Feast or Famine: The Psychology of Eating

Transcript

Date: Tuesday, 3 December 2013 - 6:00PM

Location: Museum of London
Feast of Famine: 
The Psychology of Eating 
Professor Glenn D Wilson

While many in Africa are starving, eating is becoming a major problem in Western countries because we have too much food. Around a third of children and 70% of adults in the US are overweight or obese and, apart from bariatric surgery, no form of treatment is consistently successful in producing sustained weight loss (Field et al, 2013a). Nearly 10% of girls in the UK suffer from some kind of eating disorder and the incidence is increasing (Micali et al, 2013). In England, hospital admissions for eating disorders rose 16% in 2012 compared with 2011, women making up 91% of patients (The Psychologist, 2012). Again, this is not because of food shortage but because of pathological dieting.

There is a popular belief that people are responsible for their own body shape. Overweight people are perceived as lazy and undisciplined. However, some negative stereotypes attach more readily to thin people. They are often said by some to be self-satisfied, mean and bitchy, perhaps due to their self-perception as virtuous and attractive (Glamour Magazine survey, 2012).

There may be some truth to these stereotypes. In a study of 1356 UK adults (Wilson, 1985) obesity was associated with lack of exercise, overall food intake and eating in response to emotional stress. The latter appeared to reflect difficulty in maintaining dietary restraint at times of anxiety, loneliness and frustration in people who are constitutionally heavy. Other eating habits, notably sweet food and alcohol consumption were not correlated with body weight or health issues. Perhaps people who are slim and healthy can permit themselves more luxuries.

Body weight is determined by complex interactions among genetic and environmental factors. Twin studies put the heritability of obesity in the range of 40-70%. This is polygenetic, involving at least 40 different gene locations. One particular obesity-risk gene of current research interest is called FTO. This is associated with a failure of satiation after eating (Karra et al, 2013). Epigenetics (gene expressions that leave DNA unaltered) are also likely to be influential (Herrera et al, 2011), making control over eating an uphill task.

Personality is a predictor of obesity. Neurotic and Extravert individuals are inclined to be heavier, while Conscientious and Agreeable people tend to be thinner. In a longitudinal study of 1988 adults in Baltimore, Impulsiveness was found to be the best predictor of weight gain (Sutin et al, 2011). Although people gradually get heavier as they get older, those in the top 10% of Impulsiveness were 24lbs heavier on average than those in the bottom 10%. Diet and exercise require constraint, which is apparently lacking in certain individuals.

Cloninger et al (2007) found similar traits in obese individuals. They were higher in Novelty-seeking (impulsive and easily bored) and lower in self-directedness (internally organised, able to set and pursue goals). Subjects low in Novelty-seeking were more successful in losing weight within a weight-management programme. Apparently, the same traits that make for weight gain (lack of self-control) also make for difficulty in getting that weight off again.

Comfort eating has been documented in relation to sports fans whose football team loses (Cornil & Chandon, 2013). The consumption of high-fat, high calorie food increased on the Monday in a city whose team had lost the previous day, whereas it decreased in the victors’ city. This effect was most marked in cities with the most committed fans, whose opponents were equally matched and when defeats were narrow. Similar effects were noted among French soccer fans. A self-affirmation procedure, whereby people ranked their core values and wrote about the reasons for their top-ranked item, showed promise in over-riding the harmful effects of a sports disappointment.

Those who shop in a supermarket when hungry do not buy any more food overall but they do choose more high calorie products than sated controls (5.72 items vs 3.95). This was interpreted by the researchers as reflecting “food insecurity” (Wansink & Tal, 2013). It is suggested that weight-watchers should have a snack before going to shopping or shop after a meal. It is also recommended to use a shopping list and to leave the children behind if possible.

People can be tricked into feeling more satiated. Those shown a large quantity of fruit that has supposedly gone into their smoothie felt fuller after it. When the quantity of soup consumed by subjects was covertly varied by refilling or subtracting from the bowl as they drank (using a submerged pump mechanism) their immediate self-reported hunger was based on the actual amount consumed. However, later reports (after 2-3 hours had elapsed) related more to the amount they believed they had eaten, based on memory of the size of the bowl (Brunstrom et al, 2012). It is therefore likely that foods promoted as “light” or “diet” could be counterproductive in that they might lead to greater consumption later.

TV viewing contributes to obesity in various ways. For a start, the viewer is sedentary for long periods. If they snack while viewing they lose track of how much they have had and over-consume at later mealtimes (Mittal, et
al, 2011). If the content of their viewing is food-related (e.g., cookery programmes or food ads) or depressing, their intake of any available high-calorie food is greater still (Laran, 2013).

Sleep deprivation also contributes to obesity. This is partly because there is more waking time in which to eat, and late-night snacks tend to be unhealthy (Spaeth, 2013). In addition, sleep loss can be stressful. Brain activity in the higher evaluation areas (frontal and insular cortex) is diminished by missed sleep, while activity in limbic, emotional regions (e.g., the amygdala) increases. Together these changes seem to promote desire for high calorie foods (Greer et al, 2013).

People tend to eat more in company than when alone, especially in a restaurant or party situation. This is due to several things: (1) eating is a shared activity that consolidates bonds, (2) meals tend to last longer with a group, hence more gets eaten, (3) the conversation has a distracting effect, so people are less conscious of their intake. Hetherington et al (2006) found that eating in front of TV increased calorie intake by 14%, whereas eating with friends increased it by 18%. When women eat with men they tend to eat daintily compared with eating in all-female company. Men seem less influenced by the company they are with (Young et al, 2009).

Some weight-watchers like to post fat images on the door of their refrigerator as a deterrent to eating. However, this may be counterproductive because people exposed to images of overweight people seem to eat more afterwards. Campbell & Mohr (2011) solicited help in a survey from people passing through a lobby. As part of the interview, they were shown a picture either of an overweight person or a normal weight individual. They were then invited to help themselves from a bowl of wrapped sweets as a “thank you” for participation. Those shown the overweight model took 2.2 sweets on average, against 1.4 for those shown the normal shaped woman. This priming effect, which was confirmed in several other studies, could result from anchoring (shifting the norm) or from reassurance (diminished body weight concerns).

Your best friend’s weight may influence your own. Using social network analysis, Christakis and Fowler (2010) discovered that obesity spreads like a virus among friends. Close friends were alike in body shape whereas neighbours were not. If A named B as a friend but this was not reciprocated, then B’s weight would influence A’s, but not vice versa.

This process can be reversed, with social influence being utilised for the good. Slimming groups are about twice as successful in motivating people to lose weight as individual programmes set up by doctors (Pinto et al, 2013). They are usually behavioural in orientation, focused on changing eating patterns and taking exercise and led by a trained counsellor who has successfully lost weight themselves. The social dimension apparently adds motivation as well as making them more affordable and enjoyable.

Most behavioural weight management programmes include some sort of self-monitoring. This could be weight, waistline, food or calorie intake. A paper diary may help or some web-based or phone application. It does not seem to matter too much what variable is monitored provided it is fairly regular, e.g., getting on the scales first thing every morning (Burke et al, 2011). This is because the effect is largely motivational, though it may help to detect patterns and serve as an early warning of weight changes.

A great many detailed strategies have been proposed for controlling food purchase and consumption. These include avoiding jumbo size and multi-buy offers, meal deals, snack foods and sweets. If tempting foods have been bought, they should be kept well-packaged, out of sight and reach, not in the office drawer or glove box of the car. Healthy options (e.g., fruit or nuts) should be available for emergency cravings. Water should be the preferred beverage, not sugar or fizzy drinks and only moderate amounts of alcohol should be consumed. Meal sizes should be determined in advance, eaten slowly and not while doing anything else. The frequent use of such strategies distinguishes normal weight people from the over-weight but not these two from the obese (Poelman et al, 2013).

Anorexia is under-eating to a degree that is dangerous, even life-threatening. Around 50-70% recover after a couple of years, but 5-10% die within every untreated decade (singer Karen Carpenter was among the famous victims). Anorexia most commonly afflicts teenage girls, who may be reacting to the arrival of womanhood signalled by growing breasts and hips which causes them to panic that they are getting fat. Some suggest they are in retreat from puberty, bent on avoiding the onset of menstruation and the impending demands of adulthood (Miles & Wright, 2011). They can be deceitful in avoiding food (e.g., hiding it in their napkin) and often smoke or take drugs in preference to eating.

Many anorexics may have distorted perceptions of their actual body shape. They may believe they are fat even while wasting away. Asked to adjust a mirror to give an accurate reflection they pick a reflection that shows them as fatter than they really are. They may turn sideways to go through a door which they would comfortably pass through front on. This overestimation of body size is specific to themselves, not others (Guardia, et al, 2012). Some are proud of their own self-control and think their stick-like figure is attractive.

Anorexia is a disease of affluent middle-class people for whom food is readily available and who are surrounded by obesity. They are inclined to be introvert perfectionists with obsessional-compulsive tendencies (Lilenfeld et al, 2006). It has been suggested that anorexia has common ground with autistic spectrum disorders and might be
considered a kind of “female Asperger’s”. However, some of these associations only apply during the active phase of anorexia and disappear with recovery, hence could be an effect of lack of nutrition in the brain rather than a pre-existing cause (Cassin & von Ranson, 2005). For example, it has been suggested that in later phases, anorexia is maintained by endorphin “highs” induced by starvation (Brindisi & Rigaud, 2011).

Brain studies of anorexics typically show high activity in emotion-related (limbic) areas in response to food and body stimuli (Zhu et al, 2012). An area in left occipital cortex which deals with the perception of body image (the extra-striate body area) seems to contain fewer neurons in anorexics compared with controls as well as reduced input from another area called the “fusiform body area” during the viewing of pictures of bodies (Suchan et al, 2013). This reduced connectivity in the network for body processing was associated with the degree of body image distortion. It might be a mechanism accounting for the development of anorexia or it could be a result of the disorder.

A biological basis to anorexia is supported by the finding that anorexics in Britain are more likely to have been born in the spring (Disanto et al, 2011). This relationship, which is also found with depression, may be due to vitamin D deficiency in the mother due to absence of sunlight during winter gestation (Allen et al, 2013).

Concern with musculature of build may be a form of “manorexia”. Field et al (2013b) found that 9.2% of young men had concerns about their muscularity, as against 2.5% who were concerned about thinness. This sometimes leads to the use of dangerous supplements like growth hormone and steroids. Body image dissatisfaction of all kinds is more common in homosexual than heterosexual men.

Bulimia is a disorder marked by intermittent binge eating following by purging or self-induced vomiting. It also reflects a fear of weight gain, and is typical of young women more than men, but it is usually associated with average weight rather than emaciation. Whereas anorexia connects with anxiety and compulsive personality traits, bulimia is associated with impaired self-regulation and impulsiveness (Marsh et al, 2009). It is comorbid with borderline personality disorder, substance abuse, self-mutilation, shoplifting and sexual disinhibition.

Treatment for eating disorders is notoriously difficult because co-operation is not always forthcoming (Kass et al, 2013). It is often necessary to focus on motivation to change before other cognitive behavioural forms of therapy can be attempted. Anorexics may initially need to be hospitalised and force-fed in order to save their lives. Co-occurring problems such as anxiety, depression, substance abuse or attention-deficit disorder may also need attention. Drugs (e.g., SSRIs) may be a useful adjunct, particularly when depression is a contributory factor and there is experimental work going on to assess the value of deep brain stimulation (a neurosurgical intervention that is likely to remain a last resort).

Many therapists favour involving the family in the treatment of eating disorders especially for younger girls (the Maudsley Model). Parents are taught how to supervise mealtimes at home until the patient is able to take responsibility for themselves (Le Grange, 2005). However, attitudes of the family are sometimes part of the problem, in which case this approach will not help.

The diet industry is thriving, with many books becoming best-sellers. Most fad diets put restrictions around what foods cannot be eaten and, if adhered to, this limits total calorie intake (Pagoto & Appelhans, 2013). Intermittent fasting achieves the same thing by restricting when one can eat. Most of these diets are unhealthy to some degree compared with balanced diets and compliance is poor because the body fights backs with starvation mode (increased appetite, stress hormones and reduced metabolism). When the diet is abandoned, weight is regained with a vengeance.

Women’s magazines include many images that are airbrushed and unrealistic. Catwalk models of the “heroin chic” or “waif” variety are encouraged to be dangerously thin. If Barbie was a real woman she would have a 16 inch waist and be infertile. Idealised body images in the media may contribute to body dysmorphic disorder and depression (Grabe et al, 2008). However, it appears that only women high on neuroticism are susceptible to these harmful effects (Roberts and Good, 2010) and exposure to thin-ideals sometimes prompts dieting and exercise, leading to increased body dissatisfaction (Knobloch-Westerwick & Crane, 2012). This ties in with the earlier-mentioned finding that exposure to overweight images promotes eating.

Incidentally, it is not long ago (the 1940s/50s) that concern surrounded the stigma of thinness. This post-war period was the heyday of voluptuous Hollywood stars like Jane Russell and Marilyn Monroe. Advertisements in newspapers and magazines were aimed at women seeking to gain weight so as to be attractive to men with the help of products like “Wate-On”. In those days we were also assured that the next ice-age was impending. How things change.

References


Miles, S.W. & Wright, J.J. (2011) Psychoendocrine interaction in anorexia nervosa and the retreat from puberty: A study of attitudes to adolescent conflict and luteinising hormone response to luteinising hormone releasing factor in refeed anorexia nervosa subjects.


Suchan, B. et al (2013) Reduced connectivity between the left fusiform body area and the extra-striate body area in anorexia nervosa is associated with body image distortion. Behavioural Brain Research, 241 (online).

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