Short Communication: Obesity Myths and Facts

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1. Obesity is a choice, not a disease: Myth.

Obesity is a chronic, relapsing, multifactorial, and neurobehavioral disease. An increase in body fat endorses abnormal fat mass physical forces and dysfunction, resulting in unfavorable metabolic, biomechanical, and psychosocial health consequences.^{1,2}

Examples of adverse metabolic consequences: Hypertension, diabetes mellitus type 2, hyperlipidemia.¹

Examples of adverse biomechanical consequences: Obstructive sleep apnea, osteoarthritis, back pain, cancer, deep vein thrombosis, carpal tunnel syndrome.¹

Examples of adverse psychosocial health consequences: Depression, anxiety, panic attack, bullying.¹

Obesity is diagnosed based on the Body Mass Index (BMI).^{2,3}

- Normal Weight – 18.5-24.9
- Overweight – 25.0-29.9
- Class I Obesity – 30.0-34.9
- Class II Obesity – 35.0-39.9
- Class III Obesity – > 40
- Childhood Obesity – > 95th percentile

But the BMI levels are different according to each region.^{2,3}

- China: Overweight > 23-24; Obesity > 27-29
- Japan: Overweight > 24; Obesity > 29
- India: Overweight > 23; Obesity > 27
- Singapore: Overweight > 22; Obesity > 27
- Ethnic South and Central Americans – Similar to South Asian

Waist circumference is a better predictor for metabolic syndrome than BMI, but this correlation is not accurate anymore if BMI is ≥ 35 .⁴

Abdominal obesity men

- ≥ 40 inches or ≥ 102 cm
- S. Asians, Chinese, Japanese ≥ 35.4 inches or ≥ 90 cm
- Europeans ≥ 37 inches or ≥ 94 cm

Abdominal obesity woman

- ≥ 35 inches or ≥ 88 cm
- S. Asians, Chinese, Japanese ≥ 31.5 inches or ≥ 80 cm
- Europeans ≥ 31.5 inches or ≥ 80 cm

2. Obesity can be attributed to genetics: Fact.

In 2007 a genome-wide association study (GWAS) identified the fat mass and obesity-associated gene (FTO), an established obesity-susceptibility locus located at chromosome 16q12.2. Specific alleles of the FTO gene may be associated with adiposity. The FTO gene may be responsible for controlling feeding behavior and energy expenditure.^{5,6}

An individual that carries one copy of the FTO allele can weigh 1.2 kilograms more than an individual without any copies. Individuals that have two copies can weigh 3 kilograms more than individuals with no copies.⁷

3. Being overweight is never healthy: Fact.

For BMI ≥ 25 , each 5 kg/m² increased in BMI is associated with 30% higher mortality. It is also related to an increased risk of cancer, diabetes mellitus type 2, hypertension, and thrombosis. To every 1 kilogram in weight gain, the risk of developing diabetes type 2 may increase by 9%.^{8,9}

An alternative way to categorize obesity and diseases caused by obesity is between fat mass and sick fat.

Fat mass disease is characterized by an increase in body fat that results in abnormal and pathologic physical forces. Along with biomechanical and structural factors, fat mass disease may contribute to many health complications.^{8,9} Clinical manifestations of fat mass disease include: Congestive heart failure, asthma, gastroesophageal reflux disease, hernias, myalgias, obstructive sleep apnea.

Sick fat or adiposopathy is described as unbalanced adipocyte and immune responses secondary to adipocyte hypertrophy, especially when abdominal obesity is present.^{8,9}

Metabolic manifestations of adiposopathy include: Cancer, hypertension, metabolic syndrome, hepatosteatosis, gout, diabetes mellitus type 2.^{8,9}

Overweight (BMI 25-29.9) at age 40 live around three years less than those with a normal BMI (BMI 18.5-24.9).

At BMI 30-35, median survival is reduced by 2-4 years.

At BMI 40-45, median survival is reduced by 8-10 years. This effect is comparable with the consequences of smoking.

Those with both obesity and smoking lived 13-14 years less than normal-weight nonsmokers.¹⁰

Individuals reported to be metabolically healthy but obese have a higher heart disease rate, sleep apnea, damage to joints, and increased risk of developing metabolic disease.⁸

4. Obesity is not associated with sleep: Myth.

“Sleep is the ‘most sedentary activity’ yet may be the only sedentary one that protects from weight gain”.¹¹

World Health Organization (WHO) and Center for Disease Control and Prevention (CDC) recommend 7-8 hours of sleep a night.⁸

Adults sleeping ≤ 5 hours were 55% more likely to have obesity than those sleeping > 5 hours. A reduction of 1 hour of sleep is associated with a 0.35kg/m² increase in BMI.^{8,11}

With every extra hour of sleep, the incidence of obesity may decrease by 30%. If sleep < 6 h, increase the probability of obesity by 6%. Sleeping from 8.5 hours to 5.5 hours will burn 400 fewer calories.^{8,11}

Children who don't sleep well and sleep less than 10 hours per night are at 89% greater risk than their peers to have obesity.⁸

Below is a list of benefits if an individual sleeps 6-8 hours per night:^{8,11}

- Better mood
- Better ability to focus
- Decrease in daytime sleepiness
- More willingness to exercise
- Decrease in caffeine intake
- Fewer cravings for sweet/salty foods in the evening
- Lower risk of major cardiovascular events and deaths

Morning individual types have lower BMI than evening individual types. Late sleepers consumed 248 more kcal per day, with the majority of excess calories occurring at dinner and after 8 pm.⁸

5. There is no relationship between breastfeeding as an infant and obesity: Myth.

Rates of obesity are significantly lower in breastfed infants. There would be a decrease of about 15-30% in obesity rates for teenagers and adults if any breastfeeding happened in infancy compared with no breastfeeding.¹²

Each month of breastfeeding is associated with a 4% reduction in the risk of obesity. Breastfed infants are more likely to self-regulate intake volume, which affects adult weight gain. Infants given breast milk in bottles do not learn to self-regulate as well as infants breastfed.¹²

American Academy of Pediatrics recommendations:

- Exclusive breastfeeding for about 6 months.¹²
- After six months, it is recommended to continue breastfeeding as complementary foods are introduced.¹²
- Continuation of breastfeeding for one year or longer as mutually desired by the infant and the mother.¹²

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