The Association of Socio-Demographic Factors with Overweight/Obesity among Students (Ages 18-35 Years) in Cavendish University, Uganda

Afolabi Kamaldeen Kolawole[1*], **Nwanna Uche Kevin**[2], **Ilori Oluwole**[3] and **Sulayman Ademola**[4]

[1]Public Health Department, Cavendish University, Uganda

[2]Public Health Department, Stafford University, Uganda

[3]Behavioral Sciences Department, Islamic University, Uganda

[4]Pharmacology Department, Islamic University, Uganda

*Corresponding author: Afolabi Kamaldeen Kolawole, Public health department, Cavendish University Uganda , Tel: +256779789649; E-mail: khamaphor@gmail.com

Abstract

The rise in global obesity rate has presents a major public health challenges in both the developed and the developing world.

Objective: The objective of this study was to determine the socio-demographic factors associated with overweight/obesity among students (18-32years) in Cavendish University Uganda.

Methodology: A descriptive cross sectional and analytical study design were used employing quantitative data collection approach using 352 population sample size among Cavendish university students. Consecutive sampling techniques were used; anthropometric measurements of BMI with structured questionnaire were used to collect data. Data were statistically analyzed using SPSS.

Results: The prevalence of overweight/obesity among the student was 15.1%, this result reflects that 2 out of every 10 Cavendish University students were overweight/obese. Religion (X2=12.139, P-value=0.007), marital status (X2=17.044, P-value=0.000), pocket money per month (X2=12.424, P-value=0.002) and employment status (X2=7.060, P-value=0.029) were the socio-demographic factors found to be associated with being overweight/obese. After adjusting for the odd ratio, the variables found to be statistically significant with being overweight/obese were as follows: students who practice protestant religion (AOR=5.433, CI=17.341-1.702), students who practice other religion such as seventh day Adventist, free thinker etc (AOR=3.305, CI=9.931-1.099), students who practice catholic religion (AOR=1.259, CI=3.375-0.470). Students who are cohabiting (AOR=1.965, CI=4.084-0.945). Those whose pocket money per month is within the range of 201,000-500,000 UGX (AOR=4.176, CI=10.982-1.588).

Conclusion: This study concluded that the prevalence of overweight/obesity among Cavendish university students (ages 18-35) is moderately high. Religions, marital status, pocket money per month and employment status were the factors associated with overweight/obesity.

Recommendation: Health education, recreational activities, social clubs, orientation & sensitization of young adult on how to overcome the growing cases of overweight/obesity.

Keywords: Obesity; Overweight; Socio-Demographic Factors; Body Mass Index

Background

Overweight and obesity are referred to as excessive fat accumulation in the body that presents a risk to human health. The commonly used measurements for overweight and obesity is the Body Mass Index (BMI) this is a designed simple index to classify overweight and obesity in adults [1]. It is defined as the weight in kilograms divided by the square of the height in meters (kg/m^2). A BMI of 30 or more is widely considered obese. A BMI more than or equal to 25 is widely considered overweight [2].

Overweight and obesity are one of the main risk factors that predispose people to various chronic diseases such as diabetes, cardiovascular diseases and cancer. It was once referred to a problem found in high income countries only, but it has increased dramatically in low- and middle-income countries, particularly in their urban settings [3].

Uganda is challenged with a multiple burden of malnutrition, The existing co-existence of obesity and malnutrition in various communities across country [4]. A study on obesity among young adults (Between 18-30 years old) in Uganda revealed that the prevalence of obesity/overweight was 2.3% and 10.4% respectively [5]. So also, one in every five women (19%) between the ages of 15-49 are either overweight or obese in Uganda. Students fall between a foresaid ages.

Socio-demography factors have displayed varied association with prevalence of obesity. In a study significant gender differences were observed in the prevalence of obesity among young adults in Uganda

[6]. Contrary to expectation, we did not observe significant rural-urban differences in the prevalence of overweight [7]. In a study of prevalence and factors associated with overweight and obesity in Botswana, the main socio-demographic factors associated with overweight and obesity were being older, living in a city/town, being married and having attained higher levels of education, and these relationships were statistically significant at the 5% level [8].

There is paucity of literature on the magnitude of obesity/overweight and their associated risk factors among students in Uganda, this represent a significant gap in knowledge. Hence, the need for this study to assess the socio-demographic factors associated with overweight/obesity among students (ages 18-35 years) in Cavendish university, Uganda.

Methodology

Research design

A descriptive cross-sectional and analytical study design was used to conduct the research on factors associated with overweight/obesity among Cavendish University Students in Kampala. This study utilizes quantitative methods of inquiry. The study was conducted between the months of April and June 2017.

Population and sample selection

Study population: The population was drawn from the entire population of the students in Cavendish University Uganda. The population of the students in the university is 2959 students [9].

Sample size: The sample size of the study was extracted from the study population (2959), which was determined using solvin's formulae. Therefore 352 sample size was derived after computation.

Sampling strategies and procedures

Stratified and consecutive sampling strategies were used to sample the population. Stratified method enabled us to sample the university faculty by faculty and as well the consecutive sampling was used to collect data within each faculty. The population of each faculty to be sampled from the entire university population was determined using a proportional calculation.

Measurement of variable

Socio-demographic factors: Gender was grouped into male and female. Respondents' age was grouped into "15-24", "25-34", and "35+". Educational status was grouped into "Diploma/foundation, bachelor and masters". Faculty was grouped into health sciences, pure sciences, socio-sciences/management and Art. Marital status was grouped into "single", "married", "Cohabiting" and "divorced". Religion was grouped into "Muslim", "Catholics", "Protestants" and "others". Pocket money per month was grouped as "0-200,000 Ugx", "200,000-500,000 Ugx", and "500,000+ Ugx". Residence was grouped as "within the school premises" "near the school premises" and "far from the school premises". Employment status was grouped as "Employed, Not employed and self employed". Current education grade was grouped into "upper, average and lower grade". Family record of obesity/overweight or any other related diseases was asked and the response is grouped into "Yes or No".

Obesity and overweight: This was determined based on the principle of body mass-index (BMI): This is an anthropometric measurement of the weight of a person scaled according to height to estimate if someone has normal weight or overweight or obese. BMI >30 is obese, BMI between 25 and 30 is considered overweight. BMI >25 was used to determine overweight/obesity. Weighing scale and stadiometer were used for measuring weight and height.

Research instruments

BMI measurement: Equipment required: scales and stadiometer as for weight and height. Procedure: BMI is calculated from body mass (M) and height (H). BMI=M/(H×H), where M=body mass in kilograms and H=height in meters (WHO, 2016).

Questionnaire: Systematic designed questionnaires which were closed ended questions printed on the piece of paper were used to assess the Cavendish university students in Uganda.

Research assistants: Research assistants were hired to help in collecting data; the research assistants were well trained about the objectives of the research and how to relate with people for the data collection.

Data analysis

Data was analyzed using the statistical tool called SPSS; the information extracted from the respondents using questionnaires were entered into the SPSS using appropriate coding methods. Then descriptive, bi-variate and multivariate analysis were controlled for. During descriptive analysis, Prevalence of overweight/obesity and the demographic characteristics of the respondents were deduced using proportions and then presented in tables. Bi-variate analysis was done to test for associations between the dependent variable (obesity/overweight) and other independent variables (socio-demographic) using Pearson's chi square of Fischer's exact test where appropriate. Then, all variables from each which show association at bi-variate analysis at (P value<0.05) were fit-ted into the multiple logistic regressions to run analysis for odds ratios (OR), P-value less than 0.05 was considered significant.

Ethical considerations

An approval letter to carry out the study was obtained from the research and ethics committee of the postgraduate school of Cavendish University Uganda. Thereafter; permission was also obtained from the school registrar. The purpose of the study was explained to participants by means of information sheet, the participants were assured of strict confidentiality of any information they provide, the entire participants were treated with dignity and respect, anonymity was assured to the participant by using codes for identification instead of their names, the participants were told that taking part in this study is completely of their own choice, any attempts to opt out of this exercise will not stop them from receiving all services that they normally get from the school (Tables 1-3).

Limitations

- The study design (cross-sectional study) that was used in this study only enabled us to collect the data once without follow ups which deprived us of some further information about the study. We ensured that the onetime data were collected justly with proper monitoring.

- Consecutive sampling method used may not give the genuine representative of the university but as at the time of the research this is the best method that will make the students assessable.

- Errors that may arise from the instruments that were used seem to be a limitation for the study. We ensured all the instruments were well calibrated to avoid systematic error, the measurements were drawn three times and the average was used to avoid random error and also we ensured student offloaded all load in their body before taking the measurement to avoid any ambiguity.

Results

Variable	Categories	Frequency	Percentage (%)
Age	18-23	130	41.4
	24-29	112	36
	30-35	71	22.6
Gender	Male	199	62.2
	Female	121	37.8
Religion	Islam	103	32.2
	Protestants	100	31.2
	Catholics	83	25.9
	Others	34	10.7
Educational Pursuit	Diploma	37	11.6
	Bachelor	247	77.2
	Masters	36	11.2

Table 1: Demographic characteristics of the respondents.

From the table above, the age range 18-23 has the highest number of respondents while the age range with the least numbers of respondents is 30-35. The gender with the highest number of respondents is the male while the female has the least number of respondents. Islamic religion has the highest number of respondents while other religion such as seventh Adventist, free thinkers etc. has the least numbers of respondents. Majority of the respondents were running their bachelor degree. Masters students were notably the least.

Variable	Frequency	Percentage (%)
Overweight/obesity	47	15.1
Not-overweight	265	84.9

Table 2: Prevalence of Overweight/obesity among students (Ages 18-35) in Cavendish University Uganda.

The result obtained from the student indicates that the prevalence of overweight/obesity among the student is 15.1% while 84.9% of the students were not-overweight/obese.

Of 62.2% male in this study, 7.1% were found being overweight/obese likewise of 37.8% females in this study 7.5% were found being overweight/obese. 18-23 age groups constituted 40.6% of the respondents in this study, 4.06% were found being overweight/obese. Of the 24-29 age groups which constituted 35% of the respondents, 5% were found being overweight/obese. So also, 30-35 age groups were the 22.2% of the respondents, 5.6% were found being overweight/obese. Diploma students were the 11.6% of the respondent, 1.3% among them was found being overweight/obese. Bachelor students were the 77.2% of the respondents, 10.3% among them was found being overweight/obese. Masters students were the 11.2% of the respondents, 3.1% among them were found being overweight/obese.

Socio-demographic factors associated with overweight/obesity among students (ages 18-35 years) in Cavendish university Uganda

Religion, marital status, pocket money per month and employment status were the socio-demographic factors that have statistical significant association with being overweight/obese among students (ages 18-35 years) in Cavendish University Uganda.

After adjusting for the odd ratio, the variables found to be statistically significant were as follows: students who practice protestant religion were 5times more likely to be overweight/obese, students who practice other religion such as seventh day Adventist, free thinker etc. were 3times more likely to be overweight/obese, student who practice catholic religion were 1.3 times more likely to be overweight/obese. Students who are cohabiting have 1.9 times likelihood to be overweight/obese. Those whose pocket money per

month is within the range of 201,000-500,000 have 4 times likelihood to be overweight/obese. Other factors such as students with pocket money above 500,000, students that was married and student practicing Islamic religion were not statistically significant with overweight/obesity.

| Variable | Categories | Overweight/obesity | | X^2 | P-value | AOR | CI 95% |
		Overweight/ Obese	Normal weight				
Age	18-23	13(27.7)	113(42.6)				
	24-29	16(34)	93(35.1)				
	30-35	18(38.5)	53 (20)	9.169	0.057		
Gender	Male	23(48.9)	169(63.8)				
	Female	24(51.1)	96(36.2)	3.713	0.054		
Religion	Islam	7(14.9)	94(35.5)			1	
	Protestant	21(44.7)	77(29.1)			5.433	17.341-1.702
	Catholics	10(21.3)	69(26.0)			1.259	3.375-0.470
	Others	9(19.1)	25(9.4)	12.139	0.007	3.305	9.931-1.099
Educational status	Diploma/foundation	4(8.5)	32(12.1)				
	Bachelor	33(70.2)	207(78.1)				
	Masters	10(21.3)	26(9.8)	5.311	0.07		
Marital Status	Single	23(48.9)	199(75.1)			1	
	Cohabiting	4(8.5)	4(1.5)			1.965	4.084-0.945
	Married	20(42.6)	62(23.4)	17.044	0	0.412	2.023-0.084
Education grade	Upper	31(66)	156(58.9)				
	Average	16(34)	107(40.4)				
	Lower	0(0)	2(0.8)	1.096	0.578		
Pocket money per month	0-200,000ugx	12(25.5)	137(51.7)			1	
	201,000-500,000ugx	19(40.4)	82(30.9)			4.176	10.982-1.588
	Above 500,000ugx	16(34)	46(17.4)	12.424	0.002	1.508	3.785-0.604
Residence	Within the school	2(4.3)	5(1.9)				
	Near the school	23(48.9)	96(36.2)				
	Far from the school	22(46.8)	164(61.9)	4.211	0.122		
Faculty	Science & technology	11(23.4)	90(34.1)				
	Business/Management	12(25.5)	105(39.8)				
	Socio-economic Sci.	12(25.5)	59(22.3)				
	Law	3(6.4)	2(0.75)				
	Foundation	10(21.3)	8(3.0)	5.527	0.137		
Employment status	Employed	20(42.6)	70(26.4)				
	Self-employed	7(14.9)	28(10.6)				
	Not employed	20(42.6)	167(63)	7.06	0.029		

Family record of Obesity/ overweight	Yes	7(14.9)	44(16.6)	0.085	0.77		
	No	40(85.1)	221(83.4)				
Family background	Rich	5(10.6)	23(8.7)				
	Averagely rich	42(89.4)	214(80.8)				
	Poor	0(0)	28(10.6)	5.497	0.064		

Table 3: The results of the analysis between the Socio-demographic factors and overweight/obesity.

Discussions

Prevalence of overweight/obesity among students (ages 18-35 years) in Cavendish university Uganda

The prevalence of overweight/obesity among the student was 15.1%, this result reflects that 2 out of every 10 students were overweight/obese which indicated moderately high overweight/obesity prevalence among the students in Cavendish University. The result from this study is in proximity with the result which found out that the prevalence of general and abdominal obesity was 1.9% and 4.2% respectively among 646 students. A study in Kumasi to determine the prevalence of obesity and overweight among students in the Kumasi metropolis was also in conformity with the findings [10]. The prevalence of underweight, normal weight, overweight, and obesity was 7.40%, 79.60%, 12.20%, and 0.80%, respectively. Overweight was more prevalent among students than obesity [11]. A Study was in conformity with my findings above indicating females are more likely to be obese more than male [12]. The prevalence deduced from this study shows that overweight/obesity is a growing issue among students and young adults in general, adequate attention is required to enable people understand the unhealthy conditions they are prone to by being overweight/obese. Overweight/obesity reduces productivity, leads to several chronic diseases; reduce the concentration of students, most times affects academic performance etc.

Socio-demographic factors associated with overweight/obesity among students (ages 18-35 years) in Cavendish university, Uganda

Religions have statistical significant association with overweight/obesity among students. Also, those who practice protestant religion, catholic religion and other religion such as seventh day Adventist, free thinker etc., are more likely to be overweight/obese. A study found association between religion and overweight/obesity among south Asian. The study also found out that those practicing Islam with have higher likelihood of being overweight/obese which in contrary to our findings [13]. A data survey also agree with my findings which found religious denomination significantly related to higher body weight in men after accounting for socio-demographic controls.

Marital status has statistical significant association with overweight/obesity among students. It was discovered that students who are cohabiting are more likely to be overweight/obese. This is in line with a study that highlighted some of the risk factors for overweight which were being married, male gender, low education and as well the risk factors for obesity were similar to those for overweight except for being unmarried.

Pocket money per month has statistical significant association with overweight/obesity among students. Those whose pocket money per month is within the range of 201,000-500,000 UGX are more likely to be overweight/obese. This is in line with a study which found students with more pocket money more frequently consumed (by 25-89%) sugary beverages, snacks, fast food, or at street food stalls, and was 45-90% more likely to be overweight/obese. Associations of pocket money with unhealthy eating and overweight/obesity were weaker in schools with unhealthy food restrictions. Pocket money is a risk factor for unhealthy eating and obesity.

Employment status has statistical significant association with overweight/obesity among students. This is inline with a study by Sulaiman which was conducted among Jordan University students and found association between employment and overweight/obesity, the study also found those employed and still a student to have the higher likelihood of being overweight/obese after adjusting for odd ratio.

Conclusion

This study concluded that the prevalence of overweight/obesity among Cavendish university students (ages 18-35) is 15.1% which is moderately high, accounting for 2 in every 10 students that were overweight/obese. Gender prevalence (Male: 7.1%; Female 7.5%), Age group prevalence (18-23: 4.06%, 24-29: 5%, 30-35: 5.6%) and academic program (Diploma: 1.3%, Bachelor: 10.3% and Masters: 3.1%). Religion, marital status, pocket money per month and employment status were the socio-demographic factors that had statistical significant association with being overweight/obese among students (ages 18-35 years) in Cavendish University Uganda. However, students who practiced protestant religion, catholic religion and other religions such as seventh day Adventist, free thinker etc. had higher likelihood to be overweight/obese Students who are cohabiting and those whose pocket money per month is within the range of 201,000-500,000 UGX are likely to be overweight/obese.

Recommendations

- Considering the prevalence of overweight/obesity recorded, it was observed that overweight/obesity is becoming a growing issue among students and young adults in general, adequate attention is required to enable people understand the unhealthy conditions they are prone to by being overweight/obese. Emphasizes should be laid on majority of the intervention methods already on ground such as sensitization, orientation, timely medical checkup etc.
- Provision of instruments for anthropometric measurement used for medical checkup within the school communities and all around the resting placing in the community, this will improve accessibility to routine medical checkup.

- The school community should add to the school program health education which will cover all aspect of student's health. This health education will encompasses various lifestyle discussion such as proper dietary intake, risk of sedentary lifestyle, risk of having ill relationship with people, importance of taking in fruits, vegetable and the likes.

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