PREVALENCE OF OBESITY AND SEVERE OBESITY IN COIMBATORE PEOPLE

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Abstract: *Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health. People are generally considered obese when their Body Mass Index (BMI).This paper presents prevalence of obesity and severe obesity in Coimbatore people using Cluster Analysis.*

Keywords: *Obesity, dietary fiber, Coimbatore.*

1. INTRODUCTION:

Overweight and obesity are increasing problems that lead to significant health and social difficulties for people. Obesity is a serious medical condition and can lead to considerable health consequences including heartdisease, diabetes, high bloodpressure, highcholesterol**,** obstructive sleep apnoea and arthritis. Therefore it is very important that you seek appropriate treatment.Obesity is essentially a disorder of your metabolism and is caused by an imbalance between energy intake and energy expenditure over a long period of time. In other words, you are consuming more calories or energy than you are burning through exercise and daily activities. Treatment of obesity therefore aims to restore this energy balance.

Obesity is a medical condition in which excess body fat has accumulated to an extent that it may have a negative effect on health. People are generally considered obese when their Body Mass Index (BMI).

Obesity and severe obesity forecasts through 2030(2012)**,** he estimated a 33% increase in obesity prevalence and a130% increase in obesity prevalence over the next two decades. If these forecasts proved , accurate this will further hinder efforts for health care cost containment. Predicting adult obesity from childhood obesity : a systematic review and meta analysis (2016) he possessed , however 70% of obese adult were not obese in childhood or adolescences , so targeting obese reduction solely at obese or overweight children needs to be considered carefully as this may not substantially reduce the overall burden of adult obesity. Prevalence of obesity and severe obesity in US Children , 1999-2014(2016) he examines that there is no evidence of a decline in obesity prevalence in any age group, despite substantial clinical and policy efforts targeting issue.

Obesity and cardiovascular disease (2016) he proposed a scientifically based harmonized definition of MHO , which will hopefully contribute to more contribute to more comparable data in future and a better understanding on the MHO subgroup and its CVD prognosis. Predicting obesity in young adulthood from childhood and parental obesity, (1997) he possessed that the among those who were obese during childhood , the chance of obesity in adulthood ranged from 8 percent for 1 or 2 olds without obese parents to 79 percent. Childhood Obesity and adult morbidities (2010) he possessed the implication for fitness to markedly alter the relationship between adiposity and prognosis and the potential impact of weight loss in light of the obesity paradox are all reviewed. Treatment of obesity with Celastrol (2015) he examines that those results indicate that celastrol is a leptin sensitizer and a promising agent for the pharmacological treatment of obesity. The epidemiology of obesity (2010) he predicts that however increasing evidence suggests that abdominal obesity , rather than the total body fat , is also useful independent predictor of several cardiovascular and cancer related outcomes. Some of the commonly used measures of the abdominal obesity are waist circumference , hip circumference and waist to hip ratio. Do obese children become obese adults? : A reviews of the literature (1993) he estimates that the wide range of estimates in this literature are , in part, due to differences in study designs , definition of obesity, ages at which participants were measured, intervals between measurements and populations and circular differences.

Socioeconomic status and obesity (1989) he focused that , most of the investigations was not on the relationship between SES and obesity as such. Instead most of these reports presented data about this relation. Social factors in obesity (1965)   he estimates that those findings suggests opportunities for more effective weight control measures through program specially tailored for populations at high risk. Body Mass Index : obesity , BMI and health : A clinic review (2015) his current evidence indicates that there is a wide range of BIMs over which mortality risk is modest and this is age related.

2. TO CALCULATE BMI:

➢ Multiply your height in inches times your height in inches.

➢ Divide your weight by the number you arrived at in Step 1.
➢ Multiply the number you came up with in Step 2 by 705.

The result is your BMI.

BMI	BMI Category
Between 15 and 16	Severely underweight
Between 16 and 18.5	Underweight
Between 18.5 and 25	Normal (healthy weight)
Between 25 and 30	Moderately obese
Between 35 and 40	Severely obese
Over 40	Very severely obese

Obesity is a serious, chronic disease that can have a negative effect on many systems in your body. People who are overweight or obese have a much greater risk of developing serious conditions, including:

• Heart disease
• Type 2 diabetes
• Bone and joint disease

The definition of obesity varies depending on what one reads. In general, overweight and obesity indicate a weight greater than what is healthy. Obesity is a chronic condition defined by an excess amount of body fat. A certain amount of body fat is necessary for storing energy, heat insulation, shock absorption, and other functions. Obesity is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility. A few cases are caused primarily by genes, endocrine disorders, medications, or mental disorder. The view that obese people eat little yet gain weight due to a slow metabolism is not medically supported. On average, obese people have a greater energy expenditure than their normal counterparts due to the energy required to maintain an increased body mass.

Obesity is mostly preventable through a combination of social changes and personal choices. Changes to diet and exercising are the main treatments. Diet quality can be improved by reducing the consumption of energy-dense foods, such as those high in fat or sugars, and by increasing the intake of dietary fiber. Medications can be used, along with a suitable diet, to reduce appetite or decrease fat absorption. If diet, exercise, and medication are not effective, a gastric balloon or surgery may be performed to reduce stomach volume or length of the intestines, leading to feeling full earlier or a reduced ability to absorb nutrients from food. Obesity is a leading preventable cause of death worldwide, with increasing rates in adults and children.

3. PREVENTING OBESITY IN CHILDREN AND ADOLESCENTS:

Young people generally become overweight or obese because they don't get enough physical activity in combination with poor eating habits. Genetics and lifestyle also contribute to a child's weight status. There are a number of steps you can take to help prevent overweight and obesity during childhood and adolescence. They include: Gradually work to change family eating habits and activity levels rather than focusing on weight. Change the habits and the weight will take care of itself. Be a role model. Parents who eat healthy foods and are physically activity set an example that increases the likelihood their children will do the same. Encourage physical activity. Children should have an hour of moderate physical activity most days of the week. More than an hour of activity may promote weight loss and subsequent maintenance. Reduce time in front of the TV and computer to less than two hours a day. Encourage children to eat only when hungry, and to eat slowly. Avoid using food as a reward or withholding food as a punishment. Keep the refrigerator stocked with fat-free or low-fat milk and fresh fruit and vegetables instead of soft drinks and snacks high in sugar and fat. Serve at least five servings of fruits and vegetables daily. Encourage children to drink water rather than beverages with added sugar, such as soft drinks, sports drinks and fruit juice drinks.

4. PREVENTING OBESITY IN ADULTS:

Many of the strategies that produce successful weight loss and maintenance will help prevent obesity. Improving your eating habits and increasing physical activity play a vital role in preventing obesity. Eat five to six servings of fruits and vegetables daily. A vegetable serving is one cup of raw vegetables or one-half cup of cooked vegetables or vegetable juice. A fruit serving is one piece of small to medium fresh fruit, one-half cup of canned or fresh fruit or fruit juice, or one-fourth cup of dried fruit. Choose whole grain foods such as brown rice and whole wheat bread. Avoid highly processed foods made with refined white sugar, flour and saturated fat. Weigh and measure food to gain an understanding of portion sizes. For example, a three-ounce serving of meat is the size of a deck of cards. Avoid super-sized menu items particularly at fast-food restaurants. You can achieve a lot just with proper choices in serving sizes. Balance the food "checkbook." Eating more calories than you burn for energy will lead to weight gain. Weigh yourself regularly. Avoid foods that are high in "energy density" or that have a lot of calories in a small amount of food. For

example, a large cheeseburger and a large order of fries may have almost 1,000 calories and 30 or more grams of fat. By ordering a grilled chicken sandwich or a plain hamburger and a small salad with low-fat dressing, you can avoid hundreds of calories and eliminate much of the fat intake. For dessert, have fruit or a piece of angel food cake rather than the "death by chocolate" special or three pieces of home-made pie. Crack a sweat: accumulate at least 30 minutes or more of moderate-intensity activity on most, or preferably, all days of the week. Examples include walking a 15-minute mile, or weeding and hoeing the garden. Make opportunities during the day for even just 10 or 15 minutes of some calorie-burning activity, such as walking around the block or up and down a few flights of stairs at work. Again, every little bit helps.

5. THE HEALTH RISKS ASSOCIATED WITH OBESITY:

Obesity is not just a cosmetic consideration; it is harmful to one's health as it is a risk factor for many conditions. In the United States, roughly 112,000 deaths per year are directly related to obesity, and most of these deaths are in patients with a BMI over 30. Patients with a BMI over 40 have a reduced life expectancy. Obesity also increases the risk of developing a number of chronic diseases, including the following:

- **Insulin resistance.** Insulin is necessary for the transport of blood glucose (sugar) into the cells of muscle and fat (which the body uses for energy). By transporting glucose into cells, insulin keeps the blood glucose levels in the normal range. Insulin resistance (IR) is the condition whereby there is diminished effectiveness of insulin in transporting glucose (sugar) into cells. Fat cells are more insulin resistant than muscle cells; therefore, one important cause of insulin resistance is obesity. The pancreas initially responds to insulin resistance by producing more insulin. As long as the pancreas can produce enough insulin to overcome this resistance, blood glucose levels remain normal. This insulin resistance state (characterized by normal blood glucose levels and high insulin levels) can last for years. Once the pancreas can no longer keep up with producing high levels of insulin, blood glucose levels begin to rise, resulting in type 2 diabetes, thus insulin resistance is a pre-diabetes condition.
- **Type 2 (adult-onset) diabetes**. The risk of type 2 diabetes increases with the degree and duration of obesity. Type 2 diabetes is associated with central obesity; a person with central obesity has excess fat around his/her waist (apple-shaped figure).
- **High blood pressure (hypertension)**. Hypertension is common among obese adults. A Norwegian study showed that weight gain tended to increase blood pressure in women more significantly than in men.
- **High cholesterol** (hypercholesterolemia)
- **Stroke** (cerebrovascular accident or CVA)
- **Heart attack.** A prospective study found that the risk of developing coronary artery disease increased three to four times in women who had a BMI greater than 29. A Finnish study showed that for every 1 kilogram (2.2 pounds) increase in body weight, the risk of death from coronary artery disease increased by 1%. In patients who have already had a heart attack, obesity is associated with an increased likelihood of a second heart attack.
- **Congestive heart failure**
- **Cancer**. Obesity is a risk factor for cancer of the colon in men and women, cancer of the rectum and prostate in men, and cancer of the gallbladder and uterus in women. Obesity may also be associated with breast cancer, particularly in postmenopausal women. Fat tissue is important in the production of estrogen, and prolonged exposure to high levels of estrogen increases the risk of breast cancer.
- **Gallstones**
- **Gout and gouty arthritis**
- **Osteoarthritis** (degenerative arthritis) of the knees, hips, and the lower back
- **Sleep apnea**

6. THE OTHER FACTORS ASSOCIATED WITH OBESITY:

- **Ethnicity.** Ethnicity factors may influence the age of onset and the rapidity of weight gain. African-American women and Hispanic women tend to experience weight gain earlier in life than Caucasians and Asians, and age-adjusted obesity rates are higher in these groups. Non-Hispanic black men and Hispanic men have a higher obesity rate then non-Hispanic white men, but the difference in prevalence is significantly less than in women.
- **Childhood weight**. A person's weight during childhood, the teenage years, and early adulthood may also influence the development of adult obesity. For example,
  - being mildly overweight in the early 20s was linked to a substantial incidence of obesity by age 35;
  - being overweight during older childhood is highly predictive of adult obesity, especially if a parent is also obese;
  - being overweight during the teenage years is even a greater predictor of adult obesity.

> ➢ **Hormones**. Women tend to gain weight especially during certain events such as pregnancy, menopause, and in some cases, with the use of oral contraceptives. However, with the availability of the lower-dose estrogen pills, weight gain has not been as great a risk.

7. CLUSTER ANALYSIS:

The following cluster were classified into two cluster based on the following data.
- ➢ Whether they are caused by lack of self control
- ➢ Whether obesity is genetic and cannot be helped
- ➢ Whether obesity is disgusting and ugly
- ➢ Whether obesity is beautiful
- ➢ Whether food help to numb their emotional pain, depression or anxiety.
- ➢ Whether food is addictive that they abuse for pleasure
- ➢ Food is used for nourishment only when they are hungry

Using Cluster Analysis

	Cluster	
	1	**2**
Obesity is caused by lack of self control	3	3
Obesity is genetic and cannot be helped	3	3
Obesity is disgusting and ugly	3	3
Obesity is beautiful	3	3
food help to numb their emotional pain, depression or anxiety	4	2
food is addictive that they abuse for pleasure	5	2
Food is used for nourishment only when they are hungry	1	4

Number of cases in each cluster

Cluster 1   49.000
Cluster 2   51.000
Valid   100.000
Missing   .000

7.1 ANOVA:

	Cluster		Error			
	Mean square	**Degrees of freedom**	**Mean square**	**Degrees of freedom**	**F**	**Sig.**
Obesity is caused by lack of self control	.460	1	2.136	98	0.215	0.644
Obesity is genetic and cannot be helped	.032	1	2.092	98	0.015	0.901
Obesity is disgusting and ugly	.590	1	2.213	98	0.267	0.607
Obesity is beautiful	2.472	1	2.547	98	0.971	0.327
food help to numb their emotional pain, depression or anxiety	209.928	1	0.373	98	562.382	0.000
food is addictive that they abuse for pleasure	222.039	1	0.255	98	872.111	0.000
Food is used for nourishment only when they are hungry	216.235	1	0.253	98	856.042	0.000

The F test should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

8. CONCLUSION:

All the respondents remain neutral to whether obesity is caused by lack of self control, obesity is genetic and cannot be helped, obesity is disgusting and ugly and obesity is beautiful. Cluster 1 consisted of respondents for whom food did not help to numb emotional pain and they did not eat for pleasure. They ate only for nourishment. Cluster 2 consisted of people who ate for pleasure and used food to numb their depression. For them food is not just a nourishment. For 49% of respondents, food did not help to numb emotional pain and they did not eat for pleasure. They ate only for

nourishment. 59% of respondents ate for pleasure and used food to numb their depression. For them food is not just a nourishment.

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