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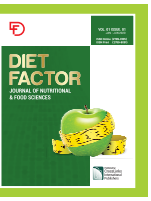

Review Article

Healthcare Management of an Obese Person

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ABSTRACT

Around the world, 1.6 million causalities are due to mortalities related to obesity. Obesity is the major cause of various health issues and diseases like diabetes, cancer, heart disease, hypertension, sleep loss, etc. The main causes of obesity in Pakistan are poor diet, lack of exercise, and a sedentary lifestyle. Body mass index is a measurement tool that can be used to measure the fat of the body by calculating the ratio of weight and height of males and females. The ratio of people living in urban areas is higher than people living in rural area. The objective of our study is to explore the knowledge of healthcare management of an obese person. This is an exploratory study extracted from various literatures to enhance the understanding related to multiple treatment options i.e.: surgical and non-surgical interventions for the management of obesity. It comprises of various national and international, cross-sectional surveys, and experimental researches. The study concluded that there are many conservative and non-conservative options for the management of obesity and the reduction of weight can improve the quality of life as well as reduce the risk of various diseases.

INTRODUCTION

A public health issue which affected the entire world for more than fifty years is Obesity. It is shown to be the major cause of mortality and morbidity [1]. According to the data in the United States, there are more than 50% of people who are overweight or obese, and 5 to 7 percent lie in the severe category of obese according to BMI (Body Mass Index) calculation [2]. In Pakistan, the prevalence of obesity in males is (12.10%) whereas (26.50%) are lying in the overweight category while in females (13.90%) are obese and (24.20%) are overweight [3]. It affects the quality of life and causes various diseases like diabetes, cancer, cardiovascular disease, hypertension, musculoskeletal disorders, sleep disorders, and early death [4]. Body mass index (BMI) is a measurement tool that can be used to measure the fat of the body by calculating the ratio of weight and height of males and females. The basic unit of BMI is kg/m2 Although BMI cannot be differentiated between lean body mass and fat

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therefore the circumference of the waist is also considered as the measurement tool for obesity [5]. Due to the risk of multiple health issues, there is a need to control weight but the treatment of obesity is expensive especially along with the comorbid [6]. There are many conservative as well as non-conservative management strategies to control weight and obesity. When we focus on the causes of obesity there seem to be various factors that contribute to the development of obesity like family history, social, cultural, pathological, physiological, and behavioral factors, smoking cessation, late marriage of parents, use of pharmacological agents, etc. [7]. The balance between the intake of energy and the loss of energy can be seriously affected by one of these factors. Obesity can decrease the life expectancy of a person and can create many issues in the function of organs [8].

The purpose of our literature review was to highlight the treatment options available for obesity.

MALAYSIAN CLINICAL GUIDELINES ON MANAGEMENT OF OBESITY

The guidelines from the Malaysian clinical practice in March 2021 about obesity are as follows [9]:

- For the management of obesity different interventions should be used: physical activity and exercise, balanced diet and modification of behavioral, etc. for BMI of 25-30 kg/m^2.
- Pharmacological agents also play a key role in the reduction of weight for 27 kg/m^2.
- Obese patients who are fail to reduce or maintain weight through diet, exercise, and physical activity are lie in the indication of pharmacological treatment for obesity.
- The ratio of waist circumference to height is a strong predictor of obesity rather than waist circumference.
- The basic indicator of obesity is the distribution of fat in the whole body rather than the body fat mass.
- Surgical procedures are also used to manage the weight in standard ranges for BMI of 35-40 kg/m^2.

HEALTHCARE MANAGEMENT OF OBESITY

Around the world increase in the prevalence of obesity needs preventive measures to maintain health and improve the quality of life [10]. There are many healthcare preventive guidelines tested throughout the world that may reduce the rate of BMI rate but the effects of some strategies are limited [11]. After the implication of ineffective preventive measures, the obese person should have to control weight through the obesity management strategy advice by healthcare professionals [12]. The three different weight management strategies which can be advised step by step by the healthcare providers according to the health condition of the patients are as follows:

Non-Surgical Management Strategies

This type of management strategy has been widely used in many countries around the world like the USA, UK, Europe, etc. [13]. In the non-surgical type of treatment, lifestyle modification is the crucial component of management. There are three types of lifestyle modification management strategies which are as follows:

1. Diet

For the reduction of weight, various aspects of dietary items are considered. The major aim of dietary treatment is to reduce the calorie intake but for the maintenance of health, a healthy diet plan is needed which can be provided by healthcare providers, especially by dieticians [14]. The first aim of the diet is to reduce the energy intake by five hundred kcal per day below the requirements of energy specifically the individuals. The daily energy requirements for females are 1200 to 1500 kcal per day and 1500 to 1800 kcal per day for males but in the exceptional cases where the weight of the obese person is beyond 150kg the caloric requirements per day are 300 kcal more in both genders [15]. Furthermore, some of the dietary frames are offered by healthcare providers for the benefit of obese patients according to the medical condition of patients [16]. The effective way to control weight is to increase the amount of carbohydrates, vitamins, minerals, and protein in the diet and reduce the amount of fat in the diet. Literature reported the specific amount of energy required from fat, protein, and carbohydrates [17]. In many studies, the use of low-fat, high-protein, low-carbohydrates is found to be effective in weight loss management [18].

2. Physical Activity and Exercise

Physical activity is a vital part of a lifestyle modification strategy for the reduction of weight in an effective manner [19]. The United States as well as the United Kingdom proposed guidelines that reported the gradual increment in the physical activity of an obese person as an effective way to control weight [20]. The basic domain is to change the pattern of walking into brisk walking for 150 minutes per week or more than 30 minutes per day [21]. A study reported that a huge amount of physical activity for 30 to 4 minutes per day for the prevention of obesity and the long-term maintenance of weight required 60 to 90 minutes of physical activity per day [22]. The supervision of healthcare professionals is needed throughout the weight reduction program. Being physically active is the assurance of the healthy life of an individual. Exercise In contrast with the reduction of dietary intake is a vital part of the management of an obese person [23]. Many studies reported that the combination of exercise with diet for the reduction in weight and fat body in comparison to a separate diet [24]. A study revealed that aerobic exercises in a specific mode for the reduction of fat and mass of a

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body are more beneficial as compared to the resistive exercises used to increase the lean mass of an obese or overweight person [25]. Another study showed that aerobic exercises, as well as resistance exercises both, proved to be advantageous for an obese person. According to scientific guidelines, there is a requirement of 150 minutes per week of moderate-level aerobic exercise like brisk walking should be used for muscle strengthening called resistance exercise [26].

When we start physical activity in daily routine life it can decrease the fatty tissues of the abdominal area and it also maintains the body weight of a person for a long period, enhances the pleasant feeling of a human being, and also helps in subsiding the level of stress and depression [27]. These types of habits can reduce the sedentary lifestyle and improve the activities of daily living people can walk in comparison to using a car or bike for short distances, and also use the stairs in comparison to lifting. When we prescribe the patient any type of exercise it should be considered that they recommend those exercises that are suitable and safe for the patient's body and his or her health condition [28].

3. Behavioral Therapy

This type of therapy helps people to focus on diet and their activities of daily routine can make changes and promote a healthy lifestyle. These sessions can give awareness to the people about their activities, eating habits, their behavior, and also need to focus on their surroundings to maintain their attitude and behavior [29]. Behavioral treatment helps people to lose their body weight and maintain at a normal pace. In this way, people make alterations in their eating habits and exercise schedules. Behavioral therapy can be planned weekly for about the duration of 4 to 6 months [30]. These programs mostly focused on strategies to maintain weight and also do this in a continuation of this period. A study reported that a major role in this behavioral therapy was the spouse's role because they observed the complete, partial, or incomplete involvement of the spouse during their study duration and it also altered the behavior and the implication of treatment guidelines into action [31]. Furthermore, weight reduction was seen in those people whose spouses gave their complete or partial support to the research participants about 4.67 kg and 4.94 kg, and in comparison, those whose spouses did not take part in their partner's life or did not support the research participants of their study showed about 3.22 kg were observed in three years of follow up [32]. Behavioral treatment also includes a self-education program and, the establishment of intellectual, and rational-emotive therapy the part of this. All these steps help people gain their thinking and learning skills, improve behavior, and also provide emotional support [33].

Whereas, a study reported that weight should be maintained within the first year after behavioral therapy treatment and regular follow-ups with specialized doctors are necessary which may be through emails, or telephonic conversations to be in touch with the experts for accurate evaluation [34]. The implication of behavioral therapy in daily practice can lead to the maintenance of weight for about one year followed by the variation of duration and frequency of multiple treatment strategies to enhance the coordination with their specialist [35].

Pharmacological Management Strategies

This is the type of treatment that is advised when physical activity, diet, and exercise are not effective for weight loss. Since the 1940's a drug named amphetamines used for weight reduction [36]. There are various options used to treat obesity which can be caused by any side effect of long-term diseases. On the other hand, people with obesity are not interested in taking any medications which is used for weight reduction and they are interested in taking natural treatments for weight reduction [37]. Those medications are used for reducing the weight of a person and are highly recommended for the long-term management of weight, but they give the best effect when combined with the diet and activities of a person and also maintain their body mass index of about 30 kg and greater and equal to 27 kg with or without comorbidities [38]. The effect of these medicines is not only to reduce weight but also to maintain the weight in a constant position. A medicine used all around the world which was named Orlistat is easily available everywhere. It works like an inhibitor of pancreatic lipase which provides the barrier in the absorption of 30 percent of ingestion of fat while they are eating around the 30 percent of fat in a diet. Generally, the drug Orlistat is considered the safest drug that is prescribed by physicians for young adults [39]. The recommendations and side effects of few more pharmacological drugs used for the treatment of obesity are discussed in table 1.

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Table 1: Description of Pharmacological Drugs

Drugs	Recommendations	Side Effects	References
Topiramate	It improves glycemic control in obese and diabetic patients.	Fetal deformity (pregnancy), loss of sleep, vertigo, inability to feel sensations, dryness in the mouth, myopia, and glaucoma.	[40]
Liraglutide	Those who have a previous history or any family history of cancer of the medullary thyroid and any other history of neoplasia of the endocrine system.	Stomach pain, nausea, diarrhea, headache, constipation, and sweating.	[41]
Bupropion	It has good effects on neurological issues because it enhances work efficiency and also decreases the urge for food intake.	Irregular heartbeat, ringing in ears, anxiety, dizziness, and blurred vision.	[42]

Surgical Management Strategies

Surgery can be done by using the camera which is called laparoscopic surgery which produces less risk as compared to others [43]. Nowadays, there are many procedures invented for surgery that result in weight reduction but every process has its own good or bad effects and it is very necessary for every patient to know about the harmful or beneficial effects of their surgery [44]. The National Institute of Health Consensus Conference on Gastrointestinal Surgery for severe obesity provided many guidelines for the management of obesity through surgical interventions. Most of the physicians, surgeons, and healthcare providers followed these guidelines. The panel of experts can work on this that surgery is highly recommended for those who are not responding the conservative management for weight reduction than they are going for surgical operations for reducing their weight and the panel is also responsible for the benefits and safety issues [45]. Through weight reduction, patients can be safe from any type of cardiac disease or subside the risks for cardiac issues are highly reported in mortality is about 24 percent. In this way, life is going in a very positive manner, and also improved their sleeping habits [46]. At around 50 years old, there are 2 primary strategies used by surgeons for weight reduction: Gastric restriction, and intestinal malabsorption. Sometimes both procedures can be performed by a surgeon at the same time [47]. In a restrictive process, in the early stage, the patient feels sufficient eating due to performing the procedure of small size of the gastric pouch and long-term satiety caused by creating a small outlet to that part. This procedure includes a variety of gastroplasty and banding of gastric. The outlet process is performed by prosthetic material which can prevent the process of dilation [48]. These procedures can create restrictions to engulf more food. In the banding system, the adjustable band is used LAP-Band, MID-Band, Swedish Band, Heliogast Band, and others are included which gives good adjustment of the outlet diameter [49]. In restrictive procedures, the main benefit was that it had no prominent staples, conjugation process, or any alternative placement of any part of the tract of the intestine [50]. In the outlet procedures, when they are doing narrower of the outlet diameter it can cause vomiting issues of the person and also causes gastric reflux [51]. This issue is not common in the banding process. Sometimes, the prosthetic material that surrounds the outlet may cause disturbances in the lumen which needs correction through surgery. The other procedure most commonly used by the surgeon was malabsorptive in which the biliopancreatic diversion with or without switching of duodenal, and distal gastric bypass [52]. Malabsorption depends on the length of the pathway where multiple enzymes of digestion can take place. In this procedure, many side effects were included like it creates a higher risk of malnutrition, and decreasing the levels of vitamins, which requires daily basis consultation by a consultant to manage the risks of this procedure. Mostly complaints of diarrhea are common and it may vary according to the intake of fat amount [53].

1. Laparoscopic Process

The laparoscopic surgery includes a small cut drawn by the surgeon around the navel. Through this small hole, a surgeon can pump the air into the abdomen and can easily watch the inside structures of the patient's abdomen. A flexible thin tube with a camera inserts the tummy which creates videos and images of the inside structures of the abdomen which can be displayed on the surgeon's monitor screen and they can perform the procedure without any open abdominal surgery [54]. These procedures include Vertical Banded Gastroplasty (VBG), fixable band, and Roux-en-Y gastric bypass (RYGBP) combined at the same time in previous studies. The hybrid procedures of using hands-on techniques with laparoscopic procedures give the same benefits. Both the surgeries either it is laproscopic or bariatric surgery need perfect training skills for better results [55]. The obese persom whose BMI (body mass index) is more than 60kg/m2 are reffered to laprosopic surgery. The laprosopic surgery is done through an instrunment called as telescope which is used to visualize the stomach from inside through the number of small incisions into the stomach. There is a risk of laprotomy from the laproscopic surgery in some cases but the rate of laparotomy can be reduced by the multiple experience of the surgical procedures [56]. There is another type of laproscopic surgery named: laproscopic

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sleeve gastrectomy to reduce the weight of an obese person. Through this surgical intervention the reduction of the size of the stomach is about 15 percent [57]. In this type of surgery, patients can stay in a hospital for a shorter period, the intensity of pain is low after surgery, the recovery rate of the patient is very high, the patient can easily perform their task without any harmful effects, and the quantity of blood loss is a very low amount as compared to the other open abdominal surgery. In open abdominal surgery, obese patients cannot maintain their body mass, bleeding, hypertension, and other health issues [58].

2. Bariatric Surgery

In North America, the American Society for Bariatric Surgery highly recommended this procedure for surgery. There are 2 major procedures used which include bariatric surgery RYGBP more frequently around 70 percent in comparison to restrictive procedures, and around 16 percent used the restrictive procedures which include VBG, Banding, and ring gastroplasty. Around 12 percent used the procedures of malabsorption [59]. The major indication of bariatric surgery is being obese and lying at grade 3 of BMI and the patient is unable to maintain or reduce weight through other treatment strategies [60]. According to the NICE (Nice Institute for Health and Care Excellence), the patient is referred for bariatric procedure if their BMI >40 kg/m2 without disease while 35 kg/m2 with disease and severe illness like cardiac disease, hypertension, diabetes, and sleep apnea, etc. These diseases can be controlled by this procedure [61]. Non-surgical management strategies are recommended before the surgery advised by the practitioners while patients with BMI >50kg/m2 are advised in the initial stage of the management of obesity [62]. Any delays in the treatment of obese patients with higher BMI can lead to the occurrence of severe health issues related to obesity moreover, patients who have mental health issues should not be recommended for bariatric surgery because the risk of surgery is more as compared to the benefit of surgery [63]. Bariatric surgery has proved to be very effective with the use of lifestyle modification for long-term maintenance of weight [64]. A comparative study done in Sweden reported patients who were treated with bariatric surgery had greater weight loss while gastric banding and sleeve gastrectomy showed fewer effects. Bariatric surgery is very effective but some side effects may be related to anesthesia and post-operative complications. The mortality rate of bariatric surgery is 0.03% which is similar to cholecystectomy [65]. Moreover, complications of bariatric surgery are higher in patients with higher BMI >70 kg/m2. In addition, supplements after bariatric surgery are needed for life long due to the dietary deficiencies associated with the surgery [66].

CONCLUSIONS

Globally, the rate of obesity is increasing day by day and become an epidemic health issue in most countries. Obesity is proven to be the root cause of every comorbid like diabetes, hypertension, ischemic heart disease, respiratory disease, cancers, and gastric disease, etc. In the early period of weight gain the physical status and nutritional status of an individual make the progressive path towards the development of comorbid diseases. So, to control the progression of obesity and diseases the use of exercises and physical activity is important instead of medications, and surgical interventions.

Authors Contribution

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All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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