

Psychological Aspects of Obesity in Children and Adolescents

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Abstract Childhood obesity is multi factorial health condition, so the simple evaluation of body fat will not be sufficed to manage the global epidemic of childhood obesity. Literature consistently provides evidence for physical health risks associated with childhood obesity; however in recent times, mental health of the obese children has also gained attention of the researchers as well as clinicians. Obese children experience number of psycho-social problems that significantly affect their quality of life and wellbeing. Co-morbid psychosocial and emotional problems of obesity generally act as causal or maintaining factors of obesity and thus significantly affect the treatment outcome. Therefore it becomes imperative for the clinicians/pediatricians to broaden their clinical assessment and include screening of important psycho-social factors within the clinical examination of childhood obesity. This article provides an evidence based comprehensive overview about the psychological factors and psychiatric factors (depression, anxiety, eating disorder, stress, body shape concerns, low self esteem) associated with childhood obesity that can further be utilized in the evaluation and management of this epidemic. The article also elaborates the role of current evidence based psychological approaches such as Cognitive Behavior Therapy (CBT) for management of obesity in children and adolescents. CBT techniques combined with lifestyle intervention and involving parents have been recommended by literature repetitively. However, there are a number of environmental, familial and personal barriers that

hinder the whole process of weight loss in children. The article also discusses potential strategies to overcome those barriers.

Keywords Childhood obesity · Psycho-social · Cognitive behavior therapy · Depression · Low self-esteem

Introduction

Gone are the days when a fat child was considered as a healthy child; but unlike the past, now it has become a major cause of concern for parents, health professionals and children. The risks of being overweight during childhood often persist into adolescence and adulthood [1]. It also predisposes children to various non-communicable diseases (NCDs) such as cardiac problems, stroke, diabetes and some forms of cancer. Psychosocial functioning of obese children also becomes compromised and they are more prone to psychological problems such as depression, anxiety, low self-esteem and negative body image that further affect their quality of life.

Psychological Aspects of Childhood Obesity

Psycho-social factors, particularly within the family often play a significant role in the onset as well as maintenance of obesity. Once established, obesity acquires a decisive influence on the child's physical as well as mental health. Research on the psychosocial aspects of obesity has grown extensively over the years, from purely theoretical articles to cross-sectional, comparative studies of people with and without obesity to longitudinal analysis of the temporal sequencing of obesity and psychopathology [2]. Some of the previous studies have reported associations between childhood obesity and some forms of psychopathology such as depressive symptoms [3],

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attention-deficit/hyperactivity disorder [4], and low self-esteem [5]. However, the findings are still mixed with regards to psychosocial functioning of clinical obese sample and population based sample.

The changing lifestyle of Indian children has led to increased hours of inactivity, often attributed to mounting academic pressure and competitive stress. Stress has been also seen as an important psychosocial contributor to obesity and stressed children are more prone to indulge in emotional overeating [6, 7]. Obesity also has significant negative impact on the emotional development of the child. Overweight children are more likely to be the victims of discrimination, social isolation and bullying. The instances of verbal bullying (name calling, teasing), physical bullying (hitting, pushing) and relational bullying (withdrawing friendship) of these children can easily be observed within the close premises of schools and home [8, 9]. These experiences often lead to development of poor body image and low self-esteem in children with obesity [10, 11].

Indian Context

There are many studies that highlight the increased prevalence of childhood obesity in India, however, very few studies target the mental state of an obese child. The existing Indian literature about the association of psychopathology and childhood obesity does report the presence of more behavior problems in obese children as compared to their normal weight peers [12]. A large population based sample of 421 obese children was assessed on Childhood Psychopathology Measurement Schedule (CPMS) and the prevalence of psychopathology was found in 44.2% of obese children compared to only 13.8% of non obese children ($p < 0.001$) [13].

Psychopathology and Childhood Obesity

A number of cross-sectional, case control and prospective studies have reported the association of increased body mass index (BMI) and psychopathology. Findings are varied in terms of population being studied. Clinical sample of obese children consistently reported more behavior problems and are at higher risk of developing psychopathology compared to nonclinical population [12, 14, 15]. Depression was found to be the most frequently and consistently reported diagnosis [10, 15–17] followed by anxiety disorder [15, 18, 19], eating disorder or episodes of binge eating [15, 19–21] and attention deficit hyperactivity disorder (ADHD) [16, 22].

The cause-effect analysis of this relationship reported presence of obesity before the onset of psychiatric disorder based on the retrospective recall of most obese cases [15], however, depression may act as a risk factor for the

development and persistence of obesity, specifically in adolescents [10, 20, 23]. Literature could not identify any direct causal link between obesity and depression in adolescents, however, indirect pathways and experiences such as stressful life events, peer victimization and weight based teasing may become the contributing factors for development of depression in adolescents [24]. Few studies have also reported sex differences in obese children and adolescents in relation to depression and anxiety wherein obese girls were reported to be on greater risk of developing depression and anxiety (social anxiety) with increasing weight [25, 26].

In contrast to the above findings, some studies reported no association between obesity and psychopathology. Lamertz et al. recruited population based sample of 3021 German adolescents and young adults and assessed them on Composite International Diagnostic Interview for DSM-IV diagnosis and Symptom Checklist-90-Revised for general psychopathology. Results revealed no significant association of obesity and psychopathology for population based sample of German adolescents and young adults [27]. Fabricatore and Wadden reviewed literature on the relationship between obesity and psychopathology, specifically with regards to depression and found no systematic association between obesity and psychopathology. However the review reported that specific group of obese persons such as females, binge eaters and extremely obese persons are at greater risk of psychiatric disorder or emotional disturbance [2]. Similarly, an another systematic review of 17 studies (both clinical and community based) found no association of obesity and depression in children and adolescents. Different measures used to assess depression and obesity could be a reason for heterogeneity of results in this area. However, clinical samples of obese children displayed higher levels of psychosocial problems compared to the population-based samples of either obese or normal-weight children. Gender, age and ethnicity were found to be the potential moderator and mediator factors of the association between obesity and psychological wellbeing [28].

Body Shape Concerns and Childhood Obesity

Mental health in obese children is largely dependent on their level of satisfaction with their body weight and appearance. Number of cross-sectional studies, both clinical and population based, examined the body shape concerns of obese children and support the association of childhood obesity and body shape concerns in children as well as in adolescents. Wardle and Cooke reviewed 17 recent studies (both clinical and community based) and reported that the association of obesity and body dissatisfaction is well

supported in children and adolescents [28]. Obese children express more weight concern and more dissatisfaction with their body image and low self-esteem than normal weight children [29]. Gender based analysis revealed girls were more likely to exhibit these behaviors than boys [3, 30]. Excess of overweight concerns in girls is also found to be a reason for depressive symptoms among obese girls [3]. Overweight status, female gender and binge eating were reported as risk factors for body image disturbances and psychological distress in obese individuals [30].

The psychological well being of adolescents aged 12 and 13 y was affected by the idea of “feeling fat” than “being fat” [31]. Body dissatisfaction acts as a predictor of lower self-esteem and high level of depressive symptoms in obese children [32] and mediates the relationship of obesity and emotional well-being of children and adolescents [11]. The association of obesity and body dissatisfaction is well supported in children and adolescents. Moreover, perceived weight and shape concern seems to be a more important factor rather than actual weight itself, in predicting the psycho-social well-being of obese children.

Self-esteem

Self-esteem is a multi-dimensional construct and has been found to be associated with childhood obesity. The strength of association was found to be modest between self-esteem and obesity in a recent review [33]. The evidence of association mainly comes from clinical studies where children with chronic and severe obesity consistently reported to have lower self esteem [34]; however, the findings from community sample are mixed. Some studies report similar or normal levels of self-esteem between obese and non-obese children [35–37]. If we look at the dimensional aspect of self-esteem, the global self-esteem of obese children and adolescents was found to be impaired in almost all studies [10, 14, 16, 19, 38]. The gender based analysis revealed that the self-esteem in obese adolescent girls was more compromised as compared to obese boys. The reason could be that in adolescent age the societal and peer pressure to look thin and glamorous is high in girls and that may further give way to the development of maladaptive eating habits, eating disorders and lower self-esteem.

Psychological Assessment

There are a number of tools available for psycho-social assessment of obese children and adolescents. The tools most frequently used in Indian as well as western studies are provided in Table 1.

Diagnosis

Pediatrician is generally the first person to be contacted by parents for their child’s weight. So it becomes essential for him to be aware of red flags that indicate a chance of underlying psychological disorder. Few general indicators that can be observed within the clinical history are: *recent change in behavior (irritability, aggression, anxiety, restlessness), stressful life event, sudden weight gain, academic decline, body dissatisfaction, family pathology, weight based teasing, bullying, low mood and unhealthy eating practice (restrained eating, impulsive eating and emotional eating)*.

If he could identify any of these red flags then screening questionnaires such as, Child Behavior Checklist can be used to screen the presence of various internalizing or externalizing disorders. However, findings need to be interpreted with caution as screening instrument does not provide a confirmative diagnosis. To diagnose the co-morbid psychiatric disorder, clinician can collaborate with mental health professional for detailed evaluation. The comprehensive psychosocial assessment done by a trained mental health professional has the potential to identify target areas and plan an effective intervention as per the need of the target group.

Cognitive Behavioral Management of Childhood Obesity

No single treatment modality is sufficient to handle this multifactorial disease considering the complexity of the disorder. Literature recommends the integration of psychological approaches within the clinical management of childhood obesity to deal effectively the global epidemic of childhood obesity. Psychological approaches such as Cognitive Behavior Therapy (CBT) have been found to be an evidence based treatment modality for weight loss. However, while dealing with children, it is important to involve family into the treatment process and therefore, the family based treatment, utilizing various techniques from CBT was considered to be a gold standard treatment of childhood obesity [50]. NICE guidelines also recommended the use behavioral change techniques, positive parenting skills along with the changes in diet and physical activity routine. The intervention plan should be tailored to the need of the individual child and also include both parents and children to get more beneficial results [51]. The co-morbid conditions such as depression and anxiety can be treated by appropriate medications.

Generally, most behavioral intervention programs include 8–16 initial weekly sessions of 45–90 min each and follow-up booster sessions for a period of 4–12 mo [52]. Now-a-days, CBT is being delivered in the form of well structured modules that include multiple components. Based on authors’ clinical experience and extensive review of literature, the authors also

Table 1 Screening tools

Tool	Description
Child Behaviour Checklist [39] Youth Self Report (Adolescent) [40]	Preschool Version (2–3 y) School Age (4–18 y) Adolescents (11–18 y) Assess psychopathology (Externalizing and internalizing behavior), widely used in Indian studies as well
Childhood Psychopathology Measurement Schedule [41] Development Psychopathology Checklist [42]	Age range: 4–14 y, Indian tool to assess psychopathology Used for children below 16 y of age, assesses various relevant domains such as developmental history, developmental problem, psychopathology and various psychosocial factors. Temperament profile, social support and assets of the child. Developed and widely used in India
Childhood Depression Inventory [43] Rosenberg Self-esteem Scale [44]	7–17 y, Cognitive, Affective and Behavioral signs of depression Widely used in Indian as well as Western studies to assess self-esteem of obese children and adolescents
Body Shape Questionnaire [45] Pediatric Quality of life Scale (PedsQL) [46]	Widely used to assess body shape concerns of obese children and adolescents Age: 8–12 y, available in child self report and parent proxy report, assesses different domains of QOL: physical functioning, emotional functioning, social functioning and school functioning
Barratt Impulsiveness Scale (Adolescent Version) (BIS-11-A) [47] Stroop Color Word Test [49] Semi-structured Interview Schedule	Assesses three domains of impulsivity: cognitive, non-planning and motor impulsivity. Also available in Hindi [48] Widely used to assess response inhibition in children and adolescents Semi-structured interview schedule can be developed and used by the clinician to assess other relevant psychosocial aspects such as isolation, social discrimination, teasing, bullying, social support, stress, level of personal distress, motivation to lose weight

developed a cognitive behavioral treatment module for obese children and adolescents at AIIMS, Delhi, that includes 12 weekly sessions lasting for 45–60 min and monthly booster sessions for a period of 4–12 mo. The module explains the session-wise process of therapy utilizing various CBT techniques such as:

Psychoeducation is a process of educating parents and children about the nature of illness, assessment findings, therapeutic process, structure and the role expectations from them.

Goal setting encourages children to set realistic and achievable behavioral goals of therapy.

Self monitoring is an evidence based technique of CBT for weight management that encourages children to self monitor their diet, physical activity and weight to maintain a track of improvement over a period of time.

Stimulus control involves environmental restructuring in such a way that promotes healthy eating and increased physical activity involvement of the child, e.g., parents are asked to go for outings in parks rather than malls as it has the potential to increase physical activity of the child and at the same time decrease the chance of eating junk food at the mall.

Behavioral contract is used with the children to enhance their motivation. It is a written document that indicates specific reward for specific behavioral change.

Reinforcement is a key technique of behavioral management with children wherein each behavioral change is being positively rewarded by the therapist/parents.

Problem solving helps the children understand and learn steps of solving various problems in a constructive manner.

Cognitive restructuring helps children to identify and challenge their negative thoughts and to replace them with alternative thoughts [53]

Barriers to Treatment and Strategies to Overcome

There are a number of environmental, social and personal barriers to treatment that make the initial process difficult and also hinder the weight maintenance. Here is the list along with the possible ways to overcome these barriers:

1. Children's lower level of motivation (can be handled by motivating the child within the process of clinical assessment and treatment using behavioral techniques of reinforcement and behavioral contract)
2. Parental attitude that fat child is a healthy child, they will only consult a doctor whenever they observe some obesity related complications (parental attitude can be changed by making them aware about the physical as well as

mental health risks associated with obesity through psychoeducation)

3. Obesogenic environment that provide an easy access to junk food and social media that use children as soft targets for promotion of these unhealthy snacks (can be handled using psychological techniques of environmental restructuring or stimulus control)
4. Lack of social support and encouragement from family and friends (social support can be enhanced by educating the significant others about their role in the treatment within the process of psychoeducation)
5. Previous failed attempts (can be handled by cognitive restructuring which is an effective technique of CBT for correcting negative thought)
6. Family eating habits and family history of obesity especially in the mother can be a big hurdle (can be handled by seeking support from the school authorities wherein they can organize sport activities and healthy cooking competitions for mothers to actually enhance their motivation to bring positive change in their own lifestyle).

To overcome these barriers, the active involvement of children and parents is desirable. However, prevention is always better than diagnosis and treatment. Preventive approaches can be initiated at a very early stage of development by involving school authorities as partners. School is a very influential social agency that significantly affects the behavior of parents and children from the early years. Some orientation programs by the school to disseminate the information related to physical and mental health risk of obesity in children can encourage parents to adopt healthier lifestyle from early years. School curriculum can include lifestyle module that promotes healthy eating and regular physical activity within the school premises during school hours.

Conclusions

Childhood obesity has come up as a threat to physical as well as mental health of the children and adolescents. Based on the mixed results of studies, it can be concluded that not all obese children experience psychosocial problems. Some specific groups such as adolescent females, clinical obese group and children with severe and chronic obesity were found to be at risk of developing co-morbid psychiatric problems. However, it is imperative to screen each and every obese child and adolescent for psycho-social problems, considering their developmental vulnerabilities and social stigma attached to obesity. Co-morbid psychosocial problems have the potential to affect the children's motivation and treatment outcome significantly. Psychological management of childhood obesity utilizes various CBT techniques to bring the positive behavioral change in eating and exercise behavior of obese children. Some CBT

techniques such as self monitoring, stimulus control and problem solving have proven their effectiveness in management of childhood obesity.

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Compliance with Ethical Standards

Conflict of Interest None.

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