

Obesity Among Students Attending A Tertiary Institution In Nigeria

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Citation

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Abstract

BACKGROUND: Obesity is rising to alarming levels around the world. The development of obesity and overweight is usually so slow, and insidious that people hardly notice it is happening. It is genetically related, multifactorial disease of excess fat, progressive, life long with life threatening multiple co-morbidity. **OBJECTIVE:** The aim of this study is to determine the prevalence of obesity among students of an educational institution in Port Harcourt, Nigeria. **METHOD:** This is a cross sectional study conducted during a medical physical examination exercise by students of an educational institution in Port Harcourt, Nigeria in 2008. Weight was measured in kilograms, height in metres and the body mass index calculated. **RESULTS:** Students who voluntarily participated in this study were 58. Mean age was 24.66 years, mean weight 67.28kg and mean height 1.73m. Two students were underweight, 48 had ideal body weight, 4 overweight and 4 obese. **CONCLUSION:** Preventing obesity must always be the goal because most obese people find it difficult to maintain any weight loss they have managed to achieve. All health professionals must be aware of the dangers of obesity and encourage children, young as well as older adults from gaining too much weight. A small gain each year over a long period produces an obese individual for when treatment is difficult.

INTRODUCTION

Obesity can be defined as an excess of body fat that poses a health risk with increasing prevalence and significance worldwide¹. The term informally is reserved to describe people who are grossly over weight is more frequently used to designate mild degree of adiposity. Approximately 20% of excess over desirable weight impairs a health risk.

It is a global health problem and the prevalence varies with socio-economic status. In affluent countries, the poor have the highest prevalence. In the developing world, the affluent is at the highest risk. There is also a recent trend to an increasing prevalence of obesity in adolescents and children.

Obesity is different from being overweight, which means weighing too much. The weight may come from muscle, bone fat and / or body water. Both terms mean that a person's weight is greater than what is considered healthy for his or her height. Obesity has increased steadily in many countries. No country has been spared. Its progression and the word 'epidemic' is even being used.

The World Health Organization (WHO) predicts that overweight and obesity may soon replace more traditional public health concerns such as under nutrition and infectious

diseases as the most significant cause of poor health.

Solutions look at changing the factors that cause excess calorie consumption and inhibit physical activity. The World Health Organization latest projections indicate that globally in 2005, approximately 1.6 million adults (age 15+) were overweight and at least 400 million adults were obese. They further project that by 2015, approximately 2.5 billion adults will be overweight, and more than 700 million will be obese¹. The projections indicate that at least one in three of the world's adult population is overweight and in 10 is obese. Additionally, over 20 million children under age five are overweight. Once considered a problem only in high-income countries particularly in urban setting.

Obesity is an epidemic facing the society. It is a challenge to all health care professionals. Moreover, obesity is characterised by anatomical and physiological changes².

The cause of obesity includes both genetic and environmental factors. Drugs may also induce obesity. There can be a genetic predisposition to gain weight. The risk is increased when the parents themselves are obese or when the parents themselves are obese or when a close relative, a brother or a sister has a weight problem. Some behavioural

and environmental factors are living a sedentary life and inadequate physical activity, often combined with bad eating habits(eating fatty foods, snacking, consuming sweetened drinks) cause an imbalance in the amount of energy taken in and expended. Many factors related to the home environment such as finance and the availability of sweets and snacks will affect food intake.

Preventing obesity is first a matter of combating its causes. Overweight and obesity as well as their related chronic diseases are largely preventable. Obesity is a risk factor for several chronic diseases including hypertension.

The body’s homeostatic energy regulation is better able to defend against insufficient food than against a little more food, a little less energy expenditure. Some non-medical co-morbidities of obesity are physical, economic, psychological, and social. Most of the medical complications of obesity are well known risks of cardiovascular complication and diabetes mellitus are greater in people with obesity. The social complications are immediate and may be very painful. The good news is that overweight and obesity is that overweight and obesity are largely preventable ¹. The key to success is to achieve an energy balance between calories consumed on one hand and calories used on the other hand. To reach this goal people can limit energy intake from total fats and shift fat consumption away from saturated fats to unsaturated fats, increase consumption of fruit and vegetables as well as legumes, whole grains and nuts, and limit their intake of sugars. In addition, to increase calories used, people can boost their levels of physical activity to at least thirty minutes of regular, moderate intensity activity on most days. Obesity especially associated with a marked increase in abdominal girth, leads to hyperglycaemia, elevated blood lipids, vascular inflammation, endothelial dysfunction, hypertension leading to premature atherosclerotic vascular disease.

Solutions look at changing the factors that cause excess calories consumption and inhibit physical activity. Obesity is a leading preventable cause of death worldwide with increasing prevalence in adults and children. Obesity is stigmatized in the modern western world, though it has been perceived as a symbol of wealth and fertility at other times in history and is still so in many parts of Africa.

METHOD

This is a cross sectional study conducted in 2008 during a medical examination fitness of Uptonville and Gas Institute students, an educational institution in Port Harcourt, Nigeria.

The study was explained to the students and participation was voluntarily. Criteria for exclusion were pregnancy and presence of chronic illness. The students were given a form to fill in their bio data. Weight was measured with a bathroom scale and height with a measuring tape. The body mass index was calculated using the formula

Figure 1

$$\text{Body Mass Index} = \frac{\text{Weight In Kilograms}}{\text{Height In Metres}}$$

RESULTS

58 students participated in this study. There ages ranged from 17 - 36 years with a mean age of 24.66 years. The weight ranged from 50 -110 kg with an mean of 67.28kg and range of height was from 1.53 m to 1.89m with a mean of 1.73m.

Using the body mass index, 2(3.45%) were overweight, 48(82.76%) had ideal body weight, 4(6.90%) overweight and 4(6.90%) obese. All the results are shown in table I and II.

Figure 2

Table I showing weight and height

	RANGE	MEAN
WEIGHT(KILOGRAMS)	50-110	67.28
HEIGHT(METRES)	1.53-1.89	1.73

Figure 3

Table II

DESCRIPTION	BMI	N	%
UNDERWEIGHT	<18.5	2	3.45
IDEAL	18.5-24.9	48	82.76
OVERWEIGHT	25-29.9	4	6.9
OBESE	>30	4	6.9

DISCUSSION

Being overweight or obese has a serious impact on health. Carrying extra fat leads to serious health consequences such as cardiovascular disease mainly heart disease and stroke, type II diabetes mellitus, musculoskeletal disorders like osteoarthritis and some cancers (endometrial, breast, and colon) ¹. These conditions cause premature death and substantial disability.

What is not known is that the risk of health problem starts

when someone is only very slightly overweight and that the likelihood of problems increases as someone becomes more and more overweight. Many of these conditions cause long-term suffering for individuals and families. In addition, the costs for the health care system can be extremely high. Some other conditions and complications associated with obesity are psychological problems concerning their size, varicose veins, hiatus hernia, gallstones, postoperative problems, back strain, breathlessness, and hyperlipidaemia.

Health risks increase with the degree of obesity and with increased abdominal distribution of fat. The triad of obesity, hypertension, and type II diabetes mellitus is known as the metabolic syndrome⁵.

Lifestyle interventions in health care for overweight adults are relatively cheap and higher interventions costs are associated with more weight loss, although the effect of costs on weight loss levels off with growing costs³. The prevalence of overweight and obesity is increasing worldwide for all ages of adults. However, it should be considered as a rough guide because it may not correspond to the same degree of fatness in different individuals¹.

Though relative weight and body mass index correlate with the degree of adiposity, excess weight may be in the form of lean tissues or fatty tissues. The World Health Organization (WHO) defines "overweight" as a body mass index equal to or more than 25 and "obesity" as a body mass index equal to or more than 30. these cut off points provide a bench mark for individual assessment but there is evidence that risks of chronic disease in populations increases progressively from a body mass index of 21¹. This was used to determine students that were overweight and obese. Body mass index (BMI) is a simple index of weight for height that is commonly used in classifying overweight and obesity in adult populations and individuals¹.

Obesity that starts in early childhood tends to be more severe and generally, obese children have a higher chance of being obese in adulthood. There is probability that the obese students were obese as children. Over nutrition is more often responsible for the continuity of overweight by increasing the total number of fat cells in the body. Some of the environmental factors promoting obesity in the study environment are increased energy density foods, increased caloric beverages etc. most people these days do not eat at home. There are fast food centres everywhere, which sell high energy density foods with high fat and sugar content. There is also sedentary behaviour, decreased activities of

daily living and decreased employment of physical activity. Initiatives by the food industry to reduce the fat, sugar, and salt content of processed foods and portion sizes to increase introduction of innovative healthy and nutritious clinics and to review current marketing practices could accelerate healthy gains worldwide.

The fundamental cause of obesity and over weight is an energy imbalance between calories consumed on one hand, and calories expended on the other hand. Global increases in overweight and obesity are attributable to a number of factors. A global shift in diet towards increased intake of energy dense foods that are high in fat and sugars but low in vitamins, minerals and other micronutrients. A trend towards decreased physical activity due to increasing sedentary nature of many forms of work, changing modes of transportation and increasing urbanization. Obesity occurs overtime when more calories is eaten than calories used. The balance between calories in and calories out differs for each person. Factors that might tip the balance include genetic makeup, overeating, eating high fat foods, and not being physically active.

None of the obese students has developed any complication of obesity at the time of this study. Some possible reasons for under exercising these days are more labour saving machinery at work and home, television, personal computers, more cars and less walking, less open space for recreation and fear of violence in the streets.

CONCLUSION

Obesity rates are rising worldwide and affecting both the developed and developing world. These increases have been felt most dramatically in the urban setting¹. The only remaining region of the world where obesity is not common is sub-Saharan Africa¹.

If energy intake exceeds expenditure over time, obesity is likely to result. Today, healthy body weight is generally determined using body mass index (BMI). Obesity can be measured in many ways but each person has unique characteristics and problems. Both genetic traits and psychological factors can increase the risk for obesity. These diverse influences spark controversies concerning which factor yields the greater influence. The prevalence of overweight and obesity is increasing worldwide³. It is an increasing problem.

A major role in the prevention and treatment of obesity lies within the health care sector. Obesity is therefore defined by

assessing its linkage to morbidity and mortality. Although not a direct measure of adiposity, the most widely used method to gauge obesity is the body mass index, which is equal to weight/ height² in kilograms and metre² respectively. Other approaches to quantifying obesity include anthropometry (skin fold thickness), densitometry, computed tomography (CT) or magnetic resonance imaging (MRI) and electrical impedance ⁷.

Being overweight is defined as having a body mass index greater than or equal to 25 kgm⁻² and below 30 kgm⁻² being obese is defined as having a body mass index of greater than or equal to 30 kgm⁻²⁸. A reduction in fat intake to around 20-25% energy is necessary to minimize energy imbalance and weight gain in sedentary individuals. Overweight and obesity represent a rapidly growing threat to the health of populations in an increasing number of countries. In addition, the obese suffer from social bias prejudice and discrimination on the part not only of the public but also of health professionals and this may make them reluctant to seek medical assistance.

As weight increase further, there is higher prevalence of obesity related co-morbidities are problems directly related to weight, anatomical change and physiological change. Not all obese people suffer co-morbidity as in this study. However, the prevalence of obesity related health problems increases with both the increased body mass index and the duration of obesity.

Health consequences of obesity fall into two broad categories. Those attributable to the effects of increased fat mass and those due to the increased volume of fat cells ¹⁰. Increase in body fat alter the body's response to insulin, potentially leading to insulin resistance and creates a proinflammatory state and a prothrombotic state.

References

1. www.who.int
2. Bellamy M, Strugs M. Anaesthesia for the Overweight and Obese Patient. Oxford University Press. New York. 2007: 1-25
3. Roges RP, Barte JCM, Schipper MA, Vijgen SMC, De Hollander Et al. Relationship Between Costs Of Lifestyle Interventions And Weight Loss In Overweight Adults. *Obesity Rev.* 11: 51-61
4. Wardlaw AM. Contemporary Nutrition: Issues and Insights. Fifth Edition. McGraw-Hill. London. 2003: 348
5. Morgan GE, Mikhail MS, Murray MJ. Clinical Anaesthesiology. Fourth Edition. McGraw-Hill. London. 2006: 813
6. Clark MI. Nutrition in Kumar P, Clark M (Eds) *Clinical Medicine*. Fourth Edition. W.B.Saunders. London. 2001: 201-210
7. Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL(Eds). *Harrison's Principle Of Internal Medicine*. Sixteenth Edition. New York. McGraw –Hill. 2005: 422
8. Zhang W, Bansback W et AL. Obesity. *Obesity Rev.* 11: 31-40
9. Shoelson SE, Herrero L, Naaz A. Obesity, Inflammation, and Insulin resistance. *Gastroenterology*. May 2007. 136(6): 2169-80
10. Haslam DW, James WP. Obesity. *Lancet*. 366(9492): 1197-209

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