



## Health promotion survey in overweight and obese students of universities in North East England, United Kingdom

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### ABSTRACT

Overweight and obesity is one of the major health problems in the UK and worldwide. Approximately two-thirds of the population in the UK is either overweight or obese. Overweight and obesity is an important issue that causes distress to most women. Health promotion is the best method to educate overweight and obese women. It is defined as the process enabling people to increase control over and to improve their health by Ottawa Charter for Health Promotion. It is aimed to enhance the well-being of the individuals and their positive attitudes towards prevention of various diseases. In order to make any improvement to the health promotion for overweight and obesity, the risk factors and the opinions from the public should first be identified and addressed. Cross-sectional survey design was selected with a questionnaire that consisted of 20 open and close ended questions. A sample size of 196 was determined. The data thus gathered was analyzed using SPSS V20 (Statistical Package for Social Science version 20). Descriptive statistics ( $\bar{x}$ ) and ( $SD$ ) were used and Chi-square  $X^2$  test for association was employed. Out of the total 196 responses, only (40%) of the students had normal weight ( $SD$  1.1), (25%) students had a good understanding of health promotion ( $SD$  1.6), half (50%) appeared concerned about their weight ( $SD$  0.5), (60%) had an obese family member (0.5). The BMI of students was associated with the presence of an obese member in their family and their weight as a concern for them. ( $P$ -value  $<0.05$ ). The health promotion service is beneficial as it was found to have raised concerns in the mind of the students regarding over weight and obesity. However it was observed that the understanding of health promotion service was different among students and this is the root of the problem.

**Keywords:** Health promotion, obesity, overweight, England.

### INTRODUCTION

Overweight and obesity is one of the major health problems in the UK and worldwide. Approximately two-thirds of the population in the UK [1] is either overweight or obese. The department of Health (DoH) carried out a health survey for England in 2002 and found that the percentage of women who are overweight

has risen from 32.2% to 22.8% in 2002.[2] Obesity in England cost approximately £2.6 billion in 1998 and if it continues to rise till 2010, it would then cost about £3.6 million.[3] As a result, obesity is considered as a heavy burden to the economy of Great Britain.

Overweight and obesity is an important issue that causes distress to most women. It can have an impact on both

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women's physical and mental health. Obesity can increase risk of developing diabetes, hypertension, stroke, certain cancers [4], osteoarthritis and sleep apnoea in women [5]. It has been reported that a strong relationship was found BMI and type II DM and coronary heart disease (CHD) in women compared with men. [5] According to British Heart Foundation [1], obesity is the cause of death in 6% of women with CHD. Severely obese women may also face fertility problems and a higher risk of developing complications during pregnancy, e.g. hypertension and gestational diabetes [6]. Furthermore, obese individuals tend to have psychological problems such as depression, lower self-esteem or even anxiety. Hence, obese women will be more likely to commit suicide compared with normal weight females. By maintaining their weight in the healthy range, it does not only reduce the risk of certain chronic diseases [7] but also enhances their self-confidence [8]. It is thus important to educate women regarding the significance of weight control.

Health promotion is the best method to educate overweight and obese women. It is defined as the process enabling people to increase control over and to improve their health by Ottawa Charter for Health Promotion [9]. It is aimed to enhance the well-being of the individuals and their positive attitudes towards prevention of various diseases. This is where all healthcare professionals especially the pharmacists have an important role to play. Women perception of ideal and desirable weight has changed dramatically over time. If this were the Renaissance period, women were thought to be most beautiful if they were large in size. If this was the case now, they would be considered as overweight or obese. In order to lose weight, they are willing to try out any weight loss products. They are constantly seeking advice from pharmacists about any over the counter (OTC) or prescription products for losing weight quickly. Most products have low calorie contents, i.e. less than 1000kcal/day[9] and can be used only for a short period of time. Hence, appropriate advice should be given by healthcare professionals to their patients.

In 2006, the treatment for obesity accounted for nearly 1.06 million of prescription items.[1] This amount is approximately eight times more than the prescription items in 1999. With the increasing number of overweight and obese women since 1980's[1], this raised a great concern to the government and the public. Different departments will have an important role in tackling this

problem. For example, the Department of Culture, Sports and Media is responsible for promoting physical activities and reducing those for fast food can have an impact on the population's perceptions as well as their awareness of healthy lifestyle. The local authorities should also ensure that streets are made safer so that the public can regularly walk to work or study rather than use the available transportation[9].

The impact of overweight and obesity on women's health and the country's economy is very significant. As a consequence, it is crucial to reduce the percentage of women who are overweight or obese through health promotion. However, there are not many health promotion studies designed specifically for the overweight and obesity in the UK. Health promotion on the healthy diet and active lifestyles mostly target the general public to improve their general health. For this reason, more health promotion or campaigns for overweight and obesity should be implemented. In order to make any improvement to the health promotion for overweight and obesity, the risk factors and the opinions from the public should first be identified and addressed.

## METHODS

A cross-sectional survey was conducted in Sunderland and Gateshead areas of the North-East England, United Kingdom during Jan 2013 to Jun 2013. The survey employed a questionnaire that consisted of 20 open and close ended questions was developed based on the current evidence. Content validity was checked by experts and it was validated. A sample size of 196 was determined using the approximate number of women in North-East England (Sunderland and Gateshead) for 95% confidence interval *CI*. A verbal consent was obtained prior to handing the questionnaire to the students in the region. The data thus gathered was analyzed using SPSS V20 (Statistical Package for Social Science version 20). Descriptive statistics were used and Chi Square  $X^2$  test for association was employed. The study complied with the Data Protection Act (1998) and the Freedom of Information Act (2000) of the United Kingdom.

## RESULTS

The survey carried out in University of Sunderland included 196 students randomly selected. The results of the survey are explained in the following points:

### 1. Characteristics of Students

2. Lifestyle of Students
3. Students perceptions of health promotion services
4. Associations of students' perception and their socio-demographics

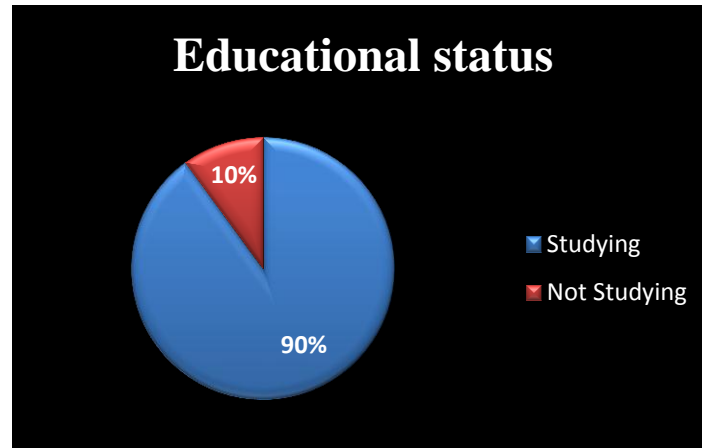
### 1. CHARACTERISTICS OF STUDENTS

In terms of characteristics, the survey incorporated students from all races and ethnicity i.e. White (30%), Asian (South) (25%), Black (10%) and other ethnicities (35%) (SD 1.277). The students were asked about their age, body mass index, marital and living status. The survey found

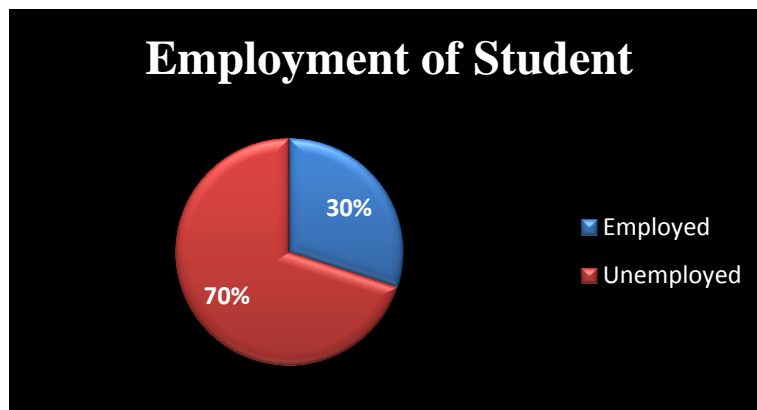
out that the students are usually young adults in the age range of 16-25 years (65%), some are between 26-35 years (20%) and few lie in the range of 36-45 years (15%) (SD 0.761) and the marital status is single in case of most of the student (85%) (SD 0.366). However, less than half of the students maintain a healthy weight and have a normal BMI(40%), most of the students are unhealthy and were found to be over weight (25%), obese (15%) and extremely obese (20%) (SD 1.182). Table 1 highlights the characteristics of the students.

**TABLE 1. STUDENTS CHARACTERISTICS**

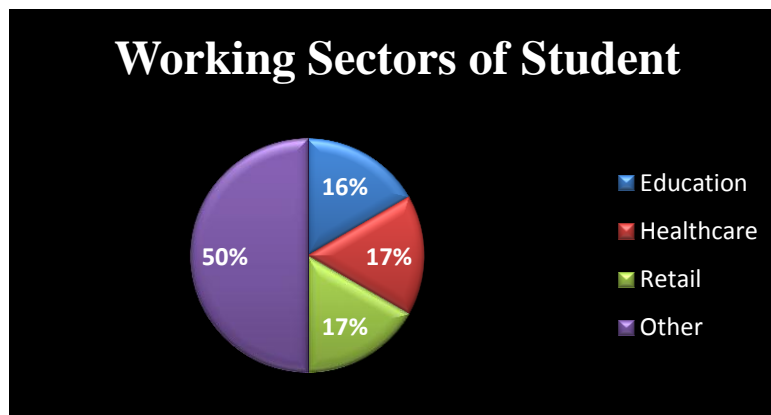
Characteristics	SD	%
<b>Age Group</b>	0.761	(16-25 yrs) 65% (26-35 yrs) 20% (36-45 yrs) 15%
<b>BMI</b>	1.182	Normal 40% Overweight 25% Obese 15% Extreme Obese 20%
<b>Marital Status</b>	0.366	Single 85% Married 15% Divorced 0% Other 0%
<b>Ethnicity</b>	1.277	White 30% South Asian 20% Black 10% Other 35%
<b>Living Status</b>	1.276	Alone 55% With Partner 5% With Family 20% Other 20%
<b>Studying</b>	0.308	Yes 90% No 10%
<b>Working</b>	0.444	Yes 30% No 70%
<b>Education</b>	0.000	Yes 5% No 95%
<b>Healthcare</b>	0.224	Yes 5% No 95%
<b>Retail</b>	0.224	Yes 5% No 95%
<b>Other</b>	0.366	Yes 15% No 85%
<b>Unemployed</b>	0.224	Yes 70% No 30%



GRAPH 1. EDUCATIONAL STATUS OF STUDENTS



GRAPH 2. EMPLOYMENT STATUS OF STUDENTS



GRAPH 3. WORKING SECTORS OF STUDENTS

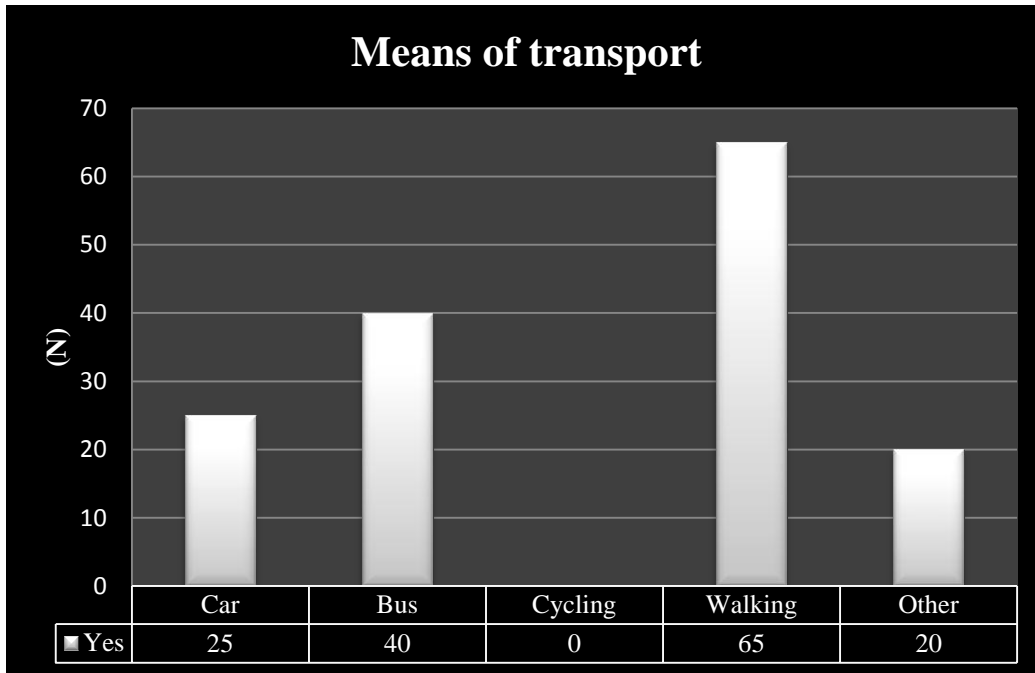
## 2. LIFESTYLE OF STUDENTS

The students with regards to their lifestyles appeared concerned about their body weight (50%) (SD 0.513)

and most had an obese member in their family (60%) (SD 0.503) as shown in table 2.

**TABLE 2. LIFESTYLE ATTRIBUTES OF STUDENTS**

<b>Lifestyle attributes</b>	<b>SD</b>	<b>%</b>
<b>Weight as a concern</b>	0.513	Yes 50% No 50%
<b>Any obese family member</b>	0.503	Yes 60% No 40%
<b>Possible Causes</b>	<b>SD</b>	<b>%</b>
<b>Imbalanced Diet</b>	0.489	Yes 65% No 35%
<b>Overeating</b>	0.444	Yes 75% No 25%
<b>Lack of Exercise</b>	0.444	Yes 75% No 25%
<b>Taking Medication</b>	0.410	Yes 20% No 80%
<b>Smoking</b>	0.336	Yes 15% No 85%
<b>Alcohol</b>	0.444	Yes 25% No 75%
<b>Family history/Genetics</b>	0.336	Yes 85% No 15%
<b>Lifestyle attributes</b>	<b>SD</b>	<b>%</b>
<b>Eat 5 portions of fruits and vegetables a day</b>	0.513	Yes 50% No 50%
<b>Prepare own meal</b>	0.444	Yes 75% No 25%
<b>Preference of buying fresh, frozen or both food</b>	0.887	Fresh Food 25% Frozen/Preheated 5% Both 70%
<b>Frequency of consuming fast food in a month</b>	0.470	1-4 times per month 70% 5-10 times per month 30%
<b>Smoking</b>	0.447	Yes 15% No 80% Quit 5%
<b>Alcohol</b>	0.503	Yes 40% No 60%
<b>Any health related problem</b>	0.308	Yes 10% No 90%
<b>Taking any medicine</b>	0.308	Yes 10% No 90%
<b>Exercise</b>	0.503	Yes 40% No 60%
<b>Travel by</b>	<b>SD</b>	<b>%</b>
<b>Car</b>	0.444	Yes 25% No 75%
<b>Bus</b>	0.503	Yes 40% No 60%
<b>Cycling</b>	0.000	Yes 0% No 100%
<b>Walking</b>	0.489	Yes 65% No 35%
<b>Other</b>	0.410	Yes 20% No 80%



**GRAPH 4. MEANS OF TRANSPORT OF SUNDERLAND’S STUDENT**

**3. STUDENTS’ PERCEPTION OF HEALTH PROMOTION SERVICE**

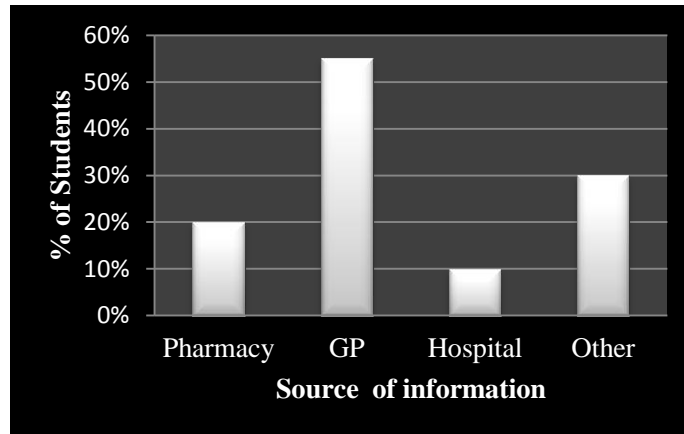
In the survey the student were asked about their observation and what they understand and perceive about the health promotion services. We found out that a small number of students (5%) understood health promotion service to the fullest, a third of the students

(35%) were not sure, while only quarter had a good understanding (25%), one fifth of the students surveyed (20%) had an average understanding, some had little understanding (10%) and very few did not understand (5%) (SD 1.609). The results summarized and illustrated in table 3.1 and graph 3.1.1 respectively:

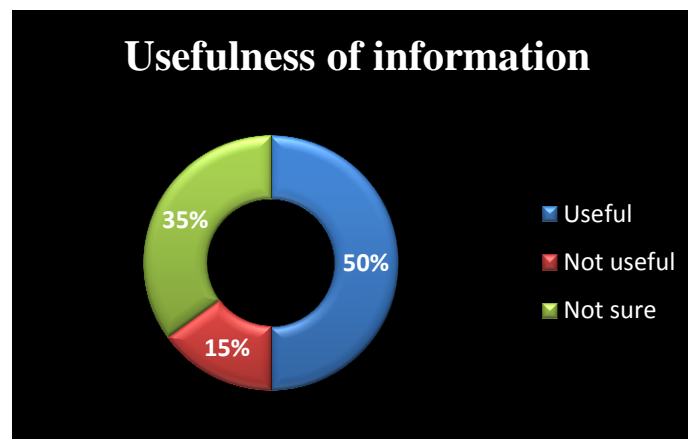
**TABLE 3. STUDENTS’ UNDERSTANDING OF HEALTH PROMOTION SERVICES**

Understand	Choice	SD	%
<b>Health promotion</b>	1 = Least	1.609	Least 5%
	2 = Little		Little 10%
	3 = Average		Average 20%
	4 = Good		Good 25%
	5 = Excellent		Excellent 5%
	6 = Not sure		Not sure 35%

Source of information	Choice	SD	%
<b>By Leaflets</b>	1 = Yes	0.503	Yes 40%
	2 = No		No 60%
<b>Counseling</b>	1 = Yes	0.510	Yes 45%
	2 = No		No 55%
<b>By Poster</b>	1 = Yes	0.489	Yes 35%
	2 = No		No 65%
<b>Other sources</b>	1 = Yes	0.308	Yes 10%
	2 = No		No 90%
<b>Combination</b>	1 = Yes	0.447	Yes 15%
	2 = No		No 85%
Source	Choice	SD	%
<b>Television</b>	1 = Yes	0.513	Yes 50%
	2 = No		No 50%
<b>Magazines &amp; Newspaper</b>	1 = Yes	0.513	Yes 50%
	2 = No		No 50%
<b>By GP</b>	1 = Yes	0.366	Yes 15%
	2 = No		No 85%
<b>Other Sources</b>	1 = Yes	0.366	Yes 15%
	2 = No		No 85%
Source	Choice	SD	%
<b>Pharmacy</b>	1 = Yes	0.410	Yes 20%
	2 = No		No 80%
<b>GP</b>	1 = Yes	0.510	Yes 55%
	2 = No		No 45%
<b>Hospital</b>	1 = Yes	0.308	Yes 10%
	2 = No		No 90%
<b>Other</b>	1 = Yes	0.470	Yes 30%
	2 = No		No 70%
<b>How useful</b>	1 = Useful	0.933	Useful 50%
	2 = Not useful		No t useful 15%
	3 = Not sure		Not Sure 35%



GRAPH 5. SOURCE OF HEALTH INFORMATION FOR STUDENTS



GRAPH 6. USEFULNESS OF INFORMATION FOR STUDENTS

#### 4.ASSOCIATIONS OF STUDENTS' LIFE STYLE AND THEIR SOCIO-DEMOGRAPHIC DATA

An association between BMI of students and their concern for body weight was investigated and statistical test i.e. Chi-square and cross tabulation was carried out. The cross tabulation and chi-square test yield significant results ( $P$ -value  $<0.01$ ) and showed that an association exist between BMI of students and their concern for bodyweight ( $\Phi$  and Cramer's  $V$   $P$ -value  $<0.01$ ). Similarly, the association between BMI of students with any obese member in their family was investigated and chi-square and cross tabulation was carried out. The cross tabulation and chi-square test done to investigate BMI of students with presence of any obese member in family found out significant results ( $P$ -value  $<0.05$ ) and

confirmed the association ( $\Phi$  and Cramer's  $V$   $P$ -value  $0.04$ ).

#### DISCUSSION

The study conducted in the North-East England (Sunderland and Gateshead) was aimed at finding out the characteristics and lifestyle of students with regards to overweight and obesity, their perception about health promotion services and detection of any association that might exist. A survey questionnaire was formulated in light of literatures reviewed from Health Committee of United Kingdom[1] and various reports from the UK government departments[2][3].

In terms of personal characteristics, questions related to age, BMI, living and employment issues, race, etc were asked based on guideline[5][9]; the participants were given choices from which they can choose an



appropriate answer. Similar to this, they were also asked about their lifestyle and what they perceive about the health promotion services with regards to overweight and obesity.

The survey showed that the students are of different ethnicities, mostly young and single. Almost all of them are engaged in studies and unemployed. Majority lives alone and are unhealthy in terms of BMI. The students appeared concerned about their body weight and most of them had an obese member in their family. Furthermore, they viewed it as a major cause of obesity along with other cause such as imbalanced diet and over eating. The students were active and most of them prepare their own meals and take part in house hold activities. Few consumed alcohol but majority never smoked. In terms of health and wellbeing most of the students had no health related problem and neither did they take any medication but only half of them exercise and care about the health by eating fresh fruits, vegetables and minimizing fast food consumption. The students mostly travel by walking.

When asked about their understanding of health promotion services some of them were not sure however, many had understood but not quiet complete. Many students use leaflets and undergo counseling to get the information about health promotion and normally hear about by the help of television and newspaper. However, majority tries to seek information from the GP and finds it useful.

The association of students' BMI with concern for their body weight and presence of any obese family member was investigated and we found out statistical significance between them. It is obvious that an unhealthy BMI is always a cause of concern for everyone and it was evident that the students understood the issue the presence of an obese member in the family of those students with unhealthy BMI hints at the genetic predisposition of obesity which is already established in many studies conducted in different points in time.[6]

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## CONCLUSION

The health promotion service is beneficial as it was found to have raised concerns in the mind of the students regarding over weight and obesity similar to findings of a study conducted in Kingston upon Hull[4][8]. The students were aware of the consequences of obesity and concerned about their health. They tried to take appropriate action by modifying their dietary, social and living habits based on their understanding and available guidelines[5]. However it was observed that the understanding of health promotion service was different among students. A large proportion of students were not able to understand the health promotion service, some did understand but not quiet complete, and this is the root of the problem.

The investigator finds it absolutely crucial to take appropriate action to improve the understanding of health promotion service regarding obesity and to screen the genetically predisposed individuals as early as possible and devise a care plan specifically for them and also recommends such activities to be routinely carried out in other parts of the world.

## STATEMENT OF CONSENT

Verbal consent was obtained prior to administering the questionnaire.

## CONFLICT OF INTEREST

The authors declare that no conflict of interest exists.

## AUTHOR'S CONTRIBUTION

AA conceived the idea and wrote the introduction and collected the data, the literature review was carried out by AS, ST and the methods were formulated by the AR and SA. The discussion and conclusion were written by FR and AA. The final editing was done by AA and AEB.

## SOURCE OF FUNDING

None.

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