Psychological Complications of Obesity

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Obesity has become an alarming public health concern for the pediatric population. As many as 18% of children and adolescents are at or above the 95th percentile in weight when compared with same-aged peers.\(^1\) Overweight and obesity status in children, adolescents, and adults is determined most commonly by the body mass index (BMI).\(^2\) Overweight status is designated for BMI scores at or above the 85th percentile but below the 95th percentile, and obesity status for scores at or above the 95th percentile when compared with same-sex and same-aged peers.\(^3\)

Investigations into the causes of the obesity epidemic have suggested multiple etiologies. Behavioral (eg, energy intake and physical activity) and environmental (eg, schools, media, sidewalks, and perceived lack of safe areas for outdoor activity) factors are significant contributors to overweight and obesity in children and adolescents.\(^3\) The role of parents in perpetuating obesity in youth is of particular concern from a psychological perspective, as overweight children are more likely to have overweight parents.\(^4\) In addition to genetics, there are many familial factors that contribute to obesity by encouraging dysfunctional dietary and exercise patterns. Children’s eating behaviors have been related to parental modeling\(^5\) of food intake and to excessive parental control with restriction of food. Parents who attempt to control access to food for weight management purposes may have a negative outcome because the child’s ability to self-regulate food intake will be diminished, and the child will eat excessive amounts, given the opportunity.\(^6\)

The composition of family meals and the mealtime environment (eg, eating together as a family at the table versus eating in front of the television) may contribute to pediatric obesity.\(^7\) Parents who suffer from their own psychiatric problems are less likely to engage in the effective parenting practices needed to adequately manage weight control in obese youth.\(^8\) Parental perception of weight status in their children is often inaccurate, with parents tending to view their overweight children as being of normal weight, especially if the parents are overweight or obese.\(^9\) In a sample of 117 overweight and obese 5- to 10-year-old black children, only 30% of parents rated their child as having a weight

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In addition, cultural factors influence parental perceptions of weight status. Black and Hispanic mothers have been found to perceive heavier babies as healthier and more desirable. Overall, consideration of parental weight status and psychopathology must be undertaken to understand the factors contributing to obesity in children and adolescents. Only in this context can family-based interventions be developed that adequately address the problematic family dynamics related to diet and exercise.

The manner in which BMI values and their associated meaning are presented to youth increases the effect of obesity on the child’s mental health. With the implementation of national policies to screen for overweight and obesity in schools, there is potential for labeling, peer victimization, and psychological distress. Some argue that BMI feedback to youth can do harm by promoting restrictive dieting by parents and increased stigmatization, thereby perpetuating body image dissatisfaction and disordered eating. On the other hand, there is evidence to suggest that BMI feedback, when presented to parents and children in an educational format, provides motivation for weight management and can be effective at increasing parental recognition of overweight in their children, especially within black families. Thus, it seems that such feedback is critical for the child and family to receive but must be delivered in a sensitive manner that accounts for the patient’s culture and family composition.

Aside from the numerous health complications that can arise from obesity, there are significant psychosocial consequences that threaten the well-being of children and adolescents. The following sections provide a brief overview regarding the psychological sequelae of pediatric obesity.

**PEER VICTIMIZATION**

During childhood and adolescence, there is a shift from concern about parental approval to peer acceptance, especially regarding body image. This is a period in which peer relationships are influential and peer-to-peer social comparisons regarding weight and appearance are most important. As a result, overweight and obese children are vulnerable to physical and relationship-directed peer assaults (i.e., peer victimization). Peer victimization includes aggressive acts, such as fighting, threats, and teasing, as well as relational aggression, such as rumors and ignoring. Several studies examining this issue have found obese children less likely to be nominated as a best friend or considered popular by classmates and to have increased aggression, increased disruptive behavior, and less leadership potential than non-obese peers. Likewise, reports by parents, teachers, and peers suggest that obese classmates are more isolated and sensitive than their counterparts. Taken together, greater dislike by peers and poor interpersonal qualities contribute to making obese youth more frequent recipients of peer attacks.

In addition, overweight and obese youth are more likely than their normal weight peers to be teased and bullied because of their appearance and competency in areas, such as sports and academics, and they are less likely to date romantically. Pervasive teasing has been associated with loneliness, withdrawn/isolated behavior, disordered eating (binge-eating and bulimia), decreased self-esteem and concerns about weight gain, body shape, dieting, and

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Not surprisingly, one study found peer victimization predicted depression and weight status over a 4-year period. Although the finding of decreased physical activity in overweight youth may seem counterintuitive as peer teasing seems a logical motivator to lose weight, Storch et al suggested that depression and loneliness may explain the relationship between teasing and physical activity (i.e., teasing causes depression or loneliness which further reduces participation in physical activity).

Notably, although the most common form of teasing comes from peers, overweight youth also experience teasing from siblings, relatives, and parents and, as with teasing by peers, familial teasing and encouragement to diet has been associated with depressed mood and decreased self-esteem and body satisfaction. However, when there is parental encouragement to make family meals a priority and to create a positive mealtime environment, overweight boys and girls exhibit positive outcomes and healthy weight-control behaviors. Teasing by peers and family members has also been linked to a pathological need for thinness. Libbey et al found that victimized teenagers not only experienced higher levels of anxiety and decreased self-esteem, but they also were more likely to engage in disordered eating behaviors, such as binge eating.

Overall, there is strong evidence to suggest that obese youth are susceptible to weight-related stigma and are likely to experience a variety of psychological and social difficulties when victimization is pervasive. Psychopathology is likely to occur if coping skills and supportive systems fail for the child.

SELF-ESTEEM

Pediatric obesity may be associated more commonly with poor self-esteem in pre-teen children than in older youth. A review of 35 studies investigating the relationship between obesity and self-esteem in children and adolescents consistently revealed self-reports of lower self-esteem and body image in obese youth when compared with normal weight peers. Not only is obesity associated with decreased global self-esteem when compared with self-esteem in normal weight children, but obesity has also been associated with negative perceptions regarding physical competence and general self-worth. Although global self-esteem and scholastic-esteem have been shown not to differ significantly between obese and normal weight pre-teen children, obese adolescents develop trajectories of decreased global self-esteem during the teen years. These findings suggest there is less emphasis on body image during childhood. However, this emphasis becomes much more important during adolescence because much of a teenager’s self-image and confidence is tied to weight and body composition.

The ability to adapt to their overweight status may affect youth differently — some youth may experience psychosocial adjustment problems secondary to their obesity, whereas others may be more resilient due to attenuating factors (e.g., greater physical strength, sense of humor) that buffer the negative effects of obesity.

Body image dissatisfaction and degree of overweight have been implicated in decreased self-esteem. Adolescent girls with higher BMIs and body image dissatisfaction are more likely to report decreased self-esteem over a 2-year period. These findings suggest that heavier girls or girls with poor body image may receive negative feedback about their weight and, therefore, become more vulnerable to weight stigma. However, these behaviors are not irreversible. In fact, Foster and colleagues found that despite significant weight loss and subsequent regain after a weight loss treatment program, women reported significant improvements in mood, binge eating, and hunger regulation. Therefore, weight loss and regain do not appear to result in adverse psychological effects.

In summary, there is sufficient evidence to suggest that threats to self-esteem occur with increased weight, especially during adolescence. It is possible that there is less emphasis on appearance and weight during childhood, although teasing and peer victimization make overweight children vulnerable to having low self-esteem. However, during adolescence there is a shift to awareness about body image and societal expectations for weight status. Thus, teenagers may experience feelings of decreased self-worth and decreased academic, athletic, and global self-esteem because of frequent comparisons regarding weight, academic progress, and skills among peers and failure to measure up with the popular media’s portrayal of thinness as ideal.

DEPRESSION AND ANXIETY

Research exploring the relationship between pediatric obesity and psychological problems in children and adolescents has yielded inconsistent findings largely based on the populations studied. One review found that, in contrast to a clinic-based population, that exhibits significant psychological sequelae, community-based samples of obese youth report low levels of depression and self-esteem despite higher levels of body image dissatisfaction. These findings appear plausible because children and adolescents who are at the point of seeking weight management treatment most likely experience more discomfort related to weight, likely caused by a variety of factors (e.g., peer victimization, appearance-related comments from others, or predispositions to internalize their problems). In fact, Braet et al found that treatment-seeking obese children showed more internalizing problems than non-clinical obese children and normal controls, who tend not to differ from each other.

Levels of depression and anxiety associated with obesity may vary as a function of gender and race/ethnicity. In a study of psychological status and weight-related
distress in overweight youth, weight status was predictive of body image dissatisfaction, with heavier children reporting greater psychological distress. Boys, albeit distressed if they were frequently bullied, did not exhibit depressive or anxious symptoms. On the other hand, girls who reported weight-related concerns experienced greater depressive symptoms. Interestingly, race yielded a protective factor in that black children, regardless of gender, were less affected psychologically by their overweight status than white children, which may be because of the perception among many blacks that overweight status is desirable. Consequently, cultural and gender socialization of children may serve as buffers of psychological distress over weight status.

Other factors, such as BMI, socioeconomic status (SES), and age have predicted mental health status in overweight populations. Children with higher BMI scores tend to report lower levels of body image and self-esteem, and higher levels of depressive and body dissatisfaction symptoms. Vlierberge et al identified Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) diagnoses that were more common in youth referred for a weight-treatment program: anxiety disorders, posttraumatic stress disorder, major depression, and various eating disorders. Referral status was associated with lower SES because lower SES populations have less access to weight management education and have less financial ability to purchase healthier food. For non-referred youth, those with higher SES were more likely to have a psychological disorder. One reason for this finding may be that parents recognize overweight status and provide feedback to their child in a negative manner. The authors suggested families from higher SES groups may experience social discrimination because of overweight status and are more likely to consider overweight as negative. Not surprisingly, older age was predictive of clinical psychopathology. Consistent with the finding that self-esteem decreases with age in obese children and adolescents, it may be that heavier adolescents are the target of frequent criticism and bullying. Finally, obese youth suffered from mood disorders, such as depression, to a greater extent than anxiety and disruptive disorders, highlighting the need for clinicians to screen for depression (and other mood disorders) in their obese pediatric patients.

Regardless of the sample studied, obese youth consistently report elevated levels of mood disturbances, most notably depression, relative to their peers. In particular, youth seen in weight management treatment programs may be at greater risk for psychological problems; however, there are several moderating factors that may provide guidance for the clinician in determining who is at greatest risk for disordered behavior. Older age, female gender, white race/ethnicity, lower SES, and higher BMI status make overweight and obese youth at greater risk for anxiety and depression. When considering a depressed youngster who is overweight, evidence-based treatment approaches, including antidepressant medications and cognitive-behavioral therapy, may be important components of the treatment regimen. However, concern must be taken to ensure that side effects associated with some medications and medication classes do not contribute to further weight gain, as some medications, namely the atypical antipsychotics, cause remarkable and rapid weight gain.

**BODY IMAGE DISTURBANCE AND DISORDERED EATING**

Although a child’s body image can develop during childhood, it is during adolescence that youth compare themselves to their peers with great frequency and, consequently, are most susceptible to derogatory remarks made by peers, media, and parents. Body image dissatisfaction occurs when there is a discrepancy between the perception of one’s body image and the internalization of an idealized body image. This discrepancy subsequently may influence eating practices and mood. Factors, such as negative emotion, teasing by peers, strong belief in the positive value of thinness, decreased perfectionism (ie, personal standards and self-efficacy), and exposure to abnormal eating behavior, are predictive of eating disorders in overweight youth.

In youth referred for weight management treatment programs, the prevalence of diagnosable eating disorders, such as binge eating, bulimia nervosa, and other eating disorders, is relatively high and more frequently encountered than in samples of non-referred youth. Furthermore, adolescents who have eating disordered behavior are at greater risk to be depressed, anxious, and to exhibit disruptive behavior.

Obese girls and boys are more likely to report concerns about weight and diet and to restrain eating more than normal weight children. However, obese children also engage in binge eating behaviors to a greater extent than normal weight children. To illustrate, overweight children report greater frequency of disordered eating and eating-disordered beliefs than healthy peers. Specifically, perceptions of overeating and actual overeating were associated with higher BMI status, body fat mass, and greater weight gain.

Rates of eating disorders vary based on gender, with obese girls having a greater propensity for eating disorders than obese boys. This finding may be explained by a greater drive for thinness and more body image dissatisfaction in girls, whereas obese boys have less ability to regulate food intake than normal-weight boys. Additionally, it is important to reiterate that race and ethnicity may be protective of disordered eating, as studies have yielded no relationship between weight status and problematic eating behaviors in black and Hispanic girls. Indeed, average-weight minority girls described pressure to gain weight.

**RISK-TAKING BEHAVIORS**

Risk-taking behaviors, such as alcohol use, smoking, substance abuse, and sexual activity, have not been associated directly
with obesity in children and adolescents. In general, externalizing disorders (eg, aggression, inattention, risk-taking) are less common than problems, such as depression or anxiety but may still be more prevalent among obese youth relative to the general population. Obese children who are seen for weight management treatment display higher levels of externalizing behaviors than non-treatment-seeking obese children and normal weight children. Parents also rate overweight and obese children as demonstrating greater disruptive behavior than normal weight children. Obese adolescents who report low self-esteem are more likely to smoke and consume alcohol than obese adolescents who report higher self-esteem. Similarly, adolescent girls with subjective appraisals of overweight status and boys with higher BMI scores are more likely to smoke cigarettes as young adults, which may be perceived as a weight management strategy. Considering the health consequences of alcohol and substance use in an already medically at-risk population, the promotion of nutrition and physical activity programs with concomitant substance use prevention (eg, smoking and alcohol) is indicated. For example, as part of a weight management regimen, youth could be provided with resources, such as the Too Smart To Start program offered by SAMSHA.

Overweight youth are at risk for unhealthy weight loss strategies. Unhealthy weight loss strategies, such as vomiting, diuretics, and diet pills, are attractive to youth because they may result in quick weight reduction, yet they place youth at harm for adverse medical consequences as well as risky behavior. Such behaviors have been linked with tobacco, alcohol, and marijuana use, delinquent behaviors, unprotected sexual intercourse, multiple sexual partners, and suicide attempts. Because overweight youth may attempt excessive dieting as a weight loss strategy, it is important for providers to acknowledge the potential psychological consequences of excessive dieting. Regardless of BMI status, severe dieting behavior in adolescence is associated with body image dissatisfaction and risk-taking behaviors. Thus, weight loss interventions in adolescence should de-emphasize the role of excessive dieting. Instead, interventions should offer dietary education emphasizing the role of healthy choices in their lifestyle, moderation as opposed to restriction, and the incorporation of physical activity in daily routines.

SUMMARY AND TREATMENT RECOMMENDATIONS

Pediatric obesity is a public health concern associated with a multitude of physical and psychological complications. From a mental health perspective, overweight and obese youth are common targets of bullying, more likely than healthy peers to suffer from mood and anxiety disorders and to develop poor body image, and are susceptible to developing disordered eating habits and risk-taking behaviors. Without intervention, such problems are likely to run a chronic course characterized by impairment in multiple life domains. Indeed, adolescent obesity has been associated with depression, decreased psychosocial functioning, and lower status attainment (eg, occupation and education) in adulthood.

It is imperative for providers to assess for the presence of mental health concerns when overweight and obese youth present for medical visits. Simple psychological screenings can be incorporated, whereby practitioners query for school refusal, peer conflicts/teasing regarding weight, mood disturbances, such as persistent anxiety, depression, irritability, anger outbursts, and self-harm, as well as risk behaviors (eg, sexual activity, alcohol and drug use, and delinquency). Alternatively, a mental health screening measure, such as the Pediatric Symptom Checklist (PSC) can be completed by parents or youth and reviewed during the clinical visit. If significant concerns are identified, appropriate referrals to psychology and/or psychiatry services can be made. At a minimum, providers can offer medical and/or behavioral recommendations for weight management, with psychosocial concerns being addressed subsequently by mental health professionals. When possible, providers may wish to consult with school personnel to establish counseling services, social skills training, and support groups for peer victimized youth. At the community level, resources, such as the Boys and Girls Club and the YMCA, offer programs at reduced costs that focus on health eating, physical activity, and positive social relationships. Moreover, many medical facilities offer camps and support programs for overweight and obese youth. Referrals, such as the aforementioned, are valuable to families because they target essential life components for obesity and mental health, specifically physical activity, skill building, and supportive social environments.

Effective psychosocial interventions are available for overweight and obese children who also have concomitant mental disorders. Reviews of weight loss programs suggest that obese youth develop better self-esteem following treatment. However, a review by Jelalian et al identified no empirical literature addressing the treatment of co-existing psychological disorders with pediatric obesity. It is important to determine the level of readiness to change in all children and families before embarking on a comprehensive education or behavior modification program. However, when children and adolescents present with comorbid psychological disorders, it is all the more important that providers address weight management secondary to motivation (readiness) for change by parent and youth. Youth and their parents will require education about weight management; therefore, it is the responsibility of the provider to obtain a relevant psychiatric history, including eating and mood disorders, explore family dynamics (eg, familial attitudes toward weight, parent psychopathology), review the relationship between obesity and psychopathology, identify pros
and cons for weight loss, and ascertain potential adherence barriers. In psychiatric samples not selected for weight status, numerous psychological and psychiatric interventions have demonstrated efficacy for childhood anxiety, depression, disruptive behavior, and attentional problems.36-39

Given its strong support and limited side effect profile (including associated weight gain), we recommend cognitive-behavioral therapy (CBT) with parent involvement to address self-esteem, anxiety, depression, and disordered eating in obese youth. These practices have been shown to improve diet and body composition in obese adolescents.60 Cognitive-behavioral therapy addresses the thoughts and behaviors that maintain mental health concerns. As applied to obese populations, CBT targets the thoughts and perceptions that maintain emotional distress and disordered eating. In the process of cognitive restructuring, youth are taught how to perceive success, failure, and treatment barriers. Moreover, behavioral activation is incorporated into treatment by collaboratively developing exercise regimens and introducing self-monitoring of dietary intake. In fact, self-monitoring, also known as food diaries, has been suggested as the cornerstone for successful weight management and maintenance among adolescents.61 Self-monitoring may not share the same efficacy in younger children, given differences in cognitive abilities; thus, there is a need for considerable family involvement when working with younger children. Programs for youth may be in an individual or group format, and cover didactics, such as healthy eating habits, physical exercise, coping with the psychosocial consequences of overweight and obesity, how to create positive behavioral and emotional change, and maintenance of weight loss. Behavioral techniques for children may include the development of a reinforcement/token system based on effort (not success) toward reaching target goals, smaller portion sizes, restriction of high-fat, calorically dense, and highly sugared foods, and visual cues/support to encourage exercise and healthy food choices. Adolescents may benefit from caloric monitoring, weekly weigh-ins, exercise buddies, and physical activity scheduling. Strongly indicated is parent involvement, particularly among younger children, where parents are taught skills to develop an authoritative rearing style (warm, consistent, but firm), how to prepare healthy meals, and parental support and participation in exercise and healthy dietary practices.62 The Big Friend’s Club, which incorporates many of the aforementioned cognitive-behavioral techniques, demonstrated a mean weight loss of 18% in their sample of obese youth corresponding to one BMI status change (obese to overweight) over a period of 1 year.63 Thus, cognitive-behavioral strategies, either alone or in conjunction with pharmacological interventions, teach healthy lifestyle skills that can be applied over the course of a lifetime. On balance, results are modest in magnitude, with many youth requiring further support to achieve a healthy weight and others having limited treatment response.

In sum, researchers and healthcare professionals must advocate for peer-based educational interventions targeting acceptance of weight status and promotion of healthy eating habits and physical activity.19 School-based prevention efforts could include the incorporation of healthy lunchtime foods and snacks, enhance health curricula, and ensure time for physical activity.62 Additionally, providers should assess for appearance-related teasing to identify youth who may be at risk for body image disturbance.25 Furthermore, research investigating the nature, sources, consequences, and outcomes of weight stigma in childhood and adolescence should continue to enhance prevention and treatment programs.4

REFERENCES
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