

Seminar: Obesity prevention (report) A8

Objectives:-

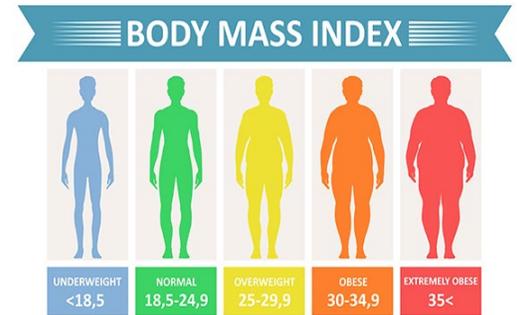
1. describe the burden of disease of obesity, causation factors, in Saudi Arabia.
2. Present global strategy on diet, physical activity and health.
3. Identify the programs for prevention and control for those problems in Saudi Arabia.
4. Demonstrate counselling skills for dietary advice, and obesity reduction using scenarios.

Introduction:-

- According to WHO; “Overweight” and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health.
- Obesity can be assessed and determined by calculator the “body mass index” (BMI) using the formula:-

$$\text{weight (kg)} / [\text{height (m)}]^2$$

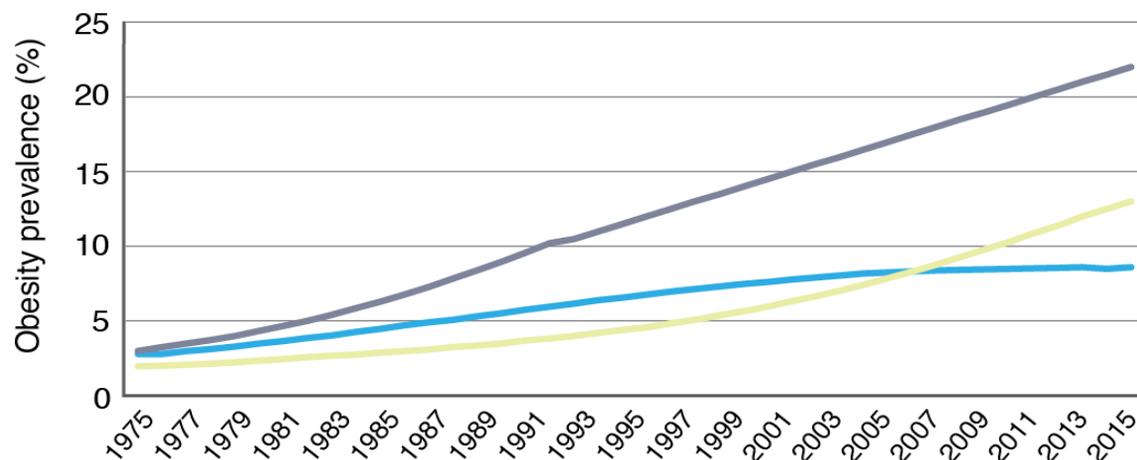
- The value of the BMI can sub classify obesity into different grades.
- A body mass index (BMI) over 25 kg/m² is considered overweight, and over 30 kg/m² is obese.



The burden of disease of obesity, causation factors, in Saudi Arabia:-

- **Prevalence of obesity worldwide:-**

According to the WHO, the prevalence of obesity in adults 18y/o and older has nearly tripled between 1975 to 2016. Children between 5 to 18 are in dire danger, their number has risen 6x between 1975 to 2016.



Obesity was thought to be a problem of the high-income countries, but the number of people suffering from this pandemic are increasing in middle- and low-income countries. One study in 2018 estimated that 1/3 of the world are classified as obese or overweight which brought the attention of governments to it more than before. Many studies have found that obesity is related to where people live. They found that urban areas (cities,etc...) in which life is more sedentary, less active, westernized and the abundance of unhealthy food compared to rural areas have a higher prevalence of obese people. One study made an extremely concerning estimation that overweight and obesity will affect - without adjusting for secular trends - 2.16 billion and 1.12 billion adults respectively by 2030.

● **Burden of obesity worldwide:-**

A study in 2011 found that medical expenditure of obese people was 30% higher than normal weight people. This is a direct cost of obesity. Indirect costs are the costs of complications of obesity (diabetes, hypertension,etc...) which increases the burden even more. Burdens are not only about financial costs. A study in 2016 found that the annual expenditure of obese people was 42% higher than normal weight people, as well as obesity influenced school attendance, level of education, earning ability, and social interactions. overweight or obese were more often the victims of rumors/ lies, name-calling, teasing, physical abuse, and isolation. Consequences that were caused specifically by obesity are extremely costly. Medical bill costs related to illnesses related to obesity have reached \$150 billion in treatment, medications, surgeries and many others. Data from the Bogalusa Heart Study showed that around 60% of 5-10y/o children had one risk of CVS diseases, and more than 20% had two or more risk factors.

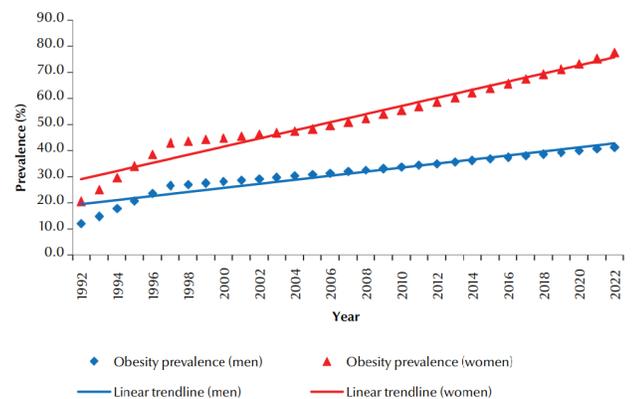
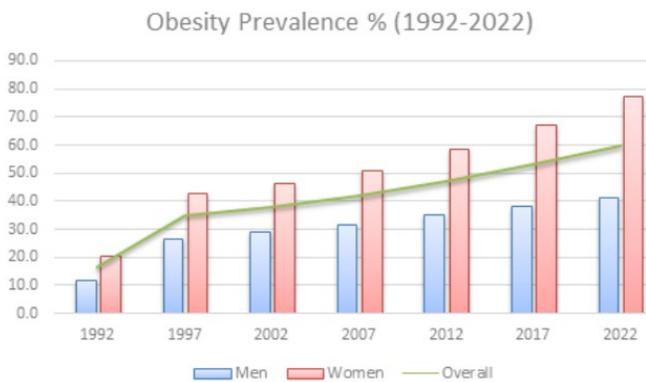
TABLE 1. Obesity and the risk of digestive disorders

	Magnitude of increased risk with obesity (compared with normal or low BMI)	Comments
Esophagus		
GERD symptoms	50%	
Erosive esophagitis	50%-100%	
Barrett's esophagus	2-fold	Abdominal obesity
Esophageal adenocarcinoma	2-fold	
Gallbladder		
Stones	2- to 3-fold	More in women
Cancer	35%-85%	More in women
Pancreas		
Cancer	35%-85%	Abdominal obesity
Worse acute pancreatitis	20%-50%	
Colon		
Adenoma (especially advanced)	50%-100%	
Cancer	2-fold	Colon (not rectum), more in men, more with abdominal obesity, postmenopausal women
Liver		
Nonalcoholic fatty liver disease	2- to 4-fold	Abdominal obesity
Advanced HCV-related disease	50%	
Cirrhosis	30%-50%	
Hepatocellular carcinoma	17%-89%	

BMI, Body mass index; HCV, hepatitis C virus. Modified from American College of Gastroenterology. Obesity and Digestive Disorders A Physician Reference, 2008. Available at: http://www.acg.gi.org/obesity/pdfs/ACG_Obesity_Physician_Reference.pdf. Accessed November 9, 2008.

- **Prevalence of obesity in Saudi Arabia:-**

Saudi Arabia was determined by WHO to be one of the gulf countries with a higher prevalence of obesity. According to the General Authority of Statistics, 30% of the population younger than 19 years are obese and according to the WHO in 2018, it was found that nearly 35% of adults are obese. A cross-sectional study conducted in 2015 showed that obesity rate in 6 to 16 year old children has doubled over a 10-year period. This could be due to the spread of technology, video games and fast food restaurants. A study determined that obesity increased to reach the maximum by the 5th decade and overweight by the 6th decade. Other studied factors such as living in urban areas, high income and illiteracy were also associated. The same study found that obesity is significantly higher in females than males. A study estimated a 41% and 78% increase in obesity for men and women respectively by 2022.



- **Burden of obesity in Saudi Arabia:-**

In a study, 23.7% of subjects were diagnosed with DM. Another one found that 5.5% had CAD, and another found 26.1% had hypertension. A study concluded that obesity's major consequences are Diabetes, cardiovascular diseases, cancer and ischemic heart diseases. Each of those have their own burdens, costly problems, disabilities and even death. In a study, 47.9% and 39.2% of obese men and women respectively are prehypertensive. Whereas 32.2% and 22.1% are hypertensive. A study found obesity and diabetes to be prevalent in 39.3% of women and 20.7% of men in the study. Another study found a link between obesity and infertility, 80% of females in an infertility clinic were obese.

● **Factors associated with obesity:-**

Obesity is generally caused by eating too much and moving too little, if a person's calorie intake is higher than their calorie usage, that excess energy is deposited as fat, leading to weight gain which could eventually lead to obesity if not opposed.

Factors associated with obesity in Saudi Arabia are many, but the most notable of them will be discussed below.

1. Eating too much:-

Eating too much is an issue in most of the modern world, fast food and social gatherings are the biggest contributors to this problem. People are not usually familiar with calorie counting which often leads them to eating more than their daily needs, leading to weight gain.

2. Sedentary lifestyle:-

Sedentary lifestyle includes the following:

- Decreased physical activity.
- Watching too much TV.
- Playing video games for long durations.
- Office jobs or jobs that do not include enough movement.

All of these factors play a role in the development of obesity.

Under current conditions caused by the COVID-19 pandemic, quarantine is expected to lead to weight gain in some parts of the population, especially due to working from home and closed gyms.

3. Increased income:-

Studies have shown an alarming association among the Saudi populus between increased income and obesity. Saudis with higher income are more prone to developing obesity than those of moderate or lower income.

4. Decreased education:-

Decreased education is associated with weight gain and obesity.

Illiterates and people with lower education status often don't know or fully comprehend the dangers of obesity.

5. Genetics:-

While some disorders could lead to weight gain and obesity in some individuals, these disorders are extremely rare.

However, having obese parents may make the process of losing weight more difficult, but not impossible.

Global strategy on diet, physical activity and health(DPAS):-

- What is the global strategy and what does it address?

After recognizing the burden of obesity, and noncommunicable diseases in general, the WHO decided to establish an international strategy to limit the burden. Two main risk factors are known for noncommunicable diseases which are diet and physical exercise. The strategy targeted those two risk factors specifically. This strategy complemented other work that was carried out by WHO such as undernutrition and micronutrient deficiencies.

The global strategy has the overall goal of promoting and protecting health by guiding the development of an enabling environment at all levels including individual, national, and global levels to inevitably lead to reduced disease/death that stem from improper diet and/or physical activity

This strategy has 4 objectives that compliment this goal:

- I. Reduce the risk of noncommunicable diseases that stem from unhealthy diet and physical inactivity by health **preventive** and **promotive** actions
- II. Increase the overall **awareness** of the influence of diet and physical activity on health
- III. Encourage the development and implementation of **policies** and **national plans** across all levels to improve diet and physical activity
- IV. Monitor and support **research** and **scientific** data and key influences on the many relevant areas that affect diet and physical activity

First, regarding diet, there are certain recommendations for the population. These recommendations need to be considered when preparing national policies and dietary guidelines, taking into account the local situation. They include the following:-

- Achieve energy balance and healthy weight.
- Limit fat intake.
- Increase fruits and vegetables.
- Limit the intake of free sugars .
- Limit salt (sodium) consumption.

Second, regarding physical activity, there is a universal recommendation that is, individuals engage in adequate levels of physical activity and exercise throughout their lives.

There are different types and different amounts of exercise that are tailored to aid patients in achieving certain outcomes such as:

- 30 min regular/moderate intensity activity on most days to decrease the risk of CVS diseases, diabetes, colonic and breast cancers
- Muscle strengthening and balance training to reduce fall among older adults
- A higher amount of activity for weight loss and maintenance

In order to establish those strategies and recommendations, there had to be specific principles to act according to.

The principles of action:

- Based on scientific evidence:
 - The strategies need to be based on the best available scientific evidence. This is important in order to address all noncommunicable diseases together.
- A life course perspective is essential:
 - The strategies have an approach that starts with maternal health, prenatal nutrition, pregnancy outcomes, breastfeeding, as well as child and adolescent health.

- It's a public health effort:
 - Those strategies should include the whole community and require public health efforts. Many parties, especially governments, need to address those issues. Furthermore, the strategies related to diet should include all aspects of nutrition such as undernutrition and micronutrient deficiency, as well as food safety.
- Priority to poor populations.
- Male vs Female:
 - The prevalence of noncommunicable diseases may vary according to gender. National strategies and action plans must be sensitive to such differences.

For the strategy to achieve its goals it's paramount that international partners agree and are involved intraoperatively especially with issues of transnational, as in can't be solved by a single nation, nature. These partners include:

- International bodies (ILO, UNESCO, WTO, etc...)
- Intergovernmental bodies
- Non Governmental organization
- Research institutions
- Private sector

These partners are important in disseminating information, transnational cooperation, resource utilization, advocacy, and development of international standards.

The programs for prevention and control of obesity in Saudi Arabia:-

- **What is obesity control program?**
 - A comprehensive, systemic multi-sectoral program comprising of multiple interventions involves and includes a broad behavioral change component is required to produce positive impact in managing obesity among the population.
 - Physical activity and nutritional behavior are a vital part of any obesity control program. This necessitates the development of multi-setting programs (e.g. schools and work-places).
 - Prevention efforts should also invest in, and target all age groups and individuals with parental and/or family involvement.

- **Primary prevention of Obesity in Children, Adolescents, adults:-**
Guidelines for healthy eating:

1. Birth to 5 years:-

- Recommend exclusive breastfeeding from birth up to the age of six months (ICSI, High Quality Evidence)
- Gradually introduce solid food starting at the age of six months.
- Carefully introduce – one at a time- foods which may cause allergies such as milk, eggs, wheat, seeds, nuts, sh and shellfish.
- Provide three meals and two between-meal snacks for children one year old.
- Introduce gradually, low fat dairy products, for normally growing above two years old children.

2. Children above 5 years and Adults:-

Recommend food in accordance with healthy eating guidelines from the age of five years onwards unless there is specific clinical dietary requirement. Adjust portion sizes to age, gender, weight and activity level:

- Encourage the child to eat to appetite.
- Encourage children to eat regular meals including breakfast (ICSI, strong recommendation, high quality evidence)
- Discourage availing easy access to foods not recommended for the child
- Encourage intake of low salt foods and limit the intake of energy-dense foods and fast foods.

Guidelines for Physical activity:-

1. Children:-

- Encourage children gradually to perform at least 60 minutes of moderate to vigorous exercise daily – continuous or accumulated in short bouts.
- Encourage children to lead active daily life such as walking, cycling, skipping and using the stairs and support them to practice regular physical activity appropriate to their age and ability such as football and swimming.
- Discourage sedentary behavior of more than two hours for children particularly of screen time, like watching TV, computer use and playing video games.
- Encourage family approach to physical exercise (e.g. walking and cycling to school and shops, going to the park or for swimming)

2. Adults:-

- Provide physical activity advice appropriate to specific individual situations. The focus should be on activities that can fit easily into their everyday lives and are tailored to their individual preferences and circumstances. Attention should be given to pregnant women, those at risk of postnatal weight retention, women reaching the age of menopause, or while quitting smoking.
- Inform the individuals about the benefits of physical activity on reducing the risk of Cardiovascular Disease (CVD) and type 2 diabetes, even without evident weight reduction.
- Encourage adults to do at least 30 minutes of moderate-intensity physical activity on 5 or more days a week. This should be built up over time; start by walking 10 minutes a day on a few days during the first couple of weeks then add more time and days gradually.
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- **Saudi Arabian Society For Metabolic And Bariatric Surgery:-**

Definition of Bariatric Surgery: Bariatric surgery is a gastrointestinal surgery performed to help obese patients achieve significant, sustained weight loss, with improvement/resolution of related comorbidities

Purpose: These guidelines intended to assure provision of the highest levels of safety and quality of bariatric services in licensed health facilities of Saudi Arabia. These guidelines are a resource for establishing Bariatric Surgery Unit policy and procedures. Bariatric services are authorized by the Ministry of Health (MOH).

Objective: To bring the services of bariatric and metabolic surgeries in KSA to the highest attainable level.

"Patient safety along with achieving the best outcome is the most important goal of medical services."

Counseling skills for dietary advice and obesity reduction:-

- **Scenario :**

A 50-year-old woman with obesity and a 9 year history of type 2 diabetes presents to you with complaints of fatigue, difficulty losing weight, and no motivation. On the physical exam, her height is 155 cm and her weight is 90 kg. Her blood pressure is 160/88 mmHg. The remainder of the physical exam is unremarkable. What are your plans for her?

- **Approach to scenario:-**

First of all we assess the comorbidities of the patient and the possible causes of obesity in this case. She has type 2 diabetes mellitus which is most probably caused by her obesity because it is highly associated with it, she also suffers from an extremely high blood pressure which can also be caused by her obesity and also under the context of her diabetes. She complained of fatigue which is extremely common with people with her condition. Lastly we need to assess her eating patterns, physical activity and life habits so we can determine what exactly caused her obesity, we also need to assess her psychologically to see her willingness to change into a healthier lifestyle.

If the patient isn't showing willingness to change we have to give her some lifestyle to advices to encourage a change such as; elaborating on the comorbidities of obesity, tell her how controlling her will greatly help her control her type 2 diabetes and also tell her how her decreasing her weight will positively influence her physical capabilities and decrease her fatigability.

If the patient is showing willingness to change we start by devising a plan. We start by calculating her BMI which will equal 37.5 kg/m^2 , according to the saudi guidelines on the prevention and management of obesity; the target for an adult patient with a BMI of $> 35 \text{ kg/m}^2$ is to reduce 15-20% of body weight. This will be achieved by lifestyle modifications:-

- Diet: It is advisable to reduce energy intake by 500 kcal/d which is 3500 kcal/week and achieving this is done by reducing intake of junk food and energy dense foods in general.
- Physical activity: An amount of approximately 1,800-2500 kcal/week of physical activity is recommended to be achieved through 5 sessions of 45-60 min/week, or lesser amounts of strenuous physical activity.
- Psychological and behavioral intervention.

- **‘5 As Model’ for Behaviour Change:-**

One of the best approaches to assess behaviour change for the duration of the course of obesity care is the 5 As Model for obesity management. This model modifies the established 5 As framework that has been used by primary care physicians to strengthen lifestyle changes based on behaviour change theories.

- The 5 steps of the 5 **A**s model are: Ask, Assess, Advice, Agree and Assist :-

As we need to give details on each one:

- The first **A** is to **ask** permission to discuss weight; be nonjudgmental; explore readiness for change.
- To add to that second **A** is to **assess** BMI, waist circumference, obesity stage; explore drivers and complications of excess weight.
- Furthermore the third **A** is to **advise** on health risks of obesity, benefits of modest weight loss, the need for a long-term strategy, and treatment options.
- Moreover the fourth **A** is to **agree** on realistic weight loss expectations and targets, behavioural changes using the SMART framework and specific details of the treatment options
- In addition to that the fifth **A** is to **assist** in identifying and addressing barriers; provide resources and assist in identifying and consulting with appropriate providers; arrange regular follow-up.

- **The progress towards achieving the desired goal :-**

We check if there is progress towards achieving this goal, we tell the patient to maintain this weight and prevent gaining weight by:

1. Nutrition therapy
2. Physical activity
3. Cognitive-behaviour therapy

- **If there is no progress towards achieving this goal :-**

First thing to do is to re evaluate the patient by replanning the lifestyle modifications, after that we can refer the patient to specialised services either by Pharmacotherapy or Bariatric surgery:

1. **Pharmacotherapy:** considered on an individual case bases, following assessment of risk and benefit as adjunct to life style in patients with;
 - a. BMI \geq 28 kg/m² (with co-morbidities)
 - b. BMI \geq 30 kg/m²
2. **Bariatric surgery:** considered when there is evidence of completion of a structured weight management program, not resulting in significant and sustained improvement in the comorbidities such as:
 - a. BMI \geq 40 kg/m².
 - b. BMI \geq 35 kg/m² and presence of one or more severe comorbidities.
 - c. Adults with a BMI > 30 kg/m² with poorly controlled type 2 diabetes and high risk of cardiovascular diseases

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