of respondents who rode a bicycle during the 12 months preceding the survey.
d) During the 30 days preceding the survey the survey.

Table 9. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Participated in Selected Behaviors that Contributed to Intentional Injury, by Gender, Age and Race

		Carried a weapon (a)	Participated in a physical fight (b)	Injured in a fight ≥ 1 time requiring treatment (c)
Gender		$\chi 2$=39.719***	$\chi 2$=37.403***	$\chi 2$=4.663*
	Female	3.7	5.1	6.7
	Male	19.6	21.6	17.5
Age group		$\chi 2$=9.540**	*ns*	$\chi 2$=8.481*
	18-19 years	7.7	10.7	9.0
	20-22 years	13.6	13.6	16.2
	> 22 years	23.1	19.2	40.0
Race		*ns*	*ns*	*ns*
	White	11.4	12.9	13.0
	Black	5.1	7.1	15.4
	Other	10.0	13.3	11.1
Overall		10.3	12.0	13.2

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Weapons such as a gun, knife or club on ≥ 1 of the 30 days preceding the survey.

b) Fighting ≥ 1 during the twelve months preceding the survey.

c) Among the 12.0% of respondents who reported having had a physical fight during the 12 months preceding the survey.

Table 10. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Having Thought Seriously about Attempting Suicide and Who Reported Suicidal Behavior, by Gender, Age and Race

		Seriously considered suicide (a)	Made a suicide plan (b)	Attempted suicide at least once (a)
Gender		$\chi 2$=3.733*	*ns*	*ns*
	Female	12.0	38.2	18.5
	Male	7.2	27.3	25.0
Age group		*ns*	*ns*	*ns*
	18-19 years	10.9	37.5	21.1
	20-22 years	7.5	28.3	18.9
	> 22 years	15.4	27.3	33.3
Race		*ns*	*ns*	*ns*
	White	10.4	34.6	21.0
	Black	7.1	27.6	18.5
	Other	13.3	44.4	33.3
Overall		10.0	33.9	20.7

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) During the 12 months preceding the survey.

b) Among the 10.0% who reported having seriously considered suicide during the 12 months preceding the survey.

Table 11. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Selected Sexual Behaviors, by Gender, Age and Race

	Ever had sexual intercourse	Used a condom (a)	Number of partners (b)	Ever had an STI	Alcohol Use at last sexual encounter (a)
Gender	$\chi 2$=11.391***	*ns*	*ns*	*ns*	*ns*
Female	40.9	68.8	10.1	11.2	62.9
Male	54.8	58.9	12.3	6.6	58.1
Age group	$\chi 2$=32.575***	*ns*	$\chi 2$=28.553***	*ns*	*ns*
18-19 years	39.2	58.6	5.8	8.3	61.2
20-22 years	55.3	69.7	15.1	7.5	58.1
> 22 years	88.5	73.9	31.8	22.7	69.6
Race	$\chi 2$=5.976*	*ns*	$\chi 2$=21.964**	*ns*	$\chi 2$=33.014***
White	45.1	62.7	9.8	7.1	57.3
Black	57.1	72.4	19.6	16.1	74.6
Other	36.7	50.0	0.0	18.2	58.3
Overall	46.7	64.0	11.2	9.0	60.6

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Among the 46.7% of respondents who had ever had sexual intercourse.

b) Six or more sexual partners in lifetime.

Table 12. Percentage of Undergraduate University Students Aged ≥ 18 Years Who Reported Age of Sexual Intercourse by Gender, Age and Race

Category	Sexual Intercourse (a)			
	≤ 13 years	14-15 years	16-17 years	≥ 18 years
Gender			*ns*	
Female	4.2	13.3	31.5	51.0
Male	10.9	16.8	32.1	40.1
Age group			*ns*	
18-19 years	8.8	15.0	36.1	40.1
20-22 years	4.5	15.5	27.3	52.7
> 22 years	13.0	13.0	26.1	47.8
Race			$\chi 2$=15.499***	
White	5.5	15.5	29.6	49.8
Black	12.5	16.1	39.3	32.1
Other	27.3	0	36.4	36.4
Overall	7.5	15.0	31.8	45.7

ns=non-significant, *p<.05, **p<.01, ***p<.001

a) Among the 46.7% of respondents who reported having sexual intercourse.