

Medical Guidelines

Diagnosis & Management of Obesity

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Obesity is a global health crisis that has reached epidemic proportions, making it one of the most significant public health challenges of our time. This article aims to provide an overview of obesity focusing on the treatment guidelines.

Definition and Various Categories of Weight

Obesity is commonly defined as an excess of body fat, typically measured using the Body Mass Index (BMI). There are many ways to determine obesity, and all have some limitations. Table 1.

While BMI is a widely used tool to classify individuals

Table 1: Various methods for the assessment of body fats and their main limitations.

Method	Limitation
Body mass index	Same formula for men and women and for all ages Can't differentiate between excess fat or excess muscle mass (athletes)
Dual Energy X-ray absorptiometry (DEXA)	Expensive Does not differentiate between cutaneous and visceral fat
Total body impedance	Not fully validated
Abdominal CT or MRI	Expensive
Weighing under water	Tedious Does not differentiate between visceral and non-visceral fat

as overweight or obese, it has limitations as it doesn't account for factors such as muscle mass and distribution of fat. In a new position statement, the American Association of Clinical Endocrinologists (AACE) and the American College of Endocrinology (ACE) have replaced the word "obesity" with "Adiposity-Based Chronic Disease" (ABCD). Various categories based on BMI are defined by WHO and are given in Table 2.¹ These categories help identify the severity of obesity and guide

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treatment decisions.

Table 2: Various categories of weight according to body mass Index (BMI).

Category	BMI (Body mass index)
Underweight	<18.5
Normal weight	18.5 to 24.9
Overweight	25 to 29.9
Obesity (Class I)	30 to 34.9
Obesity (Class II)	35 to 39.9
Obesity (Class III)	40 or higher

Prevalence

The prevalence of obesity has increased significantly over the past few decades, in both developed and developing countries.² Data from the World Health Organization (WHO) shows that in 2016, more than 1.9 billion adults were overweight, and over 650 million of them were obese. These numbers have continued to rise, with devastating consequences for public health. Roughly two out of three U.S. adults are overweight or obese (69 percent) and one out of three are obese (36 percent). In terms of obesity, Pakistan ranks tenth out of 188 countries, with 50% of the population being overweight or obese.

Causes of Increasing Prevalence

The rise in obesity can be attributed to a complex interplay of factors, including genetic, environmental, and lifestyle-related factors. Increased access to energy-dense, low-nutrient foods, sedentary lifestyles, and genetic predisposition contribute to the ongoing increase in obesity rates. Furthermore, the built environment and societal changes have made it challenging for individuals to make healthy choices.

Related Health Issues

Obesity is not just a cosmetic concern; it is a major risk factor for numerous health problems. Common and

important ones are listed in Table 3.

Health issues associated with obesity include type 2 diabetes, cardiovascular diseases, hypertension, certain cancers, sleep apnea, and musculoskeletal disorders.³

Table 3: Common and important obesity related issues.

Category	• Significantly reduced • Poor quality of life due to stigmatization
Metabolic	• Diabetes • Hyperlipidaemia
Cardio-vascular	• Ischaemic heart disease • Hypertension
Respiratory	• Obstructive sellep apnoea • Pulmonary hypertension
Reproductive	• Polycystic ovarian syndrome • Infertility
Musculo-skeletal	• Gout • Osteoarthritis
Gastro-intestinal	• Reflux • Non-alcoholic fatty liver disease

Some cancers are also common in obese people compared

to age/gender matching non obese people. There is a significant reduction in the life expectancy of obese people. The economic burden of these comorbidities is substantial, impacting healthcare systems and the overall well-being of affected individuals.

Social Stigma

Obesity is often accompanied by social stigma and discrimination.⁴ People with obesity face bias in various settings, including healthcare, employment, and education. This stigma can have adverse effects on mental health, self-esteem, and willingness to seek medical care or engage in weight management efforts. Addressing this issue is crucial in the fight against obesity.

Treatment Options

The first principle of management is that patients as well as physicians need to accept obesity as a true medical condition. They also need to understand that any treatment has to be consistent and long term to have the desired effects. Physicians and the patient need to agree with a plan before starting it. A poorly planned strategy is much less likely to succeed. Goals should also be defined and agreed upon as otherwise patients may be disappointed despite losing significant weight if weight loss is less than what they had expected. The primary goal is to get at least 15% weight loss to have desirable

Table 4: Various drugs that are used to control obesity along with their mechanism of action and major side effects.

Medication	Mechanism of Action	How administered	Major side effects	FDA status
Orlistat	Prevents absorption of fat up to 30% when taken with meal	Given orally with every major meal	Fatty & foul-smelling stools with occasional fecal incontinence	Approved
Phentermine-topiramate	Reduce hunger & increased basal metabolic rate	Orally once or twice daily	Insomnia, cardiac arrhythmias and dependence	Approved
Bupropriion-naltrexone	Reduce hunger & increased basal metabolic rate	Orally once or twice daily	Insomnia, cardiac arrhythmias and dependence	
Liraglutide 3 mg OD, Semaglutide 2.4 mg OW, Dulaglutide 4.5 OW	Work like endogenous glucagon like peptide (GLP1-RA). Improve satiety, reduce hunger signals, and delay gastric emptying	Subcutaneous injections once daily (liraglutide) or once weekly (Semaglutide & dulaglutide)	Expensive, GIT side effects, very occasional pancreatitis, and medullary thyroid cancer	Approved
Tirzepatide 15 mg OW	Dual GLP1 and GIP receptor agonist	Subcutaneous injections once weekly	Same as above	Not yet approved for obesity
Retatrutide 12 mg OW	Triple GLP1, GIP and glucagon receptor agonist	Subcutaneous injections once weekly	Same as above	Not yet approved for obesity
Empagliflozin 25 ng OD, Dapagliflozin 10 mg OD	Promotes glucose lose into urine by blocking SGLT2	Once daily	Urogenital infection especially fungal	Not approved for obesity

metabolic effects. Further weight loss may extend more benefits. As we lose weight, the basal metabolic rate (BMR) also goes down. Hence, we have to try harder and harder to lose the same amount of weight further. It may not be possible to get to the ideal body weight despite every possible effort. Both patients and physicians need to understand and accept this fact. The treatment of obesity is multi-faceted and involves a stepwise approach of lifestyle modifications, medications, and, in some cases, surgical interventions. In some obese individuals with obesity related comorbidities, it may be sensible to start with medication or surgery straight away. The importance of lifestyle changes does not lessen even when you get to the next stage of medication or surgery.

Lifestyle Modifications: The foundation of obesity management involves dietary changes and increased physical activity. Both need to be done simultaneously and consistently. Not to deny the overall health benefits, exercise alone does not really help. Behavioral counseling, dietary plans, and exercise regimens tailored to the individual's needs are essential components of lifestyle changes.

Medications: Several medications have been approved for the palliative treatment of obesity (Table 2). These medications work through different mechanisms to help individuals lose weight. It is important to consider the patient's medical history and potential side effects when prescribing these medications. Currently the most commonly prescribed medications are GLP agonists. Many of the previously used drugs have been withdrawn from the market due to potentially serious side effects. It is possible and recommended to use multiple drugs working through different mechanisms in combination. Generally, medication is less effective than surgery but with some of the newer agents like retatrutide, weight loss may be equivalent to that achieved with surgery. The future might see a complete paradigm shift in favour of medication.

Surgical Interventions: In severe cases of obesity, when other interventions have not been successful, bariatric surgery is an option. Procedures such as gastric bypass, sleeve gastrectomy, and adjustable gastric banding can lead to substantial weight loss and improvement in obesity-related health issues. These procedures are generally effective and when combined with lifestyle changes one can expect to lose up to 25% or more of baseline weight. There is extremely good effect on metabolic profile (diabetes), blood pressure and obstructive sleep apnoea. On the downside, they are not widely available and involve substantial costs. They are also associated with significant short term as well as long term problems. I would like to mention that liposuction is body re-shaping but not metabolically beneficial.

Guidelines by Various Societies

Various medical societies and organizations have developed guidelines for the management of obesity.⁵ These guidelines provide recommendations on diagnosis, treatment, and follow-up care. Some well-known guidelines include those from the American Association of Clinical Endocrinologists, American Heart Association, and the National Institute for Health and Care Excellence (NICE) in the United Kingdom. A summary of the guidelines is given below in Fig. 1

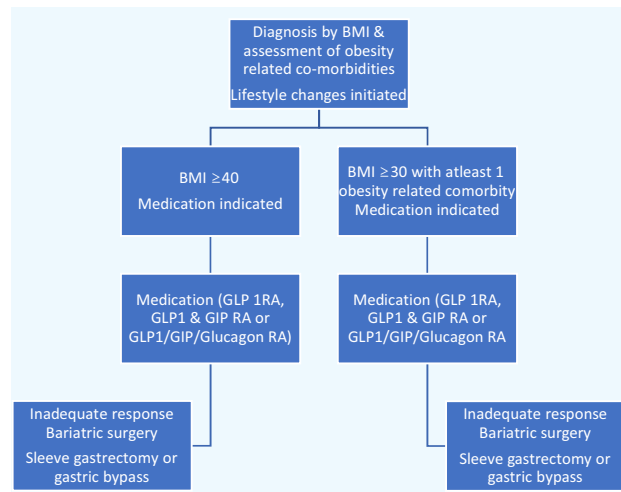


Figure 1: An outline of the treatment options for obesity.

Abbreviations: BMI, body mass index; GLP1 RA, glucagon like peptide 1 receptor agonist; GIP, gastric inhibitory peptide

Challenges in Low-Income Countries

Low-income countries like Pakistan, face unique challenges in dealing with obesity. Limited resources, lack of access to nutritious foods, and inadequate healthcare infrastructure can hinder obesity prevention and treatment efforts. We face a double burden of malnutrition, with both undernutrition and overnutrition coexisting. To make matters more complicated, the treatment is expensive, and beyond the reach of our people. Addressing these challenges requires innovative strategies and international collaboration.

Responsibilities of Governments and Food Industries

Governments play a vital role in addressing the obesity epidemic. They can implement policies such as sugar taxes, food labeling regulations, and restrictions on the marketing of unhealthy foods to reduce obesity rates. Additionally, governments should invest in healthcare infrastructure and educational programs to raise awareness about healthy lifestyle choices.

Food industries also have a responsibility in combatting obesity. They can reformulate products to reduce sugar and unhealthy fats, provide clearer nutritional infor-

mation, and support public health campaigns. Collaborative efforts between governments, the food industry, and healthcare professionals are essential for meaningful change.

Conclusion

Obesity is a complex and multifaceted challenge that demands our immediate attention. Its increasing prevalence and associated health issues, and the social stigma attached to it make it a significant public health concern. Effective management of obesity requires a combination of lifestyle changes, medication, and sometimes surgical intervention. The guidelines developed by various medical societies provide valuable recommendations for healthcare professionals. In low-income countries, the challenges are unique, but international collaboration and innovative strategies can help address them. Governments and the food industry must play a pivotal role in curbing the obesity epidemic through policies and responsible practices. Addressing obesity is not just a medical issue; it's a societal responsibility that requires collective effort.

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