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Psychosocial aspects of obesity: Individual and societal perspectives

By Lauren Lissner

Abstract

This review article describes psychosocial causes and consequences of obesity in societies and at the individual level, highlighting aspects of the problem that are frequently overlooked in nutritional and medical research. The socio-economic gradient in obesity in modern society is well-documented, while the origins of this gradient are difficult to explain. Specifically, it is currently not well understood which aspects of the less advantaged socio-economic environment cause obesity. There is, however, strong evidence that the condition of obesity creates a situation of downward social mobility, possibly resulting in a positive feedback cycle. Regarding obesity's psychological origins and consequences, similar conclusions have been drawn: psychological characteristics associated with the obese state are more likely to be consequences than causes, again as a result of the negative attitudes of society towards obesity. In this context, it is interesting to note that perceptions of ideal body shape have become leaner in recent decades (particularly in women), at the same time that the prevalence of obesity is increasing. The fact that dietary and physical characteristics of the modern macroenvironment are making it increasingly difficult to avoid becoming overweight, despite the high societal value placed on being underweight, represents an intriguing contradiction of modern times.

Introduction

In today's society, leanness is often equated with beauty, success, fitness, and self-control. Obesity, on the other hand, is considered as undesirable as leanness is desirable, for reasons that are often more related to cosmetic concerns than to actual or potential medical complications.

Because of social as well as medical pressures to be thin, obese patients turn to health professionals for support and advice about losing weight. However, they may encounter what has been termed a "dieting relationship trap" with negative undercurrents. This situation has been described by *Garrow* (1,2) as follows. "The patient is initially pleased to find a doctor or dietician who is willing and able to help with sensible dietary advice.. Both parties may underestimate the time it will take to achieve adequate weight loss, and the difficulty of sustaining dietary compliance over a period of many months... Inevitably the time comes when the patient returns having not lost weight... Obese patients usually suffer from low self-esteem... When they perceive that they have failed, they are precipitated into an agony of self-reproach... and virtually invite the health carer to discharge them... The correct response is to identify factors which precipitated the problem, to provide encouragement, not criticism. The wrong response is to fix the blame for failure on the patient... On the other hand..there is little to be gained from monthly meetings at which... the difficulty of dieting is agreed... but nothing is done to increase the chance of success next time."

It seems clear that the situation described here can, to some extent, be attributed to the current unavailability of effective non-surgical obesity treatments. In view of the lack of treatment options, such a scenario may be rather familiar for clinicians who deal with overweight patients regularly. Nevertheless, the opinion summarized above was selected for the purpose of this paper as an introduction to some of the topics that will be reviewed, including psychological consequences of obesity and dieting, and relationships between obese patients and the medical community and society as a whole. Specifically, this paper will describe studies chosen mostly from Scandinavia and the U.S. describing psychological and social aspects of obesity (sometimes considered together as "psychosocial" aspects), in societies and at the individual level. The broad aim is to examine more closely some of the scientific data dealing with these aspects of obesity, which are not universally appreciated by nutritionists working in settings that include limited contact with obese patients.

When considering the etiology of obesity, psychological and lifestyle-related factors have been judged by experts in the field to be of secondary importance to genetics (3). However, it must be underscored that the prevalence of obesity in modern society is increasing while the genetic background is relatively constant. Thus, it is a social and public health challenge to understand and control aspects of modern lifestyle that are causing genetically predisposed individuals to become obese at ever-increasing rates. It is also relevant when discussing social and psychological aspects of obesity to re-consider the common assumption that specific psychological and/or social risk factor profiles are causally related to the development of obesity. Finally, the reverse question must be posed: what is the evidence that psychological and socio-economic characteristics are direct consequences, rather than causes, of the obese state?

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Table 1. Predictive value of overweight in adolescence (1981) on subsequent social and economic characteristics (in 1988) among women and men. P-levels refer to differences between overweight and nonoverweight after controlling for socioeconomic characteristics at baseline. Adapted from *Gortmaker* et al. 1993 (5).

Variable	Women			Men		
	Over-weight	Non-over-weight	p-value adjusted*	Over-weight	Non-over-weight	p-value adjusted*
Married (%)	28	56	<0.001	40	48	0.005
Below poverty level (%)**	32	13	<0.001	17	10	0.07
Education (years)	12.1	13.1	0.009	12.4	13.1	0.08
Completed college (%)	9	21	0.21	10	23	0.05

* adjusted for socioeconomic characteristics of subject and parents at baseline.
** as defined by federal poverty guidelines

Socio-economic aspects

Within societies where food is scarce, obesity is more prevalent in the wealthier groups. However, in areas of relative affluence and/or westernized lifestyles, obesity is more prevalent in the lower socio-economic classes; this social gradient is particularly strong in the case of female obesity. Numerous cross-sectional studies have shown this association, as reviewed by *Sobal* and *Stunkard* (4), whose results may be summarized as follows: Of 20 studies from Europe covering the period 1949-1988 and providing data on women, 16 showed an inverse association between socio-economic status and overweight, and only four showed no association. Of the 33 studies in men, 21 showed an inverse association between socio-economic status and overweight, five showed no association, and seven a positive association.

Figure 1 illustrates this point using data from a population study of women in Göteborg, Sweden (5). In 1968 a sample of 38- and 50-year-old women was randomly selected from the population for physical examinations, and in 1992-93, new groups of 38- and 50-years old were examined. Analysis of weight-for-height in relation to education revealed that the more educated women were less likely to meet the WHO-definition for grades I-III overweight (BMI >25 kg/m^2). In 1968-69, the less educated women had about twice the risk of overweight as the more educated one-third, and this socio-economic gradient did not appear to have changed in character 24 years later.

In order to understand whether obesity causes low socio-economic status, it is useful to examine studies that have followed subjects over time. This establishes which condition occurred first, and provides some insight into causality. In one U.S. population study in which adolescents and young adults were initially classified as overweight or not, it was found 7 years later that the overweight group was less likely to have married, had completed fewer years of education, and was more likely to have an income that is below the official poverty line (6). This prospective finding was independent of initial socio-economic status, suggesting that obesity creates a situation of downward social mobility and confirming that this occurs to a greater extent in women than in men (Table 1).

The other side of this question is whether low socio-economic status causes obesity. A prospective study of a Swedish female population found no significant relationship between social class in childhood and obesity in adulthood (5). However, a longitudinal study of Danish children reported that poor quality of childhood dwellings and parental neglect were strong predictors of the development of obesity 10 years later, although more traditional measures of socio-economic status (i.e. education or occupation of parent) had no predictive value (7,8). Consistent with the parental inattentiveness idea, it has been reported that mothers of overweight children are less interactive with their children at mealtimes than mothers with normal-weight children (9), although it must be pointed out that other investigators have suggested the reverse (i.e. positive) associations between parental encouragement to eat and childrens' relative weights (10).

In summary, there is mixed evidence that low socio-economic status may be obesity-promoting, and mechanisms are unclear. Motivational factors, ability, and access to health information and facilities have been proposed as explanations for why the less advantaged socio-economic environment might produce more obese individuals. In contrast, potential social effects of obesity are more easily identified, the most obvious being related to the intense stigmatization experienced by the obese. Specific mechanisms for this may be seen in the areas of marital, employment, and educational opportunities, and more examples will be discussed below. If obesity has both social causes and effects, a self-perpetuating cycle may be created that reinforces the relationship between low socio-economic status and obesity.

Table 2. Responses of morbidly obese patients before major weight reduction surgery: Percentage responding with strong affirmative ("always" or "usually") to statements concerning psychosocial functioning. Following treatment, the affirmative response rate for these questions was negligible (0-2%). Adapted from *Rand* and *MacGregor* 1990 (16).

Statement	AbS %
1. I feel that I have been treated disrespectfully by the medical profession because of my weight.	78.2
2. I feel that people look at me and my shopping cart critically at the grocery store.	73.6
3. My spouse does not like to take me to social or work-related functions because of my weight.	48.9
4. My children have indicated that they would prefer that I not go to social functions	77.1
5. I feel that weight has been a factor in determining whether or not I have been considered for promotion in my job.	64.2
6. At work, I seem to be placed out of sight of the public.	64.3

AbS = Affirmative, before Surgery

Psychological aspects

When considering psychological aspects of obesity, it is currently believed that most psychological disturbances are more likely to be consequences rather than causes of obesity (11). It is clear that there are some well-defined psychiatric conditions that can be considered causal, e.g. binge-eating disorder (12). However, the traditional view that obesity is a psychopathology manifested as overeating has now been largely replaced with the idea that genetic predisposition is to a large extent driving the overconsumption (13). Thus, this section will consider evidence for psychological consequences of being obese. This will be presented from the viewpoint of the obese individual, including a description of perceived treatment by others, and as assessed by modern psychometric techniques.

One of the most compelling illustrations of the psychological implications of obesity (14), was based on interviews of morbidly obese subjects after they had lost weight by surgical means. Their results

were dramatic. Most patients reported that they would prefer to be normal weight with a major handicap (deaf, dyslexic, diabetic, legally blind) than to be obese again. In contrast, research on other handicaps has indicated a strong tendency for people to evaluate their own handicap as less disabling than other handicaps, e.g. blind individuals would often prefer to be blind, etc. Thus obesity, as perceived by obese individuals themselves, is an extremely serious handicap, although it is not generally recognized as such.

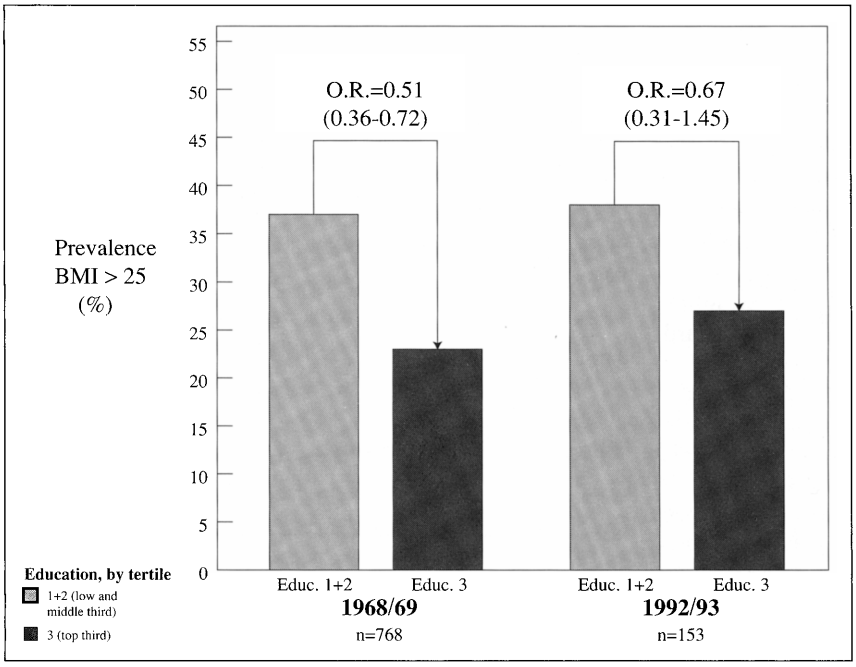
A second issue is how the obese individual is treated by others. Numerous examples of obesity-related discrimination have been summarized by *Wadden* and *Stunkard* (11), including prejudices among young children, among students describing their ideas of suitable spouses, among employers, landlords, university admissions boards, and even in physicians in the treatment of their patients. *Staffieri* (15) reported in a classic study on childhood stereotypes that young children described silhouettes of an overweight child with words such as lazy, dirty, stupid, cheats, and liars. The perception of obesity as a condition that one brings on oneself creates little sympathy towards the obese. Table 2 includes a few selected examples how 57 morbidly obese patients perceived their treatment by others (16). Follow-up of the same individuals following gastric bypass surgery suggested a dramatic change in these responses after an average of 50 kg loss. These results illustrate the reversibility of perceived impairments when obesity is treated, and thus provide further evidence that obesity was the causal factor.

Finally, researchers have used more traditional psychometric instruments for assessment of mental health and psychological functioning in obese individuals and compared them with healthy reference populations (17). In this way, it was observed that severely obese Swedish men and (particularly) women, scored markedly worse on a mental well-being measure and had more anxiety and depressive symptoms. Furthermore, the general mental state of obese subjects was poorer than that of patients with rheumatoid arthritis, intermittent claudication, cancer survivors with no recurrence and spinal cord-injured persons several years after injury. Anxiety and depressive symptoms showed similar patterns in comparisons with chronically diseased and injured patients.

In this context, it may be useful to point out that generic measures of psychological functioning collected from population-based samples may provide misleading results. For instance, only a small fraction of a general population sample is likely to be afflicted with obesity that is severe enough to present psychological disturbances. Secondly, many psychometric instruments were not developed for use in obese patients, and may not capture important sources of obesity-related disturbances. As an illustration of this, it may be pointed out that early studies in representative populations of Swedish women found that overweight women scored higher on sociability and extroversion scales than non-overweight women, although it could not be concluded whether these differences were primary or secondary to obesity (5). In contrast, recent studies of severely obese Swedish women found that women experienced substantially more of certain types of psychological problems, i.e. being bothered by their obesity in the context of social events (17). Thus, it is important to consider the population characteristics and the nature of the disturbances being studied in the interpretation of findings on psychosocial impairments.

Paranthetically, it may be noted that unsuccessful dieting is believed to have negative psychological consequences, due to a sense of distress, failure and self-blame assumed to accompany the highly visible phenomenon of major weight regain. However, the data supporting this assumption are mixed. In a large sample of severely obese subjects, number of previous dieting attempts was associated with mood disturbance and anxiety, and was a strong predictor of obesity-related psychosocial problems in women (17). On the other hand, an evaluation of young women before and after treatment at a weight clinic did not detect any significant effect of one cycle of weight loss and regain on mood (18).

Figure 1. Prevalence of overweight in relation to educational level in 38- and 50-year-old women (combined) from Gothenburg, Sweden. Lower rates of obesity were observed among the most educated women in the late 1960's, and similar patterns were observed in the cohort examined in the early 1990's. Age-adjusted odds ratios are shown with 95% confidence intervals (unpublished data, *L. Lissner* and *C. Bengtsson*).



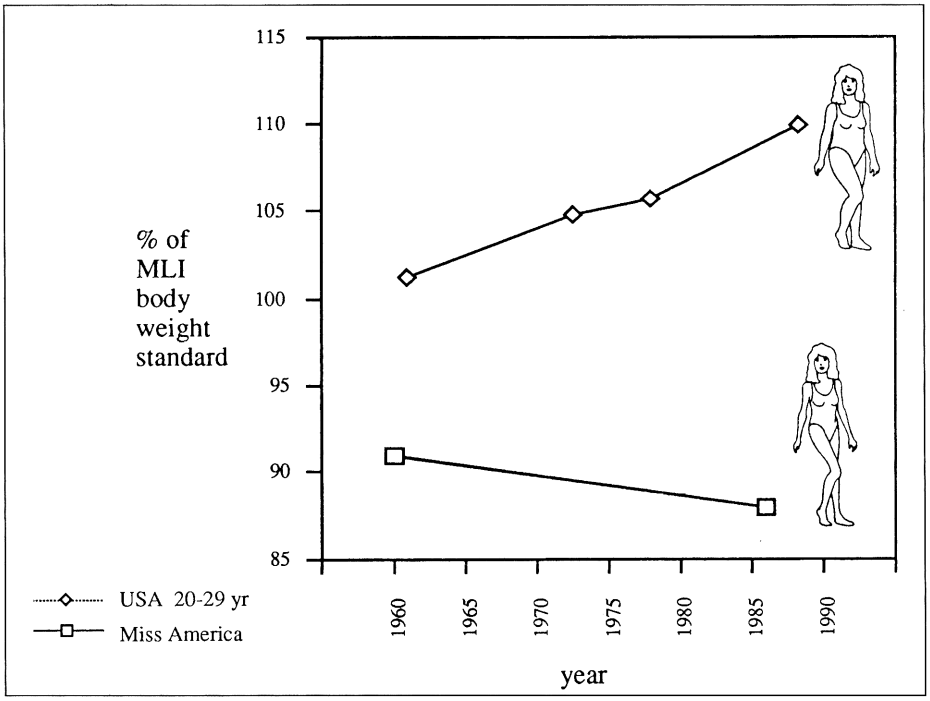
Societal influences

Environment vs body ideal

The rising rates of obesity in today's society must be attributed to the environment in general, and to changing food intake and energy expenditure patterns in particular. There is much evidence that the modern diet, which is high in fat, calories and palatability as well as being easily available in large amounts, has created a phenomenon known as "passive overconsumption" of excess energy (19,20). This phenomenon has been vividly demonstrated in various strains of experimental animals, who can easily be made obese when offered a wide selection of highly palatable human "junk-food", i.e. candy, cookies, chips, sausage etc. This so-called cafeteria diet (21) may be considered to be an analogue of the obesity-promoting aspects of the modern diet. This diet is to a large extent created by commercial (rather than public health) concerns, which dictate that it should be purchased and consumed in profitable quantities.

Additionally, cars and television

Figure 2. Plots of Metropolitan Life Insurance (MLI) percent of desirable weights over time in two groups. Top: 20-29 year old American women (adapted from ref. 29) between 1960-1991. Below: regression line predicting relative weights of Miss America between 1960-1985 (reported by ref 27). Drawings adapted from *Singh*, 1993 (27).



viewing seem to have further facilitated the occurrence of positive energy balance, causing weight gain and obesity at increasing rates. In one study, men who viewed more than 3 hours of television per day were reported to be twice as likely to be obese as those who viewed less than one hour per day (22). The potential influence of television watching is of particular concern in the context of childhood obesity; television is not only affecting energy expenditure, but many of its commercial messages are promoting the cafeteria-diet described above. It was reported some years ago that children in the United States were spending, on average, as much time watching television each year as attending school, and that time spent watching television was directly related to an increased risk of obesity (23). Specifically, prospective analysis indicated that television viewing predicted the subsequent prevalence of obesity, results which approached statistical significance after adjusting for initial obesity and socio-econimic status.

Moreover, it has been reported that children experience significant drops in resting metabolic rate in association with television viewing (24).

Other lifestyle factors in modern society can also be directly linked to body fat accumulation. Marriage and childbearing both represent periods of increased risk of major weight gain (25); however it seems unlikely that changes in marital and childbearing practices could explain the increased prevalences of recent decades. It is well known that cigarette smokers have lower body weights than non-smokers, and that people who stop smoking gain some weight. Thus, smoking cessation is one aspect of the contemporary lifestyle that may influence the prevalence of obesity through effects on food consumption and energy expenditure. However, researchers in the U.S. have found that only a minor fraction of the recent increase in the prevalence of obesity can be attributed to changes in smoking habits (26). Thus, dietary overconsumption together with sedentary physical activity levels are generally considered to be the two major environmental promotors of obesity in modern society.

Even though the environment has created the optimal conditions for obesity to increase dramatically, the prevailing attitudes towards body weight in this society are negative, not only towards obesity, but in many instances towards "normal" weight. Specifically, over the years the ideal body image has become increasingly lean, particularly for women (27), and it is generally believed that this idealization of extreme leanness is setting the stage for an epidemic of dieting and eating disorders. It is paradoxical that our modern environment is promoting obesity while the social norms are so strongly against it. This contrast is illustrated in the figure below, where separate plots are shown for the increasing relative weights of 20-29 year old American women, together with decreasing relative weights of Miss Americas from the 1960's to the late 1980's. Similar trends have been reported in the body weights of *Fröken Sverige* (28). Relative weights are expressed in Figure 2 as percent of desirable weights according to *Metropolitan Life Insurance* (MLI) statistics, in which values above 100% indicate weights-for-heights that are above standard, and vice versa. It may be noted that the percent of MLI standard among Miss Americas in the 1980's is not far from the clinical cut-off point of 85% of ideal body weight, which is often used in screening for anorexia nervosa. The contradiction shown in these diverging plots of ideals versus reality may be having a profound negative effect on psychological well-being in large segments of the society.

In summary, contemporary society has come to associate leanness with health, beauty and other positive attributes. A complete discussion of potential reasons for the increasingly lean body ideal is beyond the scope of this paper. In the Scandinavian context, one simple analogy may be made between leanness and suntans. Sun exposure, like undernutrition, was in previous eras were viewed as a sign of hard work, and has more recently been transformed into as a symbol of leisure and well-being. Another line of thinking involves the hypothesis that women are dissatisfied with their bodies because of an emphasis on physical attractiveness and thinness that is based on a desire to attract and please men. This hypothesis of "sexual objectification" has been tested by comparing beliefs about the importance of physical attractiveness, body satisfaction, eating attitudes and behaviors in samples of men and women with differing sexual orientations (30). This research suggested that heterosexual women, and to a lesser extent gay men, displayed heightened concern about physical attractiveness and greater body dissatisfaction, compared to heterosexual men and lesbians. However, the authors noted that the pressure for a perfect body is increasing in a generalized way. Thus, that the increased prevalence of body dissatisfaction in males as well as females has been described as a "normative discontent" in modern society.

Conclusions and implications

In conclusion, certain social circumstances might be predisposing development of weight problems, while obesity definitely appears to create conditions leading to psychosocial disturbances. Thus, it is natural to ask how this "feedback" cycle can be stopped. First, re-

garding the hypothesis that social conditions cause obesity, it is currently believed that many aspects of modern obesity-promoting environment must be dramatically changed to halt the epidemic. However, accomplishing these changes will certainly require a variety of approaches. For instance, in view of the strong socio-economic gradient in obesity, it is important that large-scale obesity prevention efforts should include an orientation towards relatively less advantaged socio-economic groups, who are at highest risk of obesity. This may be attempted both through targeted public health campaigns and through careful formulation of educational messages. In addition to education, other population-wide policies will be necessary to modify aspects of the dietary and physical activity environments that are making the population obese. Specific areas of intervention that have been suggested include establishment of regulations for the control of food manufacturing, advertising, pricing and purchasing practices along with environmental controls that make physical activity safe and feasible (31). This type of approach, by reducing the need for individual action, may be the best means of reversing the generalized spread of obesity, while also improving certain aspects of the environment that may be contributing to the socio-economic gradient in obesity.

Regarding the evidence that obesity causes psychosocial disabilities, there are key areas in which these psychological and social consequences could be mitigated. Specifically, current attitudes towards ideal body weight need to be re-examined, including as part of the education of health professionals. Moreover, the advertising industry, which has played a role in creating the extremely lean aesthetic ideal in modern society (32), has the potential for influencing future attitudes in a positive and more realistic direction. Finally, the dramatic examples of obesity-related prejudices among children suggest that these issues must be addressed early in life. It has been observed that stereotypic negative attitudes towards obese individuals are not only prevalent, but socially acceptable to a much larger extent than e.g. racial and religious prejudices. Thus, the problem of downward social mobility as a consequence of obesity is a public consciousness issue.

Another potential way of addressing this problem is through the legal system, with particular reference to legislation concerning discrimination and handicaps. In the U.S., where obesity rates are high and rising, a federal court recently ruled that a morbidly obese individual was protected by legislation prohibiting discrimination towards persons with disabilities. Disability is defined as "a physical or mental impairment that substantially limits one or more of the major life activities". In this 1993 case ("*Cook vs State of Rhode Island*"), the plaintiff, who was 157 cm tall and weighed 145 kg, received monetary damages after being refused employment for which she was qualified, because of her obesity (33). This judgement represented an important trend towards increased protection of obese individuals' rights in the U.S.

Swedish law prohibits discrimination on the basis of race, sex, religious or political beliefs. Whether obesity should be considered in provisions protecting rights of handicapped individuals has been a matter of debate. One practical consequence of recognizing severe obesity as a disability might be improved resources for psychological and medical treatment for obesity, e.g. eating disorders clinics, surgery. Given the rising prevalence of obesity in the Nordic region, these legal issues will probably receive increasing consideration in the near future.

References

1. Garrow JS. Treatment of obesity. Lancet 1992; 340:409-13.
2. Garrow JS. Obesity. In: Garrow JS, James WPT eds. Human nutrition and dietetics, 9th ed London: Churchill Livingstone, 1993: 465-79.
3. Bray G, York B, DeLany J. A survey of the opinions of obesity experts on the causes and treatment of obesity. Am J Clin Nutr 1992; 55:151S-4S.
4. Sobal J, Stunkard AJ. Socio-economic status and obesity: a review of the literature. Psych Bull 1989;105:260-75.
5. Hällström T, Noppa H. Obesity in women in relation to mental illness, social factors and personality traits. J Psychosom Res, 1981:25: 75-82.
6. Gortmaker SL, Must A, Perrin JM, Sobol AM, Dietz WH. Social and economic consequences of overweight in adolescence and young adulthood. N Engl J Med 1993;329:1008-12
7. Lissau I, Sørensen TIA. Parental neglect during childhood and increased risk of obesity in young adulthood. Lancet 1994;343:324-7.
8. Lissau-Lund-Sørensen I, Sørensen TIA. Prospective study of the influence of social factors in childhood on risk of overweight in young adulthood. Int J Obes 1992;16:169-75.
9. Birch LL, Marlin DW, Kramer L, Peyer C. Mother-child interaction patterns and the degree of fatness in children. J Nutr Educ 1981; 13:17-21.
10. Klesges RJ, Coates TJ, Brown G, Sturgeon-Tillish J, Modenhauer-Klesges LM, Holzer B, Woolfrey J, Vollmer J. Parental influences on children's eating behavior and relative weight. J Appl Behav Anal 1983:16:371-8.
11. Wadden T, Stunkard AJ. Psychosocial consequences of obesity and dieting. p. 163-78, in Obesity: Theory and Therapy, ed. AJ Stunkard and TA Wadden, Raven Press, New York (1993).
12. American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders (4th ed., p. 731). Washington , DC.
13. Heitmann B, Lissner L, Sørensen TIA, Bengtsson C. Dietary fat intake and weight gain in women genetically predisposed for obesity. Am J Clin Nutr 1995;61:1213-7.
14. Rand CSW, Macgregor AMC. Successful weight loss following obesity surgery and the perceived liability of morbid obesity. Int J Obes 1991;15:577-9.
15. Staffieri JR. A study of social stereotype of body image in children. J Pers Soc Psychol 1967; 7:101-4.
16. Rand CW, MacGregor AMC. Morbidly obese patients' perceptions of social discrimination before and after surgery for obesity. South Med J 1990;83:1390-5.
17. Sullivan M, Karlsson J, Sjöström L et al. Swedish obese subjects (SOS) – an intervention study of obesity. Baseline evaluation of health and psychosocial functioning in the first 1743 subjects examined. Int J Obes 1993;17:503-12.
18. Foster GD, Wadden TA, Kendall P, Stunkard AJ. Psychological effects of weight loss and regain: a prospective evaluation. J Consult Clin Psychol 1996; 64: 752-7.
19. Blundell JE, Burley VJ, Cotton JR, Lawton CL. Dietary fat and the control of energy intake: evaluating the effects of fat on meal size and postmeal satiety. Am J Clin Nutr 1993;57: 772S-8S.
20. Lissner L, Levitsky D, Strupp B, Kalkwarf H, Roe D. Dietary fat and the regulation of energy intake in human subjects. Am J Clin Nutr 1987; 46:886-92.
21. Sclafani A. Animal models of obesity: Classification and characterization. Int J Obes 1984;8:491-508.
22. Tucker LA, Friedman GM. Television viewing and obesity in adult males. Am J Public Health 1989;79:516-8.
23. Dietz WH, Gortmaker SL. Do we fatten our children at the television set? Obesity and televeision viewing in children and adolescents. Pediatrics. 1985:75:807-12.
24. Klesges RC, Shelton ML, Klesges LM. Effects of television on metabolic rate: Potential implications for childhood obesity. Pediatrics 1993;91:281-6.
25. Rissanen AM, Heliövaara M, Knekt P, Reunanen A, Aromaa A. Determinants of weight gain and overweight in adult Finns. Eur J Clin Nutr 1991;45:419-30.
26. Flegal K, Troiano RP, Pamuk ER et al. The influence of smoking cessation on the prevalence of overweight in the United States. N Engl J Med 1995:333:1165-70.
27. Singh D. Adaptive significance of female physical attractiveness: role of waist-to-hip ratio. J Pers Soc Psych 1993:65: 293-307.
28. Rössner S. Fröken Sverige – ett förskjutet skönhetsideal 1951-1981. Läkartidningen, 1983;80: 4960.
29. Kuczmarski RJ, Flegal KM, Campbell SM, Johnson CL. Increasing prevalence of overweight among US adults. The Naitonal Health and Nutrition Examination Surveys, 1960 to 1991. JAMA 1994;272:205-11.
30. Siever MD. Sexual orientation and gender as factors in socioculturally acquired vulnerability to body dissatisfaction and eating disorders. J Consult Clin Psychol 1994:62:252-60.
31. Jeffery RW, Forster JL. Obesity as a public health problem. In Advances in Eating Disorders, Vol 1, p 253-71, JAI Press Inc (1987).
32. Andersen AE, DiDomenico L. Diet vs. shape content of popular male and female magazines: A dose-response relationship to the incidence of eating disorders? Int J Eat Disord 1992;11:283-7.
33. Federal Reporter. Bonnie Cook vs State of Rhode Island Department of Mental Health, Retardation and Hospitals. 1st Circuit Court of Appeals, 1993, Series 3, Vol 10, pp 17-28. □