

S2470C

Behaviour Change

Lesson 06

Obesity & Nutrition

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Outline

- Definition of **obesity**.
- **Negative** consequences of obesity / being overweight.
- **Prevalence & populations** of obesity.
- What **causes** obesity?
- Factors critical to **successful** dietary change.
- Understanding your **eating habits**.
- Target underlying emotional **needs/problems**.
- Target behavioural **symptoms**.

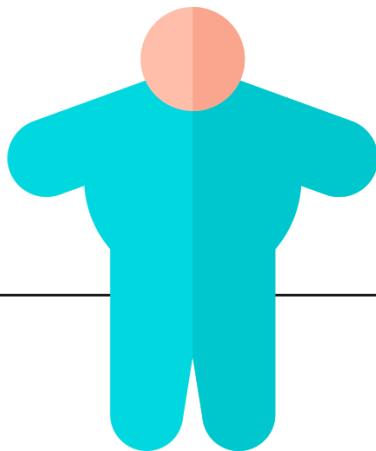




Definitions

Overweight

- An **excess amount** of body weight compared to set standards. Such weight may come from muscle, bone, fat &/or body water.



Obese

- An **excessive** accumulation of body fat.
- A condition in which the body weight is $\geq 20\%$ **more** than the ideal body weight for that person's height.
- Men with $> 25\%$ **body fat** & women with $> 30\%$ **body fat** are considered obese.

Normal weight

- Adult healthy BMI range from **18.5 to 22.9**.
- For children, use BMI-for-age charts.





(WHO) Body Mass Index (BMI) Guidelines

CALCULATE YOUR
BMI =
$$\frac{\text{WEIGHT} \text{ (kg)}}{\text{HEIGHT} \times \text{HEIGHT} \text{ (Metre)}}$$

- For example, an adult who weighs 70kg & whose height is 1.75m.

Thus BMI = $70 \text{ kg} / (1.75 \text{ m}^2)$
= $70 / 3.06$
= 22.9

Addition cut-off points are added as points for public health action.

Refer to the next slide for use of BMI

Classification	Principal cut-off points	BMI(kg/m^2)	Additional cut-off points
Underweight	<18.50		<18.50
Severe thinness	<16.00		<16.00
Moderate thinness	16.00 - 16.99		16.00 - 16.99
Mild thinness	17.00 - 18.49		17.00 - 18.49
Normal range	18.50 - 24.99		18.50 - 22.99 23.00 - 24.99
Overweight	≥ 25.00		≥ 25.00
Pre-obese	25.00 - 29.99		25.00 - 27.49 27.50 - 29.99
Obese	≥ 30.00		≥ 30.00
Obese class I	30.00 - 34.99		30.00 - 32.49 32.50 - 34.99
Obese class II	35.00 - 39.99		35.00 - 37.49 37.50 - 39.99
Obese class III	≥ 40.00		≥ 40.00

Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.

https://apps.who.int/bmi/index.jsp?introPage=intro_3.html



Example from HPB on the use of BMI

Cardiovascular disease risk*	Asian BMI Classification	Current WHO BMI cut-off points	Key Message
Underweight	<18.5	<18.5	AT RISK of nutritional deficiency and osteoporosis. You are encouraged to eat a balanced meal and to seek medical advice if necessary.
Low	18.5 to 22.9	18.5 to 24.9	Achieve a healthy weight by balancing your caloric input (diet) and output (physical activity).
Moderate	23.0 to 27.4	25.0 to 29.9	Aim to lose 5% to 10% of your body weight over 6 to 12 months by increasing physical activity and reducing caloric intake
High	27.5 to 32.4	30.0 to 34.9	Aim to lose 5% to 10% of your body weight over 6 to 12 months by increasing physical activity and reducing caloric intake. Go for regular health screening to keep co-morbid conditions* in check.
Very high	32.5 and above	35 and above	Aim to lose 5% to 10% of your body weight over 6 to 12 months by increasing physical activity and reducing caloric intake. Go for regular health screening to keep co-morbid conditions* in check.

*Cardiovascular risks of metabolic syndrome, including Type 2 Diabetes, Hypertension and Hyperlipidemia.

Making sense of BMI, to suggest public health action



Health Concerns of Obesity / Overweight

Obstructive Sleep Apnoea (OSA)

Occurrence of recurrent episodes of upper airway obstruction/collapse during sleep.

Gallbladder Disease

Knee Osteoarthritis

Cardiovascular Disease

Coronary heart disease, stroke, congestive heart failure, arrhythmias ('sudden cardiac death') and cardiomyopathy



Psychosocial problems

Depression, low self-esteem & poor body image consequence of prejudice & discrimination due to weight Stigmatisation.

Fatty Liver Diseases

Type 2 Diabetes

Obesity-related Cancers

colorectal, oesophageal adenocarcinoma, kidney & pancreatic cancer



Overweight & Obesity In Singaporean Adults

Overweight (BMI $\geq 25 \text{ kg/m}^2$)

2013

Obesity (BMI $\geq 30 \text{ kg/m}^2$)

34.3%

Singapore Adults

40.2%

Males

28.6%

Females



Abstracted from HPB-MOH Clinical Practice Guidelines 1/2016 https://www.hpb.gov.sg/docs/default-source/pdf/obesity-cpg_main_for-online-30-aug.pdf?sfvrsn=2288eb72_0

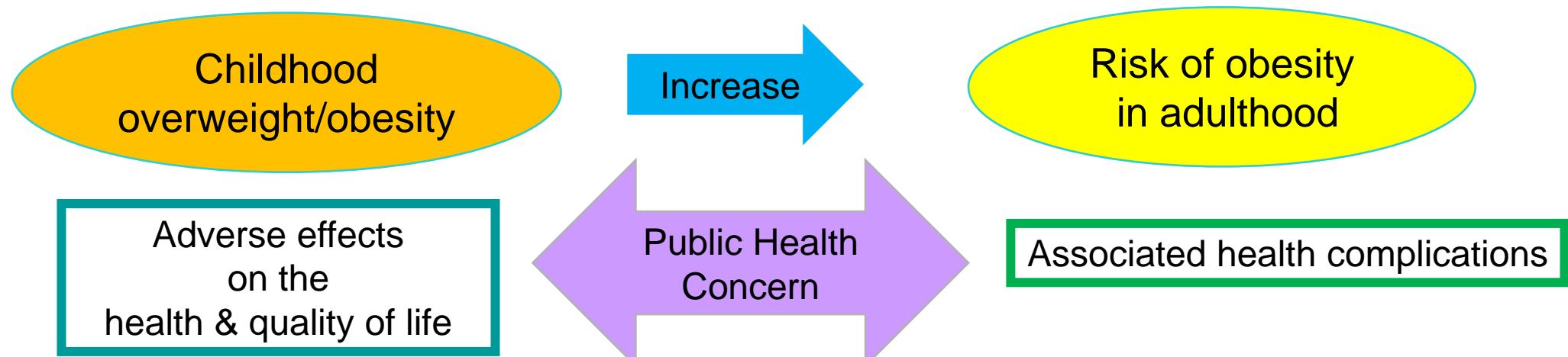


Childhood Overweight/Obesity in Singapore

Prevalence of overweight/severely overweight among students in primary & secondary schools in Singapore, 2010

School level	Prevalence of overweight/ severely overweight (%)		
	Male	Female	Total
Primary school	13.2	10.6	12.0
Secondary school	11.1	9.8	10.5

Abstracted from HPB-MOH Clinical Practice Guidelines 1/2016 https://www.hpb.gov.sg/docs/default-source/pdf/obesity-cpg_main_for-online-30-aug.pdf?sfvrsn=2288eb72_0





Global Overweight & Obesity

2016

1.9 billion adults
(18 years old & above)
were overweight

41 million children
(under the age of 5)
were overweight or
obese

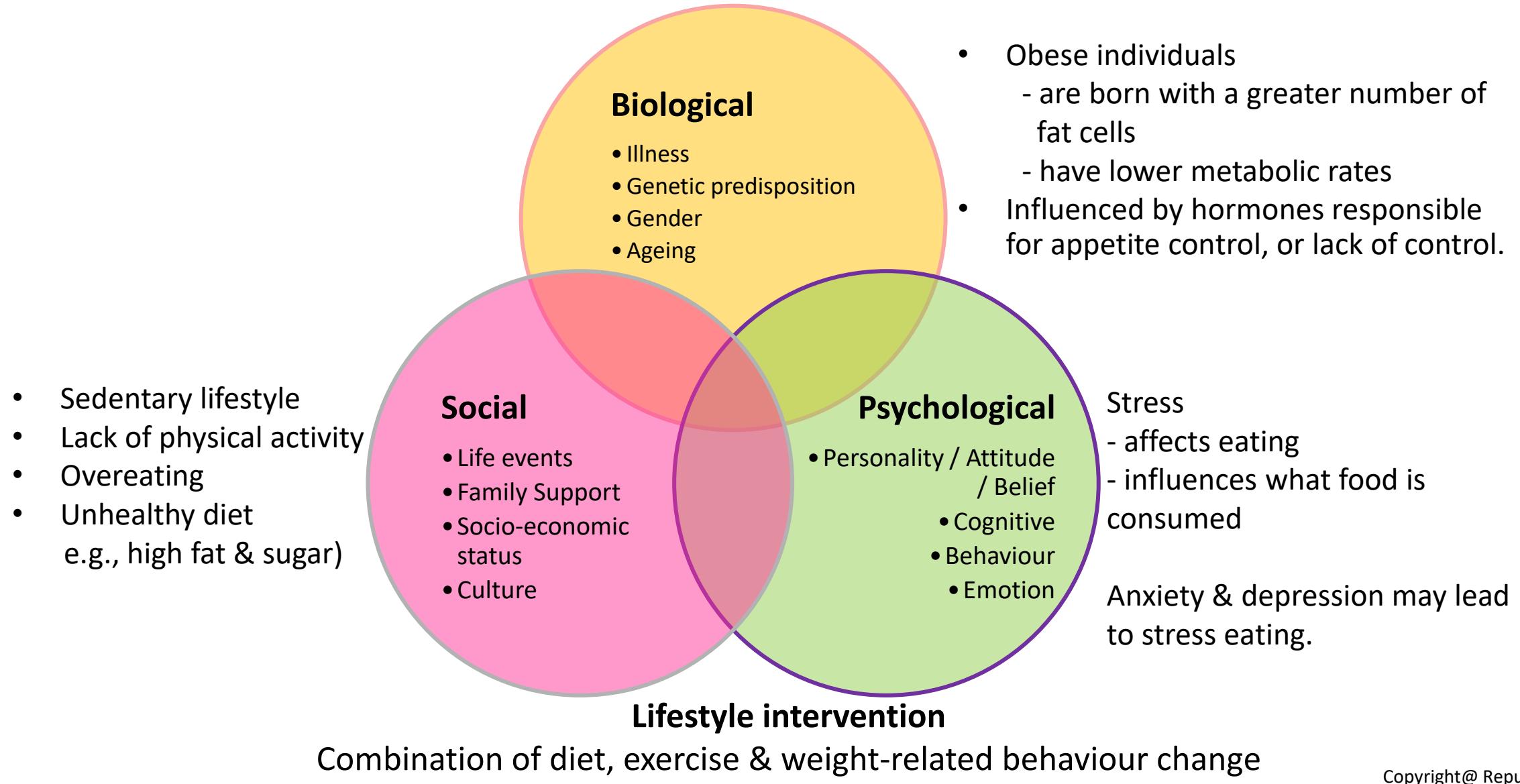
Of these, 650
million were obese

Over 340 million children &
adolescents (aged 5-19)
were overweight or obese

Worldwide Prevalence Of
Obesity **Nearly Tripled**
Between 1975 & 2016



Biopsychosocial Framework in Relation to Obesity



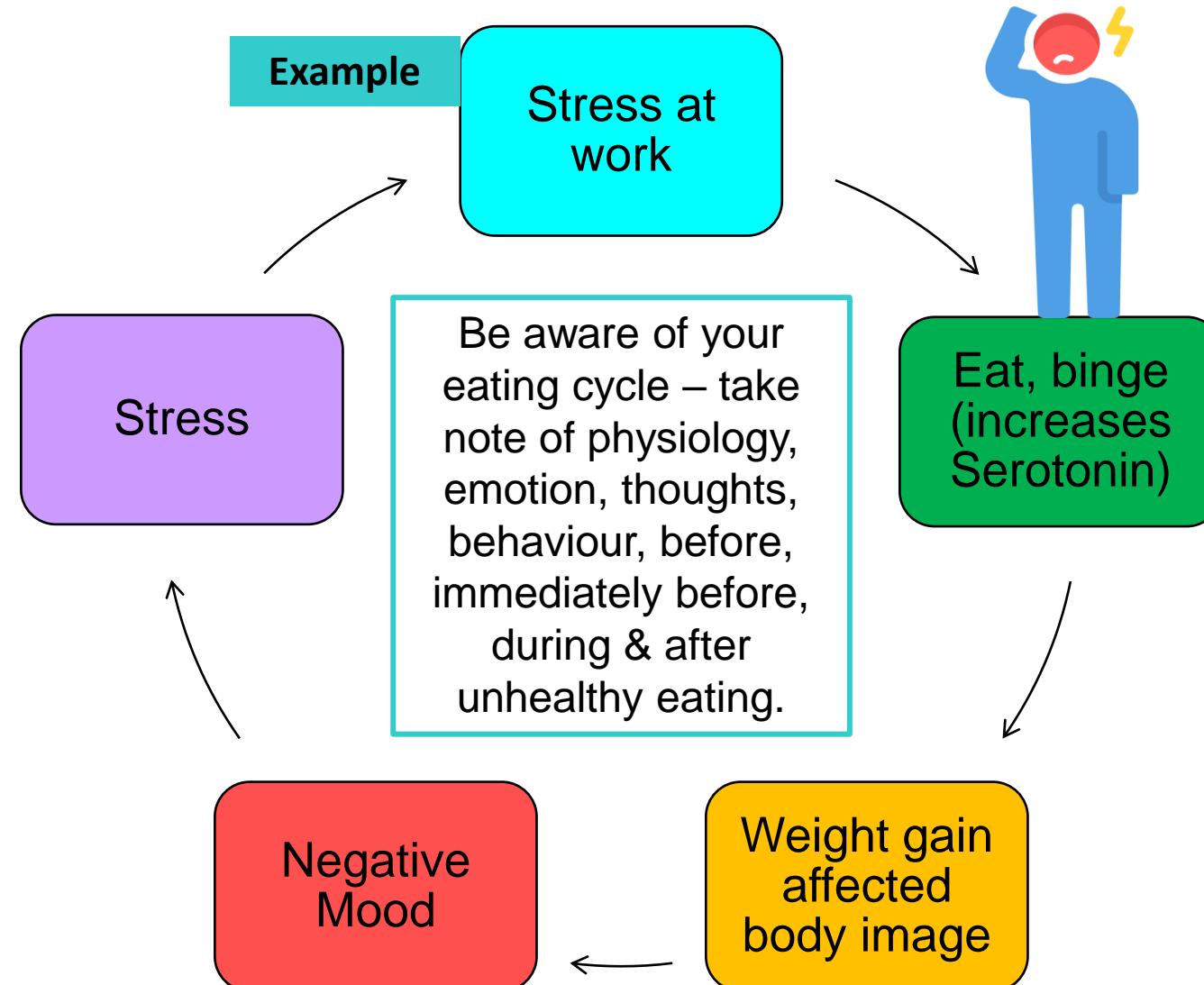
Factors Critical To Successful Dietary Change

- Self Management: Strong sense of self-efficacy (I can achieve what I want to achieve)
- Set & fine-tune goals
- Set out a time frame
- Assess the plan
- Motivate with reward (Reinforcement)
- Assess, revise, assess again, revise again
- Family/ Social support
- Perception that dietary change has important health benefits





Understand Your Eating Habits





Target Underlying Emotional Needs / Problems

Obese people eat in response to emotions more than normal-weight people.
Emotional eating out of boredom, stress, unhappiness, need for power/ control, etc.



- The next time you feel like binge eating, or find yourself obsessively counting calories
- Do not avoid the feelings. Ask “ What are my feelings trying to tell me?”

Accepting feelings

- does not mean you have to eat or not eat.
- mean you can start to explore problem-solving. strategies & alternatives to deal with the real problem.



Target Behavioural Symptoms





Target Behavioural Symptoms



Difficulties in Maintaining Change



Preference for food is hard to alter:
Preferences for fast/fried food (high-fat food)

Low sense of self efficacy, low level of health consciousness, low interest in exploring new food, low awareness of the link between eating habits and illnesses

Some dietary changes alter mood & personality

Easy arousal of food cues (importance of avoiding obesogenic environments)



Possible Weight-Loss Interventions



Limited use of pharmaceutical interventions in conjunction with strategies to change lifestyle

Bariatric surgery (reduce size of the stomach) for selected morbidly obese patients

Multi-modal Approach

Coping Strategies & Relapse Prevention



- **Self-monitoring**
 - Keep Records; What, When, How much, Where, especially important during high-risk times e.g., holidays
- Modify **external stimuli**
- Control **over-eating**
 - Count each mouthful, chew, shallow, longer delays & eat only food on the plate.
 - Enjoy the food, use it as a reward.
- Add **exercise**
 - Engage in interesting & convenient exercise
- Controlling **maladaptive self-talk**
- **Thought-stopping**
- **Distraction**



Multi-modal Approach



Coping Strategies & Relapse Prevention

- **Activity Planning.**
- **Using delay tactics.**
- Avoiding '**All-or-nothing**' thinking.
- Structure the **environment**.
- **Relaxation.**
- Structured **problem solving** – brainstorm & generate solutions, evaluate, choose optimal solutions, plan & review.
- **Assertiveness training** – if binge eating is caused by an inability to take control of difficult situations by calmly expressing thoughts, feelings & intentions, instead of turning to eating behaviours to express anger & other emotions.





Relapse Prevention

**Rehearsal of
high-risk situation**

**Development of
coping strategies**

**Understands what may
stop you from achieving
goals**
**Find strategies to cope
with it**

**Family/ Social Support
(Supportive messages
from behavioural therapist
over social media
platforms are useful)**





What have you learnt today

- Definition of **obesity**.
- **Negative** consequences of obesity and its related consequences.
- Identify & explain factors encouraging **unhealthy eating/ barriers to healthy eating**
- Apply behavioural change interventions to **improve diet**.
- Apply behavioural change interventions to **increase physical activity**.





References

- Taylor, S.E. (2009). *Health Psychology*, (7th ed.). Los Angeles: McGraw Hill
- Waumsley, J., Mutrie, N., Marchant, D., Newson, L., Flint, B., Kewin, E., Boyle, S., Roberts, K., Flint, S., Cullen, K., & Bukroyd, J. (2011). *Obesity in the UK: A psychological perspective*. Leicester: British Psychological Society.