Body Image perception and weight status

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Obesity is defined as abnormal or excessive fat accumulation that present a risk to health.
Carrying extra fat leads to serious health consequences such as:

- cardiovascular disease,
- type 2 diabetes,
- musculoskeletal disorders like osteoarthritis,
- some types of cancer
Obesity has been described as a multi-factorial trait determined by

- GENETIC

and

- NON GENETIC FACTORS (lifestyle choices, lack of physical activity...).
Concept of ‘susceptibility genes’:

a particular genotype does not necessarily determine the development of obesity but increases risk of the disease given a particular environment.

Such gene–environment interactions are very complex and, as yet, are poorly understood.
Overweight and obesity evaluation during **GROWTH** is fundamental: many overweight children grow up to become obese adults.
This is expected to add significantly to the prevalence of chronic diseases associated with adult obesity.

**Risk factors** for cardiovascular disease (hyperinsulininaemia, impaired glucose tolerance, dyslipidaemia and hypertension) **tend to cluster in childhood** and are strongly associated with obesity and its duration.
What is the prevalence of obesity worldwide?

What about the change?
The prevalence of obesity is increasing worldwide at an alarming rate.

At least 1.1 billion adults worldwide are thought to be overweight, and at least 312 million of them are thought to be obese.
Between 1980 and 2008, age-standardised mean global BMI increased in men and women. Substantial differences were noted across regions and sexes.
Globally, age-standardised mean BMI in 2008 was:

23.8 kg/m² for men and 24.1 kg/m² for women.

Men had higher BMI than did women in high-income subregions, and lower BMI in most low-income and middle-income regions.
Figure 2: Trends in age-standardised mean BMI by subregion between 1980 and 2008 for men (A) and women (B)

Webappendix pp 74-76 shows trends by region and webappendix pp 84-118 trends by country. The solid line represents the posterior mean and the shaded area the 95% uncertainty interval.

BMI=body-mass index.
Worldwide, age-standardised prevalence of obesity was 9.8% in men, which was nearly twice the 1980 prevalences of 4.8%

The prevalence of obesity in 2008 was highest in North American men, with an age-standardised prevalence of 29.2%

Obesity prevalence was lowest in south Asia (1.4%) followed by central and east Africa.
In high-income countries **MALE BMI** rose most in:

USA (1.1 kg/m$^2$ per decade),
UK (1.0 kg/m$^2$ per decade)
Australia (0.9 kg/m$^2$ per decade),

and least in:
Brunei, Switzerland, Italy, and France, with increases ranging 0.3–0.4 kg/m$^2$ per decade
Figure 2: Trends in age-standardised mean BMI by subregion between 1980 and 2008 for men (A) and women (B).

Webappendix pp 24-76 shows trends by region and webappendix pp 84-118 trends by country. The solid line represents the posterior mean and the shaded area the 95% uncertainty interval. BMI = body-mass index.
Worldwide, age-standardised prevalence of obesity was 13.8% in women in 2008 which was nearly twice the 1980 prevalences of 7.9%.

The prevalence of obesity in 2008 was highest in southern African women at 36.4%. It was also greater than 30% in North America and three low-income and middle-income subregions.

It was lowest in south Asia (2.9%), followed by high income Asia-Pacific and central and east Africa.
The largest rise in females BMI occurred in:

Oceania (1.8 kg/m² per decade),
Southern and central Latin America (1.3-1.4 kg/m² per decade)
Australasia and North America (1.2 kg/m² per decade)
Are there ethnic differences in body composition and obesity-related risk factors among populations?
Ethnicity and age were significant terms in the prediction models relating BMI and %F.

### Table 13.3  Predicted Percentage Body Fat by Sex and Ethnicity

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Note. BMI = body mass index. Calculated from the following equation: Percent body fat = 63.7 – 864 × (1/BMI) – 1.21 – 12.1 × Sex + 0.12 × Age + 129 × Asian × (1/BMI) − 0.091 × Asian × Age − 0.030 × African American × Age, centering on the ages of 30, 50, and 70 years.

For example, type 2 diabetes and hypertension occur at a lower BMI and younger age for Asians than for Europeans.

Some **obesity comorbidities are similar or more prevalent in Asian** countries than in Western countries, though Asians have lower rates of overweight and obesity than their Western counterparts.

Differences between Chinese and white males living in China (Wang et al., 2011)

- Prevalence of diabetes:
  - Chinese adults = 5.3%
  - US adults = 7.8%
- Overweight:
  - Chinese adults = 20%
  - US adults = 65%
The high BF% at low BMI can be partly explained by differences in body build, i.e. differences in trunk-to-leg-length ratio and differences in slenderness.

- **A** = same %F but because shorter legs, higher BMI than **B**
- **C** = his frame is bigger, same BMI but less %BF than **D**
What about immigrants?
A special problem among immigrants is the high prevalence rate of overweight or obesity, especially among women, children and adolescents.
Immigrant groups that are extremely vulnerable to becoming overweight or obese are:

• **Hispanic immigrants in the United States** (Kaplan et al. 2004; Park et al. 2009),

• **Immigrants originating from Mediterranean countries or Middle East in Central and Northern Europe** (Brussard et al. 2001; Hoppichler and Lechleitner 2001; Uitewaal et al. 2004; Fredriks et al. 2005; Kirchengast and Schober 2006; Misra and Ganda 2007; Dijkshoorn et al. 2008; Wolin et al. 2009).
In US, national rates of obesity increased from 1999-2007 from about

27% to 31% among non-Hispanic White adults and

29% to 36% among Mexican-American adults

(Flegal, Carroll, and Ogden 2010)
Some authors claim that immigrant obesity is the result of:

- an unhealthy assimilation and
- the low socio-economic position of immigrants

(Van Hook and Balisteri 2007; Faskunger et al. 2009; Park et al. 2009).

Furthermore, a strong association between obesity and the length of residence in the host country was reported
(Kaplan et al. 2004).
Socio-economic factors

Turkish migrant women living in Vienna - Kilf and Kiechengast, 2011

There is an inverse association between obesity and socioeconomic factors.

Fig. 1. Prevalence of overweight and obesity according to socio-economic status (SES)
Low socio-economic position and a low educational level are important risk factors to become overweight or obese.
Level of German knowledge, an indicator of integration, was not related with weight status.
association between length of residence and obesity
Over time immigrants assimilate certain attitudes and behaviours of the host country’s population related to diet, physical activity and other lesser known determinants that favour the occurrence of obesity.

Food characterised by high energy density, such as sweet or fat, is much cheaper than vegetables or fresh fruit.

Physical activity is reduced among women of low socio-economic position.
Children and adolescents are likely to be particularly susceptible to the obesogenic environment of their new host country because they tend to participate in the local culture and become socially integrated more quickly than their parents.
Positive association

USA

• in specific populations such as **Hispanics, Latina women** and **immigrants of Asian origin**

• in the **general immigrant** population.

Similar studies have shown the same effect in immigrants in Canada.
Overweight and obesity are more frequent in successive generations of immigrants than in the first generation that came to the US.

Prevalence of overweight among Hispanic and Asian-American adolescents:

• first generation (i.e. born outside the USA) (12%),

• second generation (born in the USA with at least one foreign-born parent) (27%),

• third generation (born in the USA of native-born parents) (28%)

urgency of effective prevention for immigrant subgroups
European countries incongruous results

Sweden:

- Lindström and Sundquist, 2005 - weak effect of length of residence in immigrants, which was seen only in immigrants from certain countries.

- Lahmann et al., 2000 - a negative effect of length of residence in Sweden on immigrants from different parts of Europe on central obesity, whereas a positive effect on percentage of body fat was observed only in women.
Vienna:

Turkish migrant women - Kilf and Kiechengast, 2011

Duration of stay was not related with weight status.
Amsterdam:

Dijkshoorn et al., 2008 in a study among immigrants of Turkish and Moroccan origin showed a positive effect of length of residence on obesity in Moroccan immigrants but not in those from Turkey.
Anthropometric data and blood pressure in males (study with repeated measurements)

The increases of weight disorders (obesity and overweight) over the 10-year period is noteworthy.

Madrid:

Gutiérrez-Fisac et al., 2009 reported a lower frequency of obesity in immigrants residing in the city of Madrid in comparison to the Spanish population.

The length of residence of immigrants in the city of Madrid is **not associated** with the frequency of obesity.

**Fig. 1** Prevalence of obesity in the Spanish population and the immigrant population by length of residence in Spain; sample comprised 7155 persons aged 18 years and over residing in the city of Madrid, who were surveyed between November 2004 and May 2005.
The different results of studies in North America and European countries suggest that the effect of length of residence on obesity may be subject to intercultural variability and that immigrant acculturation varies by geographic and cultural setting.

In Southern Europe countries

The immigration phenomenon is much more recent

Economic, social and physical environment could have a different effect on the frequency of obesity
Influence of body image
Body image disturbances frequently and strongly associated with the development and maintenance of eating disorders. Indeed, body image disturbances are a key element in this pathology.
The increased incidence of eating disorders has been attributed to the preoccupation in Western society with an unrealistic, increasingly thin ideal feminine image.
The study of body image disturbances has become a central subject in the eating disorders literature.
Obese differ rather consistently from the non-obese in body image and self-esteem and obese develop a tendency to distort their own body size and shape.

weight status was the single strongest predictor of body dissatisfaction
The phenomenon of body dissatisfaction was at first thought of as a ‘golden girl problem’, implying that these types of feelings were restricted to White females in the Western world.

Today, we can be certain that body dissatisfaction is much more widespread than that
In Western societies, males and females are exposed to different messages about their bodies. Males’ body dissatisfaction tends to be based upon their negative evaluations of their bodies’ muscle or bulk, whereas females display more dissatisfaction towards their bodies’ appearance or weight.
Silhouettes are often used for body image evaluation

Questions:

• Which body shape looks most like your own?
• Which body shape do you want to look like?
McElhone et al., 1999
9 male and 9 female silhouette drawing ranging from very thin to very obese (Stunkard et al., 1983) – Classification of weight status according to Patt et al., 2002
Differences between females and males in body perception and satisfaction

Females show more variation in their choice of a representative silhouette about their own size than men.
A number of individual men and women were clearly unrealistic in the silhouette choices they made, given their actual size.

but

while men in all weight groups considered their desired figure size to be realistically attainable, obese women did not seem to think so.
The somatomorphic matrix is a bidimensional computerized body image test that can assess body image satisfaction and perceptual accuracy with respect to musculature and body fat.

By having the figures organized along the axes of musculature and body fat, dissatisfaction with respect to each facet of appearance can be determined.
Misperception of weight

Another approach to measure body image is to examine the concordance between actual body weight and perceived ideal weight together with BMI.
Overweight and obese individuals have lower concordance, or greater misperception, between their self-report and BMI-based weight status than normal weight individuals.
Adverse health consequences of obesity vary according to **ethnic origin** and because of **cultural factors**.

The level of body dissatisfaction that we experience is highly influenced by the cultural environment in which we live.
Beauty and thinness ideals are a culture-specific phenomenon.

Unfortunately, Western standards of beauty are slowly influencing many areas of the world.

Although many Eastern ethnic groups report less body dissatisfaction than Western ethnic groups
a trend in body dissatisfaction and increased eating pathology has been associated with a growing Western influence
The result is that as a Western influence flows throughout the world, ethnic and cultural groups appear more similar than dissimilar in eating pathology.
• Body dissatisfaction is more pronounced in affluent countries where people have a more Western lifestyle.
Caucasian girls are often more vulnerable to the psychosocial effects of obesity compared with girls from other ethnic groups.

Females in affluent Western countries (Sweden, Germany, Spain, France and Italy) are very dissatisfied with their bodies, whereas females in less affluent and non-Western countries (Tunisia, Ghana and India) are not.
US people are more dissatisfied than Iranian.

US American females show higher level of body dissatisfaction than their Israeli counterparts.

Australian females show more dissatisfaction with their body than the Pakistani females.
• People in affluent and very westernized parts of Asia are more dissatisfied with their bodies than people in the United States

Females in Korea, Japan and Hong Kong have shown more dissatisfaction than their counterparts in US
US Americans are more dissatisfied with their bodies than Europeans and Australians.

US americans appear to be more dissatisfied than both their German and Spanish counterparts.

Australians are more dissatisfied than both their Italian and Estonian counterparts.
Difference between non-Hispanic Whites and Mexican-Americans.

Hispanic women have more body satisfaction despite having heavier weights than White women

(Crago, Shisslak, and Estes 1996; Fitzgibbon, Blackman, and Avellone 2000).
Mexican-origin men and women report higher desired weights than Whites (Winkleby, Gardner, and Taylor 1996).
Comparison among Mexicans adults in the U.S. and U.S.-born non-Hispanic Whites

Foreign-born and U.S.-born Mexicans are less likely to classify themselves as overweight than non-Hispanic Whites. Mexican-born adults who had lived in the U.S. less than 10 years were particularly unlikely to do so.
Mexican adults may be less likely to recognize their weight as a health problem than their U.S. born non-Hispanic White counterparts.
White compared to black female adolescents are more likely to view themselves as overweight and engage in weight-loss behavior.

Among African American girls there was no difference in self-esteem among obese and non-obese.
In women, religious beliefs may also outweigh the preoccupation with body shape and the internalization of Western ideals about beauty.
Younger Muslim women living in US wearing non-Western clothing and a head veil were significantly less likely to express drive for thinness or pressure to attain a thin-ideal standard of beauty than women wearing Western dress or younger women wearing non-Western dress without a head veil.
Few studies have considered body image perception among non-Western migrants to European countries.

Similar to western population, most Turk and Moroccan women in the Netherlands wished to be thinner than they were, whereas this was less the case among men, the majority of whom were also unaware of being overweight (Nicolaou et al., 2008).
Body image concerns among males

There was no consistent pattern which summarized the nature of body image concerns across the different cultural groups.
Native Americans and Native Australians reported more body image concerns than Whites.

US males are more dissatisfied with their muscularity than Ukrainian and Ghanaian males.

**Native Americans'** higher levels of body dissatisfaction is in line with their higher BMI.

Findings were very discrepant with Asians.
**Black Americans** displayed a more positive body image than Whites.

**Blacks**, especially among preadolescents, and **Pacific Islanders** are the main cultural groups who report a preference for a larger body size than Whites.
Black Americans' more positive body image is congruent with the fact the Blacks are less likely to perceive themselves as overweight than Whites.

Similarly, the preference for a larger body size among Pacific Islanders is consistent with their higher BMIs and their traditional values which place a great importance on larger body sizes.
Overweight and obese black men are more likely to misperceive their weight status than men of other races.

The health burden due to obesity-related diseases is disproportionately high among black men.

Specifically, type II diabetes, hypertension, cardiovascular disease, and some cancers are more prevalent in black men than white men.
Perceived health

- Poor/fair
- Good/excellent

Misperception of healthy weight (lb)

BMI classification

Nonobese

Obese

*
In conclusion:
The general problems related to crosscultural weight status and body image research, by examining cultural differences are:

• participants’ with the same nationality may differ in their levels of body dissatisfaction depending on the cultural setting that they live in or depending on their religious affiliation
• one might, for instance, portray the location where they live in terms of modernization, standard of living and exposure to Western beauty ideals.

• one might also describe the participants’ religious affiliation and, perhaps, examine their level of acculturation to the Western lifestyle