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RESEARCH ARTICLE

PREVALENCE OF OVERWEIGHT AND OBESITY AMONG FIRST YEAR HEALTH SCIENCE STUDENTS OF SRM UNIVERSITY

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ABSTRACT

Background: Obesity is highly associated with development of life-style diseases such as diabetes mellitus, hyper tension, cardiovascular diseases etc. Since a status of obesity among the first year students is not known we intended to investigate it.

OBJECTIVES: To assess the prevalence of obesity and over-weight among First year of Health Science students and its associated factors.

Methodolgy: An Analytical Cross-Sectional Study of 262 normal healthy 2013-2014 batch of undergraduate students, both the genders with age group 17-20 years were included in the study. Waist circumference was measured along with the BMI.

Measurable Outcome: A) Body Mass Index, B) Waist circumference

RESULT: It has been observed that the prevalence of obesity and over-weight among Health Science students is 23.3% and 13.3%, respectively. There is no gender variation in this distribution ($p=0.74$). There is positive correlation between BMI and Waist circumference ($r=0.734$, $p<0.05$) where the mean waist circumference (89.5±1.4) among the obese individuals were higher when compared to over-weight (83.7±0.9) and normal subjects (75.7±0.5) and it is statistically significant ($f=72.23$, $p<0.05$)

Conclusion: Prevalence of BMI seems to be high which is highly correlated with central obesity (Waist circumference) also sedentary lifestyle were significant and it is related with increased BMI.

INTRODUCTION

Obesity is a condition characterized by excess body fat, which carries substantial health implications for both chronic diseases and mortality. The World Health Organization (WHO) has declared Overweight as one of the top ten health risks in the world and one of the top five in developed nations (World Health Organisation, 2002). In India, Obesity is emerging as an important health problem, paradoxically co-existing with significant under nutrition prevailing in different sections of the population. Available data on prevalence of Obesity in India from different published studies suggest that the prevalence varies from 10%-50%, depending on the methodology and cut-off points used for defining Obesity (Gopinath, 1994; Mohan, 2001). Overweight and Obesity are related to a number of health consequences, including Type-II Diabetes, Coronary Heart Diseases, Hypertension as well as Pre-hypertension, Gall-bladder diseases and certain type of Cancer, Sleep Apnea, Psycho-social disturbances and Osteoarthritis (World Health Organization, 1998; Laura, 2005).

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Identification of the obesity is important because it is considered to be a morbid Non-Communicable Disease (NCD) in which the quality or/and the span of life of an individual is at risk [Mohan, 2001; Himes, 1989]. NCDs have become a greater threat to the human race than the communicable diseases in the modern world. The study of Global Burden of Disease (GBD) states that by 2020, deaths due to NCDs such as hypertension, diabetes mellitus, coronary heart diseases, stroke and metabolic disorders will be four times more than communicable diseases which are infectious, contagious and transmissible [Choo, 2002]. Obesity seems to be one of the common risk factors in many of these NCDs and considered to be the most prevailing and threatening public disaster in the developed countries [World Health Organization, 2000]. According to the recent study by the RAND (Research and Development) organization (America), Obesity is more damaging to health than smoking, high level of alcohol drinking and poverty [Sturm, 2002]. Individuals from the developed and the developing countries began to consume more quantities of high energy foods and exhibiting less physical activity. These led to the overweight and obesity epidemics around the world [Laura, 2002]. It has also been reported by the World Health Organization (WHO) that the

susceptible individuals were often exposed to a lifestyle characterized by less physical activity, an abundant availability of energy dense, high fat and palatable foods and in-appropriate meal patterns [Sturm, 2002].Currently the Body Mass Index is used widely as an indicator of the risk and presence of Over-weight, because of the relative ease and accuracy of basic measurement. The International Association for the study of Obesity and the International Task Force have suggested lower BMI cut off values (overweight-23.0-24.9kg/m²,obesity-25.0kg/m² or more) for Asian populations because Asians have higher subcutaneous and intra-abdominal fat mass than Caucasians at comparable BMI [Choo, 2002; World Health Organization, 2000]. The college years are highly influential in shaping adult behaviors, particularly with regard to diet, physical activity, and other lifestyle habits. Interventions aimed at the college population may help reduce the rate of overweight during the transition from adolescence to adulthood and thereby prevent some of the long-term health consequences of obesity, which include coronary heart disease, hypertension, type 2 diabetes, and dyslipidemia. Obesity in adolescence tends to persist into adulthood. Results from both the National Longitudinal Study of Adolescent Health and the National Health and Nutrition Examination Survey show that during the transition from adolescence to young adulthood, a high proportion of adolescents become obese and remain obese. In addition, because obesity is not easily reversible, those who are obese or develop obesity as young adults are at increased risk of obesity through adulthood.

Although recent studies highlight important patterns, they have not identified abnormal eating attitudes or specific behaviors that may contribute to and perpetuate obesity during the transition from adolescence to adulthood. This study was conducted to assess the Prevalence of Obesity and Over weight among fresher batch (2013-2014) Health Science students, to assess the Correlation between Waist circumference and BMI, to study the Factors associated with Over-weight and Obesity. The study was designed to determine the magnitude of the problem among the age group of 17-20 years, since the target population represents the Youth and Young Adults of this country.

MATERIALS AND METHODS

It was a non-experimental Analytical cross sectional study conducted in SRM UNIVERSITY, Kattankulathur. The study population included fresher students who enrolled in the year 2013 – 2014, of the age group 17-20 years and were willing to participate in the study. Thus a universal sampling technique was followed and a total of 287 students were included in the study irrespective of the sex. After obtaining the consent from the Head of Department of each college, the students were briefed and were required to sign the consent form, before the study. Keeping in view the objectives of the study, the students were required to fill the Pre-validated Questionnaire. A structured Questionnaire (STEPS-WHO) (Van Minh, 2006), with the following details was collected by the investigators, namely: Demographic details, Diet patterns, Physical activities, Leisure time expenditure. Anthropometric measurements like Height (in cms), Weight (in kgs) and Waist circumference (in cms) were taken following Standard methods (Michael, 2011). BMI was measured using Omron HBF 306, based on hand to hand Bioelectrical Impedance Analyzer (BIA) method (Risser, 1995).

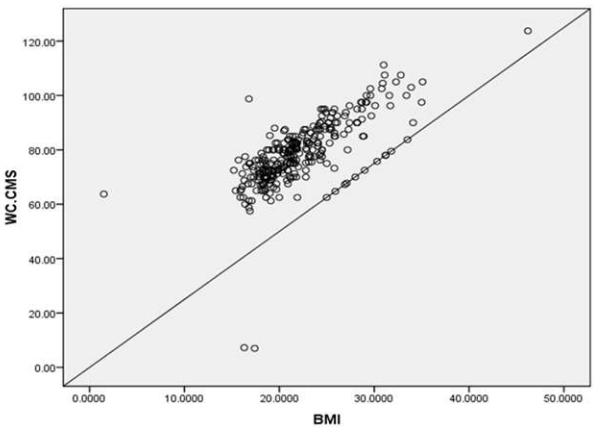
RESULTS

The details collected from the questionnaire were entered in MS-excel spread sheet. SPSS-16 was used for statistical analysis, where descriptive tables were generated to demonstrate the findings. Co-relation, Co-efficient was used to show the relationship between BMI and Waist circumference. CHI Square Test was used to compare the proportions. It has been observed that the prevalence of obesity and overweight among HSS is 23% and 13.9%, respectively. There is no gender variation in this distribution (p=0.511). The prevalence of Obesity and Over-weight among each Departments namely Nursing (26.1% and 10.9%), Occupational Therapy (19.4% and 16.1%), Pharmacy (21.2% and 16.8%), Physiotherapy (28% and 12%), Speech Therapy (28% and 16%) and Optometry (13.6% and 4.5%), respectively. Table 1 shows the categorization of BMI among the fresher batch students, depicting that at 17 years overweight was found to be 14.3% and Obesity of 19.6%, at 18 years overweight was found to be 12.2% and Obesity of 23.7%, at 19 years overweight was found to be 18.4% and Obesity of 14.3%, at 20 years overweight was found to be 11.8% and Obesity of 35.3%.

Table 1. Categorization of BMI among different Ages

	LEAN	NORMAL	OVER-WEIGHT	OBESITY
17	14 (25%)	23 (41.1%)	8(14.3%)	11 (19.6%)
18	31 (19.9%)	69 (44.2%)	19(12.2%)	37 (23.7%)
19	9 (18.4%)	24 (44%)	9(18.4%)	7 (14.3%)
20	3 (17.6%)	6 (35.3%)	2(11.8%)	6 (35.3%)
>20	1 (11.1%)	1 (11.1%)	0	7 (77.8%)

Through this study it was found that There is a positive correlation between Waist Circumference and BMI (r=0.7, p<0.05) which is statistically significant. Hence, Waist Circumference is a very good surrogate measure of adiposity of an individual. However, it represents the central obesity which is a high risk factor associated with cardiovascular disease.



Correlation Coefficient ... to show relationship between BMI and Waist Circumference

It was found that 25% of the College students presented with Central Obesity, male students (22%) and female students (26.7%).

DISCUSSION

Regional, national and international studies have revealed a steady increase in child obesity in recent years. Through this

study it has been observed that the prevalence of obesity and overweight among HSS is 23% and 13.9%, respectively. The health sciences department consisted of various streams like Nursing, Occupational therapy, Optometry, Pharmacy, Physiotherapy and Speech therapy. Comparing all these streams the highest prevalence of obesity was found among Speech therapy and Physiotherapy students (28%) followed by Nursing (26.1%), Pharmacy (21.2%), Occupational therapy (19.4%), and finally optometry (13.6%). Similarly while comparing all these streams the highest prevalence of overweight was found among Pharmacy (16.8%) followed by Occupational therapy (16.1%), Speech therapy (16%) and Physiotherapy students (12%) Nursing (10.9%) and finally optometry (4.5%).

The above prevalence's cannot be compared with each other because the total numbers of students of students in each stream were varied. The next objective of the study was to find the correlation between waist circumference an BMI and through this study we found that there is a positive correlation between Waist Circumference and BMI ($r=0.7$, $p<0.05$) which is statistically significant. Hence, Waist Circumference is a very good surrogate measure of adiposity of an individual. However, it represents the central obesity which is a high risk factor associated with cardiovascular disease. Overall prevalence of central obesity among health science students was 25%.comaring between male and female among the subjects central obesity was found to be more in female (26.7%) than male (22%) which is in contradictory to the general belief of central obesity being more in male.

One of the component of questionnaire used in the study included about the number of hours send for sedentary activities like watching TV, playing computer games, talking with friends, or doing other sitting activities. When tat component was analyzed it was found that almost 51% of subjects spend sedentary activities for more than 3 hours. Since it is an Analytical Cross-Sectional Study, temporal relationship demonstrating the association of initiation of physical activity, healthy dietary habits, alcohol and tobacco usage with obesity and overweight was not be possible. Further work is required to compare the usefulness of Body Fat Percentage with that of BMI classifications of Over-weight and Obesity in predicting increased metabolic risks. The study revealed that 70.4% of the students did not indulge in any regular Physical activity and had unhealthy eating habits. Thus, not only the Obese and Overweight students are required to modify their Lifestyle habits but even the Non-Obese students are required to do so, due to their high susceptibility. Through the study it was identified that nearly 4% of students were Tobacco users and 5% of students consume Alcohol, which throws the limelight on the unhealthy habits of the students, adopted within the 6 months of their collegiate life, which needs to be considered in the further studies.

Conclusion

There is a need to assess Obesity prevalence by conducting wider, Nationally representative studies and also create awareness regarding the emerging trend of changes in lifestyle. Such studies can be used for formulating policies and Health Strategy Plans.

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