

## HEALTH RISKS OF OBESITY

A.M. Ogunbode\*, A.A. Fatiregun\*\*, O.O. Ogunbode\*\*\*

\*Department of Family Medicine, G.O.P.D., U.C.H. Ibadan

\*\*Department of Epidemiology, Medical Statistics and Environmental Health, College of Medicine, U.C.H. Ibadan

\*\*\*Department of Obstetrics and Gynaecology, U.C.H., Ibadan.

Correspondence to

**Dr. Adetola M. Ogunbode**

Department of Family Medicine, G.O.P.D.,  
U.C.H., Ibadan.

Tel: 08023293115

E-mail: jamchose@yahoo.co.uk

### ABSTRACT

**Obesity is becoming of interest as a non-communicable disease. There is however a dearth of information on obesity in this environment, as literature in developing countries is limited. Review of health risks of obesity is useful in order to increase the pool of available information in Nigeria and to draw attention to obesity and its attendant health risks.**

**Keywords:** Health, risks, obesity.

### INTRODUCTION

Obesity is one of the most important preventable diseases in developed countries, and is rapidly emerging in the developing world. The prevalence of obesity is increasing in both industrialized nations and those undergoing alterations in diet and activity pattern as a result of adoption of the Western culture<sup>1</sup>.

#### Health risks of obesity

Obesity has major adverse medical consequences largely due to its health risks and association with hypertension and non-insulin dependent diabetes mellitus<sup>2,3</sup>. Obesity can be classified using the Body Mass Index (BMI), Table 1. The BMI is defined as weight in kilogrammes divided by the square of the height in metres<sup>4</sup>.

Category	BMI (Kg/m <sup>2</sup> )
Underweight	<18.5
Normal weight	18.5-24.9
Overweight	25.0-29.9
Obesity (class I)	30.0-34.9
Obesity (class II)	35.0-39.9
Obesity (Class III)	>40.0

**Table 1:** Table showing classification of Obesity using the Body Mass Index (BMI)

The greater the BMI, the greater the health risks<sup>5</sup>. These health risks are found not only in the developed countries of the world, but also in the poorest countries<sup>5</sup>.

These health risks can be divided into various groups:- medical, surgical, gynaecological, obstetric, and social problems<sup>6,7,8,9,10</sup>; Table 2.

#### Medical problems

The medical problems seen among obese people include cardiovascular complications like hypertension. It has been found that every 10kg increase in body weight was associated with an increase of 3mmHg and 2 mmHg in systolic and diastolic blood pressures, respectively<sup>11,12</sup>. The reason for this association between elevated blood pressure and increased weight is unclear. Several reasons have been proffered, including a decreased renal filtration surface, which may lead to renal sodium retention<sup>11</sup>.

Obesity also causes insulin resistance with resultant hyperinsulinaemia, and insulin enhances tubular reabsorption of sodium<sup>11</sup>. Under stress, psychological problems arise in obese patients. They have an enhanced catecholamine activity, which leads to hepatic infiltration of excess free fatty acids and peripheral insulinaemia, and this further causes decreased renal secretion of sodium<sup>1</sup>. Plasma renin is also reported to be elevated in obese individuals with hypertension<sup>8</sup>. The increased risk for hypertension also leads to an increased risk for cerebrovascular accident<sup>1</sup>.

The risk of coronary (ischaemic) heart disease is present due to the fact that obese persons have the tendency to produce high levels of free fatty acids, which build up in the liver and leads to the development of hypertriglyceridaemia and an increase in production of very low density lipoproteins. This hypertriglyceridaemia predisposes to atheroma

formation and the eventual development of coronary heart disease. Hyperlipidaemia may also be found in obese people as low density lipoproteins (LDL) cholesterol is either normal or high in obese people, while high density lipoproteins (HDL) cholesterol is low. The ratio of LDL to HDL is high leading to greater atherogenic risk<sup>1</sup>. Diabetes mellitus-Type 2, is commoner in obese patients, and occurs as a result of peripheral insulinaemia, from increased free fatty acids in the liver and inhibition of hepatic clearance of insulin which could cause decreased peripheral insulin sensitivity<sup>2</sup>.

Respiratory complications also occur in obese people due to increased fat in the chest wall and abdomen,

which reduces lung volume, changes the respiratory pattern and causes a decreased compliance of the respiratory system<sup>11</sup>. Vital capacity and total lung capacity are reduced, and a ventilation- perfusion abnormality frequently occurs which is characterized by hypoxia, but normal arterial pCO<sub>2</sub>. Sleep apnoea also occurs in obese people, and may be obstructive sleep apnoea, from the excess fatty tissue and increased relaxation of the pharyngeal and glossus muscles; or central sleep apnoea, or a combination of the two<sup>13</sup>.

Obese people have an increased risk of malignancies such as prostate cancer in men, and breast cancer in women. They are also prone to colorectal and gall bladder cancers<sup>11</sup>. Cholelithiasis occurs more in obese

Categories of Problems	Health risks of obesity
Medical	Hypertension, cerebrovascular accident, hypertriglyceridaemia, hyperlipidaemia, coronary heart disease. Diabetes mellitus and degenerative arthritis. Cholethiasis and sleep apnoea. Breast cancer, prostate cancer, colorectal cancer, and gall bladder cancer. Intertrigo, eczema, and cutaneous moniliasis.
Surgical	Difficult intravenous access, decreased skin access, impaired visibility, difficulty in securing haemostasis, delay in wound healing, increased wound infection, wound dehiscence and increased risk of deep vein thrombosis.
Gynaecological and Obstetric	Menstrual irregularities, amenorrhoea, infertility, and polycystic ovarian disease Endometrial cancer, cervical cancer, breast cancer and ovarian cancer. Difficult to assess during ANC visits. Gestational diabetes mellitus, gestational hypertension, pre-eclampsia, and big babies. Difficult labour. Stress incontinence.
Social and psychological	Poor self esteem, depression, embarrassment to self and spouse, increased irritability and difficulty in finding cloth size.

**Table 2:** Table showing Health risks of Obesity

individuals due to the cholesterol supersaturation of the bile<sup>9,11</sup>. Degenerative arthritis also occurs more in obese persons<sup>14,15</sup>. Obesity, (BMI greater than 30 kg/m<sup>2</sup>) also carries a three times increased risk of premature death<sup>2</sup>. Predisposition to skin disorders increase because of the skin folds in obese patients<sup>1</sup>. Examples of these skin diseases seen in obese patients include intertrigo, eczema, and cutaneous moniliasis<sup>1,13</sup>.

There is a vicious cycle between obesity and osteoarthritis. Women who are obese tend to have arthritis in the weight bearing joints such as the knee, and that creates mobility problems which make them live a sedentary lifestyle, and they could eventually become more obese<sup>16</sup>. There is, however, the single advantage of reduced osteoporosis in obese women. Oestrogen is stored in the fatty tissues, therefore at menopause, these obese women have more oestrogen available to protect them from bone loss of osteoporosis<sup>17</sup>.

### **Surgical problems**

The surgical problems which complicate obesity include decreased access through the skin and poor visibility of the operation site due to fat. There is also difficulty in securing intravenous access<sup>1</sup>. The excessive fat in the abdominal wall and the larger number of bleeding vessels make securing haemostasis intra-operatively more difficult. There is also delay in wound healing among obese patients because of haematoma formation, increased sweating, increased wound infection and wound dehiscence<sup>1,8</sup>. There is an associated increased risk of Deep Vein Thrombosis (DVT) among obese patients who have had surgery because early ambulation may be difficult<sup>1</sup>.

### **Gynaecological and obstetric problems**

Gynaecological and Obstetric problems among obese women vary from menstrual irregularities to sometimes amenorrhoea. These menstrual abnormalities are due to the abnormality of sex hormone metabolism in obesity. There is an increased rate of production of adrenal androgens, increased oestrogen production, and increased peripheral conversion of androgens to estrogens in obesity. There is also an increased risk of endometrial cancer among obese women because of the high rate of production of oestrogen with the sustained action on the endometrium<sup>1</sup>. Other forms of cancer which obese people are prone to include cervical, breast and ovarian cancer<sup>11</sup>. Obese women may also develop polycystic ovarian disease and also be infertile.

Complications in pregnancy encountered by obese women include gestational diabetes mellitus, hypertension, pre-eclampsia, big babies; especially

women of body mass index (BMI) class II and III<sup>1</sup>. Labour is usually difficult and may be prolonged. Obese women may be difficult to assess during antenatal clinic (ANC) visits without the aid of a sonicaid or an ultrasound scan<sup>1</sup>. Obese individuals may also have stress incontinence<sup>2</sup>.

### **Social and psychological problems**

Social and psychological problems of obesity are numerous. The obese woman may be a source of embarrassment to herself and her male partner. She eats more to console herself, and gets more obese, and also becomes irritable and anti-social<sup>1</sup>. It is difficult for the obese woman to get clothes that will be her size. She also finds it difficult to take part in recreational activities and may get depressed and have a low self-esteem<sup>1,2,14</sup>.

### **CONCLUSION**

The health care costs of obesity are considerable, especially when complicated by health problems<sup>19,20</sup>. Prevention of obesity is thus cost effective, and should begin early by encouraging a lifestyle of healthy patterns of exercise and diet<sup>2</sup>.

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