EFFECTS OF OBESITY ON THE QUALITY OF LIFE

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INTRODUCTION

In 1947 the World Health Organization defined health as both the absence of disease and infirmity and the presence of physical, mental, and social well being (1). Accordingly, health-related quality of life refers to well being in the physical, psychological and social domains, and each domain can be measured by objective functioning and subjective perceptions of health (2).

An assessment of the relationship between obesity and health-related quality of life is a complex task because of the multiple domains of quality of life and the heterogeneity of obesity. Moreover, the concept of health-related quality of life is difficult to operationalize in that it theoretically includes all aspects of life (3), and each domain of health has many components (2). Consequently, quality of life has been measured by specific indices that reflect particular aspects of overall quality of life (e.g., depression, functional limitations), and global concepts that provide little information about specific aspects of health or changes in health status (e.g., satisfaction, well-being). Similarly, studies focusing on the relationship between obesity and quality of life have utilized generic scales designed for the general population or measures designed specifically for obese individuals. In addition, obesity is a heterogeneous condition, and there is evidence that cultural, social, familial and individual factors affect the impact of obesity on a given individual. Nevertheless, despite definitional and assessment issues, a growing body of evidence has linked obesity to impairments in health-related quality of life.

In this chapter I will review evidence that obesity affects quality of life in each quality of life domain, physical, psychological and social, and consider relevant moderators of the relationship between obesity and specific aspects of quality of life including demographic factors, obesity-related factors and treatment seeking. The relationship between changes in weight and health-related quality of life across quality of life domains also will be evaluated.

Measurement of Quality of Life

A complete discussion of issues related to measurement is beyond the scope of this chapter, and comprehensive reviews are available for interested readers (2,4,5). For the present purpose, however, it is important to note that numerous generic measures (6-9) and obesity-specific scales (10-17) have been utilized to assess quality of life in obese individuals. Accordingly, in addition to difficulties posed

by the complexities in defining quality of life, interpretation of extant data is complicated by use of differing assessment tools. For purposes of illustration, examples of several commonly utilized generic and obesity-specific scales along with sample items are presented in Table 1. As seen, the items on various measures range from the global, such as, "In general, would you say your health is excellent, very good, good, fair or poor (9)?" to the very specific, "Because of my weight, I have difficulty getting up from chairs (15)." Although there is considerable overlap across measures, the information gathered in a particular investigation will vary according to measures used. Le Pen and colleagues (16) compared data generated using a general quality of life measure and an obesity-specific scale, and concluded that use of the different measures generated distinct, but complementary information. In summary, the literature bearing on the relationship between obesity and quality of life must be evaluated with assessment issues in mind.

Table 1.	Examples o	f Generic and	Obesity-Spe	cific Measures	of Health-Related	Ouality of Life
I HOIC III	L'Aumpres V	i Generic una	Obesity Spe	cille measures	of ficultin ficiation	Quanty of Life

Quality of Life	Measures Number of items	Sample questions
Generic measures		
Medical Outcomes Study Short-form 36 (SF-36) (6)	36	
Physical functioning	10	Does your health now limit you in climbing several flights of stairs?
Role limitations due to physical problems	4	During the past week, have you had difficulty performing work or other activities?
Social functioning	2	During the past week to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors or groups?
Bodily pain	2	How much bodily pain have you had during the past week?
General mental health	5	During the past week have you felt so down in the dumps that nothing could cheer you up?
Role limitations due to emotional problems	3	During the past work have you cut down the amount of time you spent on work or other activities as a result of any emotional problems?
Vitality	4	During the past week, did you feel full of pep?
General health perceptions	5	In general, would you say your health is excellent, very good, good, fair, or poor?
Center for Disease Control (CDC) Behavioral Risk Factor Surveillance System (BRFSS) Questions (18)	4	Would you say that in general your health is excellent, very good, good, fair, or poor?Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? Now thinking about your mental health, which includes
		stress, depression, and problems with emotions, for how many days during the past 30 days was your

mental health not good?

		During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?
Sickness Impact Scale (8)	136	
		I sit during much of the day.I am not working at all
Independent Categories (i.e., Sleep and rest, Eating, Work, Home management)		I am not doing any of the maintenance or repair work around the house that I usually do
Dhysical		I walk shorter distances or stop to rest often I stay away from home for only brief periods of time
riysicai		I am very clumsy in body movements
Psychosocial		I am doing fewer social activities with groups of peopleI isolate myself as much as I can from the rest of the family
		I act irritable and impatient with myself
Obesity specific measures		
		Walking up stairs is especially difficult at my present weight.I cannot walk even short distances without becoming short of breath and getting very tired.
Obesity Adjustment Survey (11)	20	I hate the appearance of my body
		It's depressing to be at my present weight
Obesity Related Well Being (ORWELL 97) (10)	18	
Psychological status	13	Does your weight interfere with your social activities? Does being overweight make you more nervous?
Physical status	5	Is your weight an obstacle for your physical activity? Do you suffer from shortness of breath?
Impact of Weight on Quality of Life (IWQOL-Lite) (15)	31	-
Physical function	11	Because of my weight, I have difficulty getting up from chairs
Self-esteem	7	Because of my weight, I don't like myself.
Sexual life	4	Because of my weight, I have little or no sexual desire
Public distress	5	Because of my weight, I worry about finding chairs that are strong enough to support my weight.

Work

Because of my weight, I have trouble getting things accomplished or meeting my responsibilities

OBESITY AND PHYSICAL QUALITY OF LIFE

There is compelling evidence that obese individuals report poorer physical quality of life than do normal weight individuals (12,19). For example, data collected from the Behavioral Risk Factor Surveillance System (18) have provided strong evidence of the relationship between obesity and physical quality of life in the largest US study to date (N=109,076). After adjusting for numerous covariates including age, gender, ethnicity, education, employment status, smoking and physical activity, results documented that obese participants [Body Mass Index (BMI) > 30 kg/m2] reported impaired physical well being when compared to non-obese individuals. The relationship between obesity and poorer quality of life was observed in all age groups, both genders, and among Caucasian, African American and Hispanic individuals. Similar evidence has been obtained in European studies. In a study of 8889 randomly selected adults in Great Britain (20), individuals with moderate or morbid obesity had significantly poorer physical well being than those in all other BMI categories.

The effects of obesity on physical quality of life are apparent even among individuals with chronic diseases (20,21). Katz and colleagues (21) assessed quality of life in 2931 patients with chronic health conditions [hypertension, diabetes, congestive heart failure, recent myocardial infarction, and depression] receiving medical care. Overweight and obese patients had significantly poorer health related quality of life on physical health measures and health perceptions than did normal weight patients, even after adjusting for demographic characteristics, health habits, medical conditions and depression.

Factors that moderate the relationship between obesity and physical quality of life

In addition to overall evidence linking obesity and impaired physical quality of life, numerous factors that moderate the relationship have been identified including demographic variables, obesity-related factors, and treatment seeking. First, women appear to be more vulnerable to the negative effects of obesity on quality of life. Obese women tend to report poorer health-related quality of life than obese men do (10,22,23). Among women, higher body weight also is associated with higher rates of health care utilization (24).

Severity of obesity clearly is related to physical quality of life; that is, more severely obese individuals report poorer health than do those with milder obesity. For example, Doll et al. (20) found a strong linear relationship between BMI and poorer quality of life. Similarly, data from the Swedish Obese Subjects study (12), a longitudinal study of severely obese men (BMI > 34 kg/m2) and women (BMI > 38 kg/m2) have documented that health-related quality of life in severely obese individuals is significantly more impaired than in less obese individuals.

Central adiposity, or an excess of visceral fat, also has been associated with increased morbidity, independent of BMI (19,25). Measurements of waist-to-hip ratio (WHR) and waist circumference have gained acceptance as useful proxies for amount of visceral adipose tissue, and are associated with cardiovascular risk factors and poorer health outcomes. Specifically, in adults, waist circumferences > 35 inches in women and > 40 inches in men or a WHR >1 are associated with higher risk for the

development of obesity related risk factors including hypertension, hyperlipidemia, and type 2 diabetes (26). There is substantial evidence that men and women with large waist circumferences have an excess burden of poor health. For example, in a large cross-sectional, population-based study of Dutch men and women (25), the risk of major cardiovascular risk factors, type 2 diabetes, back problems, and problems with activities of daily living increased significantly for men and women with greater waist circumferences.

Treatment seeking and physical quality of life

Health-related quality of life among obese individuals also differs as a function of whether or not the individual seeks obesity treatment as well as the intensity and type of the treatment (23,27,28). The effects of treatment seeking were clearly explicated in a recent study (23) that compared quality of life among diverse groups of obese men and women, those who were not in treatment, clinical trial participants, outpatient program participants, day program participants, and gastric bypass patients. Quality of life was poorer among individuals who sought any treatment compared to individuals in the community who were not seeking obesity treatment, irrespective of gender or category of BMI. Moreover, impaired quality of life was associated overall with increasing BMI; however, within each category of BMI, increasing level of treatment intensity was associated with poorer quality of life. Individuals in the community who did not seek treatment had less impairment in perceived health, while individuals seeking bariatric surgery had the most impairment.

Effects of weight change on physical well being

The evaluation of research evidence from epidemiological studies that have examined the impact of weight change on health and well being has been hampered by the methodological limitations of existing studies (29). Many investigations have not included information about whether observed weight changes were volitional, or have failed to control for confounding factors. Nevertheless, the preponderance of available data from epidemiological studies has shown that stable weights or minimal weight change is associated with longevity (29,30).

There are, however, some indications from epidemiological research that weight change is related to physical health. For example, in a prospective study of 40,098 women participating in the Nurses Health Study, Fine et al. (31) reported that weight change was strongly associated with physical health in women. Participants were divided into three groups, weight maintainers (39%), weight gainers (38%), and weight losers (17%). Weight gain was associated with decrements in physical health-related quality of life among women less than 65 years of age in all BMI categories. The most dramatic changes in physical function, vitality and bodily pain occurred in those who gained 9 kg or more over the four years of the study. Conversely, except for women in the lowest category of BMI (< 25 kg/m2), weight gain was associated with improved vitality and physical functioning. In women older than 65, weight gain was associated with poorer physical functioning, and weight loss was associated with more runtil functioning, with one exception. Weight loss was associated with poorer functioning among women in the lowest category of BMI (< 25 kg/m2), perhaps due to involuntary weight loss. In summary, data from this large longitudinal study provide support for recommendations to avoid weight gain at all levels of BMI, and for overweight women to lose weight.

At present, there is no conclusive evidence that voluntary weight loss produces health benefits over the long term. However, there is an impressive body of evidence from clinical research studies showing that even moderate weight loss has significant benefits over the shorter term, particularly reductions in risk factors for heart disease and diabetes (32). Along with improvements in obesity-related

comorbidities, weight loss is associated with improvements in health-related quality of life (33,34). For example, Fontaine et al. (33) examined the short-term effects of a lifestyle weight loss program on quality of life in mildly to moderately overweight men and women, and found dramatic improvements in quality of life including physical functioning, physical role, general health, and vitality. Weight loss appears to be associated with improvements in health related quality of life regardless of treatment intensity. In a Finnish study, Kaukua and colleagues (35) found that men who participated in a fourmonth weight loss study that combined a very low calorie diet and behavior modification reported sustained improvements in health related quality of life. Finally, data from the Swedish Obese Subjects (SOS) intervention (36) have shown that severely obese individuals treated with gastric surgery evidenced dramatic improvements in health related quality of life that persisted for two years. Further, improvements in quality of life were related to the amount of weight change, with patients losing the most weight showing the greatest improvements.

There has been substantial controversy about whether repeated bouts of weight gain and weight loss have deleterious effects on health and health-related quality of life.

Some studies have suggested that cycles of weight loss and regain may have negative health consequences, particularly for cardiovascular risk(37,38). However, contrary to initial reports, it does not appear that weight cycling makes subsequent weight loss more difficult (39). Moreover, the health risks associated with obesity appear to outweigh potential risks associated with cycles of weight loss and regain, and thus current recommendations are for obese individuals to lose weight, despite the likelihood of eventual weight regain (26).

OBESITY AND PSYCHOLOGICAL QUALITY OF LIFE

Evidence documenting the relationship between obesity and psychological quality of life has been equivocal and the data linking obesity and poorer psychological quality of life is much weaker than evidence documenting poorer physical quality of life in obese individuals. Earlier studies found few or no differences between obese and normal weight individuals in psychological functioning (40,41,42). Similarly, some more recent population-based studies (16,20), have demonstrated marked differences between obese and non-obese individuals in physical quality of life, but few differences in the psychological or social dimensions of quality of life. Nevertheless, there is some good evidence that obesity affects psychological quality of life. As noted previously, the Behavioral Risk Factor Surveillance Study (18) documented a robust relationship between obesity and impairments in physical quality of life. This investigation also yielded evidence indicating the impact of obesity on psychological quality of life, although the relationship between obesity and psychological functioning was not as strong as that between obesity and physical functioning. Specifically, after controlling for numerous covariates, individuals with BMIs > 30, in comparison to non-obese individuals, reported impaired mental health. In particular, there was a significant association between BMI and the risk of having fourteen or more days of poor mental health during the last 30 days.

Some research has shown that the co-occurrence of obesity and chronic illness is associated with significant impairments in emotional well being (20). Other studies have documented a relationship between obesity and particular aspects of psychological functioning. For example, Roberts et al. (43) recently reported that after controlling for baseline mental health and relevant covariates such as chronic conditions and limitations in activities of daily living, there was no relationship between obesity and unhappiness or low optimism. However, obesity was a significant risk factor for incident depression, more about which below.

Factors that moderate the relationship between obesity and psychological quality of life

The general finding that obesity may be weakly related or unrelated to overall psychological health does not obviate the fact that obesity may affect quality of life in ways that are not reflected by standard measures of psychological functioning. For example, obesity has been linked to poor self-esteem and body image (44). Further, research evidence suggests that obesity may have profound consequences on psychological well being in sub-groups of the obese population. Potential moderating factors including demographic variables, obesity-related variables and treatment seeking will be considered in turn. Next, evidence linking obesity and specific forms of psychopathology will be reviewed. Finally, the relationship between psychological well being and weight change will be evaluated.

Women appear to be particularly vulnerable to the negative psychological consequences of obesity. Although some research (43) has failed to find an association between gender and mental well being in obese individuals, most studies have shown that gender moderates the relationship between body obesity and psychological quality of life. Specifically, increased BMI is associated with poorer psychological adjustment in women than in men (22,45,46). In the SOS study, mental well being in severely obese women (12) was significantly poorer than in severely obese men, and women perceived more psychosocial difficulties. In another investigation (23) treatment seeking and non-treatment seeking obese women, when compared to obese men, reported lower self-esteem, and perceived quality of sexual life.

There is strong evidence that more severely obese people differ significantly from normal weight and more mildly obese individuals in psychosocial functioning. Evidence from the Swedish Obese Subjects (SOS) study indicated that clinically significant depression, anxiety and impaired social interaction were 3-4 times higher in severely obese individuals than in matched non-obese individuals (12).

In addition, visceral adiposity, as reflected by higher levels of waist circumference or waist-to-hip ratio, has been associated with poorer psychological functioning among obese individuals. Bjorntorp and colleagues (47-49) have hypothesized that psychosocial stress or other psychosocial handicaps may lead to chronic arousal of the hypothalamic-pituitary-adrenal (HPA) axis and increased cortisol secretion, which in turn promote increased insulin resistance, disturbed lipid and glucose metabolism, and accumulation of visceral fat. Numerous investigators have found that among women (50-53) and men (54-56) higher waist-to- hip ratios are associated with lower socioeconomic status, work problems, unemployment and increased sedentary behavior. For example, Lapidus et al. (53) documented associations between increased WHR and mental disorder, and use of antidepressants and tranquilizers in women. Similarly, Raikkonen and colleagues (50) found cross-sectional associations between waist circumference and depression, anxiety, low levels of social support and quality of life in women. Rosmond and colleagues (56) found a relationship between WHR and degree of melancholy, use of antidepressants and anxiolytics, and life satisfaction in middle-aged men. Moreover, after treatment with antidepressant medication, non-depressed individuals showed favorable changes in HPA axis regulation and metabolic factors (57).

In a study of twin pairs discordant for obesity (58) investigators found that visceral fat, but not obesity in general, was associated with markers of increased psychosocial stress including urinary cortisol, noradrenaline excretion, emotional distress, alcohol intake and decreased amount of quiet sleep. Although the data have been mixed, several reports have documented that individuals with abdominal obesity have higher rates of depression (52,59,60) with concomitant neuroendocrine abnormalities similar to those that are seen in depression.

Treatment seeking and psychological quality of life

Data from individuals seeking treatment consistently has documented the deleterious effects of obesity on emotional well being. Friedman and Brownell (42) reviewed evidence comparing obese individuals seeking treatment to population controls and concluded that extant evidence has corroborated a relationship between depression and obesity in those individuals who seek treatment. Fontaine et al. (27) found that individuals seeking obesity treatment at a university clinic, when compared to a population-based reference group, reported significantly worse mental health, and emotional and social functioning. Similarly, in another study (61), obese men and women who sought treatment had significantly poorer psychological quality of life than obese individuals in the community.

Obesity and specific forms of psychopathology

Depression has been the most consistent target of studies that have sought to examine the relationship between obesity and mental health. Evidence from cross-sectional epidemiological studies has been mixed, but conflicting results may well have been due to differences in populations studied and measures utilized. In contrast, data from a large, prospective community study have shown a relationship between obesity and depression. Roberts and colleagues (62) examined the relationship between obesity and depression controlling for numerous covariates including sociodemographic factors, social support, chronic medical conditions, functional impairment, and life events. Cross-sectional analyses documented a relationship between obesity and depressed in comparison to 7.4% of normal weight individuals. Moreover, when individuals who were depressed at the initial evaluation were excluded, prospective analyses documented a relationship between obesity at time 1 and depression one year later.

Gender may moderate the relationship between depression and obesity. In a study that utilized a structured interview to diagnose major depression in a large sample of adults (22), obese women were likelier than non-obese women to have had a major depressive episode during the previous year. Similarly obese women, when compared to non-obese women, were likelier to report suicidal ideation and attempts. In contrast, obese men, when compared to non-obese men had a reduced risk of depression, suicidal ideation and suicide attempts.

There also is substantial evidence that binge eating, defined as episodes of eating objectively large amounts of food with an associated sense of loss of control over eating behavior, is common among obese individuals (63,64). Moreover, binge eating disorder (BED), a syndrome of recurrent and persistent binge eating without the regular compensatory behaviors seen in bulimia nervosa, and that is associated with marked shame and distress, is more common in obese individuals than their non-obese counterparts. A population-based study of Black and White men and women (65) reported that binge eating disorder affected approximately 3% of obese individuals, in comparison to 1.5% of the overall cohort. Rates of BED were comparable among Black and White women, but rates among Black men were low. Moreover, there was a strong relationship between the diagnosis of BED and depressive symptoms across all individuals examined.

Rates of binge eating among obese individuals who seek treatment are markedly higher than rates in the general population of obese individuals. Numerous investigations have documented that as many as 30% of those who seek obesity treatment in university settings meet criteria for binge eating disorder, and have confirmed the association between binge eating problems and depression (64,66). Moreover, some data have indicated binge eating may explain, at least in part, the relationship observed between obesity and impairments in psychological quality of life (67).

The relationships among binge eating, depression and obesity are complex and almost certainly multi-

dimensional (6). Binge eating and depression may contribute to weight gain and obesity, which, in turn, may negatively affect mood. Depression also may be associated with decreases in physical activity, which may increase obesity risk. Recurrent episodes of binge eating are extremely unpleasant for those who experience them, and are associated with shame and despair that may promote clinical depression. Finally, available evidence suggests that individuals who are preoccupied with weight and have psychiatric symptoms are those most vulnerable to the development of aberrant eating (68). Additional research is needed to elucidate the interrelationships among weight, mood and eating behavior. It is important to note, however, that dieting does not appear to exacerbate binge eating or induce negative psychological sequelae in obese individuals who attempt to lose weight (69).

Effects of weight change on psychological well being

There has been concern that dieting to lose weight (as opposed to actual weight loss) may be harmful to psychological well being, since dieting is often unsuccessful and may have negative consequences for self-evaluation. In a review of the consequences of dieting, French and Jeffery (70) concluded that despite problems in the measurement of dieting behavior, dieting per se is not associated with negative psychological effects or the development of disordered eating in most individuals.

Moreover, numerous studies have documented improvements in psychological functioning as a result of weight loss treatment in moderately obese (33,71) and seriously obese (36,72) individuals. Individuals in behavioral weight loss programs consistently have reported improvements in depressive symptoms and well being (73,74) as have individuals participating in trials of a weight loss medication (70). Bariatric surgery patients have reported impressive improvements in psychological functioning that are associated with degree of weight loss (36,72). Finally, evidence from a study of individuals who maintained significant weight loss for periods of five or more years indicated that successful losers reported improved mood, social interactions and self-confidence (75).

Although some studies (31) have failed to demonstrate a relationship between weight gain and mental health, others have found that significant weight gains are associated with poorer physical and mental health (76), particularly in women (31). Some reports have indicated that weight cycling, or repeated bouts of weight gain and loss may be associated with psychological difficulties, especially, binge eating and depression in women (77,78). Other investigations have failed to document a relationship between weight cycling and psychological problems (79,80). It seems fair to conclude that repeated failures to maintain weight losses might pose emotional difficulties for some individuals. However, it is unclear whether weight cycling is a cause or consequence of psychological symptoms.

OBESITY AND SOCIAL QUALITY OF LIFE

There is substantial evidence that obesity has profound effects on quality of life in the social domain. Obesity is a stigmatized condition in affluent societies, and there is discrimination against obese individuals in multiple social domains. Finally, there is a strong inverse relationship between obesity and socioeconomic status.

Stigmatization of obese individuals

There is significant prejudice against obese individuals, historically (81) and currently (82), and in eastern and western cultural traditions (81). Pervasive negative attitudes toward overweight can be identified in children as young as three years old (83). Obese children often are the victims of social stigmatization (84,85), and obese children themselves endorse negative stereotypes of obese

individuals (84). Other data have suggested that obese teenagers are at risk for victimization by peers and may be less likely to develop romantic attachments (86). Obesity has been shown to have negative effects on college admission (87), and overweight young women appear to be less likely to secure parental support for college tuition (88). Thus negative stereotypes associated with overweight are evident even in children and may have significant implications for social development during adolescence.

Obese adults face intense prejudice, although women are more likely than men are to be stigmatized for obesity (89). Crocker and Cornwell (90) noted that the stigma attached obesity is related to a response to appearance-related aspects of overweight, which are markedly discrepant from western cultural preferences for a slim and fit body type, and to judgments about character traits attributed to obese individuals (e.g., overweight people are lazy, gluttonous, or lack will power). It is often assumed, therefore, that obese individuals are responsible for their weight problems, which may promote self-blame and exacerbate distress (91). Studies also have documented negative attitudes toward obese individuals among health care professionals, in general (3,92), and among health professionals who treat obesity (93). Unsurprisingly more frequent exposure to stigmatization has been linked to more severe obesity and greater levels of psychological distress (94).

Prejudicial attitudes toward obese individuals extend to discriminatory behaviors against them. In a review of the literature on discriminatory attitudes and behaviors, Puhl and Brownell (92) noted significant shortcomings in the existing literature, but concluded that there was consistent evidence documenting pervasive bias against obese individuals in areas that almost certainly affect health and well being. Specifically, there appears to be a prejudice against hiring obese individuals as well as pay discrimination against overweight women. Similarly, Wadden et al. (41) documented discrimination against obese individuals in the workplace. In summary, obesity is associated with discriminatory attitudes and behaviors across a variety of social domains.

Obesity and socioeconomic status

In western cultures there is a robust relationship between degree of obesity and socioeconomic status. In a seminal article, Sobal and Stunkard (82) reviewed the available research literature, and concluded that there is compelling evidence documenting the negative relationship between obesity and socioeconomic status. The relationship was most apparent in women in the US and Europe, but although the relationship was less consistent among men and children, the inverse association between obesity and socioeconomic status was striking in individuals above the median BMI.

The nature of the relationship between obesity and socioeconomic status is unclear. That is, obesity may lead to lower socioeconomic status (for example, through discrimination in hiring), low socioeconomic status may lead to obesity (for example, through difficulties in sustaining a health-promoting diet or adequate levels of physical activity), or there may be other factors that promote both obesity and lower socioeconomic status (95). There is, however, evidence from longitudinal investigations that indicate that obesity may have profound consequences for later social functioning. For example, Gortmaker et al. (96) found that women who were obese in late adolescence were less likely seven years later to be married, and had less education and lower incomes than did non-obese individuals. Although more research is needed to clarify the nature of the relationship between socioeconomic status and obesity (95), it is clear that there are complex interrelationships between socioeconomic status and obesity that have profound consequences for quality of life.

SUMMARY AND CONCLUSIONS

Obesity is a heterogeneous phenomenon with multifactorial genetic, social, familial, and individual determinants, and it is accordingly unsurprising that the relationship between obesity and quality of life across multiple domains also is a complex phenomenon that defies simple analysis. Similarly, the definition and assessment of quality of life are problematic, and may not adequately capture the impact of obesity on the lives of particular individuals. Nevertheless, obesity has dramatic negative consequences for physical well being and there is also strong evidence that obesity is negatively associated with health-related quality of life in the psychological and social domains, particularly for women, more seriously obese individuals, and for those who seek treatment. In summary, the overall evidence that obesity impairs perceived health and quality of life is compelling and provides additional impetus for the already urgent need to develop better prevention strategies and treatments for this significant public health problem.

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