

ECOG E-Book child and adolescent obesity

To binge or not to binge?

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Binge eating is the most common type of disordered eating behavior among obese children and adolescents. Because of its association with elevated levels of psychosocial distress, the experience of binge eating adds to the burden caused by obesity. In the current chapter, an overview will be provided of the conceptualization, prevalence, development and course of binge eating in obese youth.

Conceptualization of binge eating

The eating behaviour of children who are obese is more complex than initially thought. It is demonstrated that individuals who are obese can display different eating behaviours in the absence of hunger like snacking after a meal, eating comfort food when feeling depressed, eating during the night, eating too much followed by vomiting, restrained eating and meal skipping. If such eating patterns occur on a regular basis or deviate too much from the regular eating guidelines, we describe the behaviours as eating disturbances (1). One of the most studied disturbance is the so called "binge".

Two criteria for defining binge eating

Binge eating (BE) is defined as the consumption of a large quantity of food, within a restricted period of time and associated by feelings of loss of control over eating (LC) (2). The American Psychiatric Association (APA) requires the presence of both the large quantity of food criterion as well as the LC criterion to classify someone as a clinical binge eater. The presence of these two criteria is also referred to as objective binge eating episodes (OBE), with 'objective' referring to the objectively large amount of food that has been eaten during the binge (or in other words: the consumption of what would generally be regarded as a 'large' amount of food, irrespective of what else was eaten that day). Moreover, large may be used to refer to the amount of any particular type of food or the overall quantity of the food consumed. The LC criterion can be described as the feeling that one is not able to stop eating once eating has started, or that one is 'driven' or 'compelled' to eat (3).

BE can occur as a symptom or as part of a syndrome. When BE occurs on a regular basis – that is at least once a week over the past three months – eating disorders like Bulimia Nervosa (BN), Binge eating Disorder (BED), or Night Eating Syndrome (NES) can develop (for the specific criteria, see: 2). BE in people with overweight is rarely accompanied by compensatory processes (like purging). Therefore, in the current chapter we will exclusively focus on binge eating as a symptom.

In the 90's studies in adults found increasing evidence for the fact that binges makes the problem of obesity complicated, but it was not easy to define BE as there exist remarkable variations in caloric intake during an episode of BE (4; 5). For a long period of time, people who report LC without the consumption of objectively large quantities of food, so called subjective binge eating (SBE; the amount of food is only considered excessive by the subject), were not considered as suffering from clinically relevant eating pathology. However to date, researchers set out to challenge this criterion. We can conclude that it seems that in adults LC is the most important criterion in the definition of BE since the presence of LC is stronger associated with eating- and psychopathology compared to whether or not someone has consumed a large amount of food (6; 7).

Table 1 provides an overview of the different types of overeating episodes. As the table shows, the distinction between episodes where one has eaten more than one is used to eat or more than someone else would eat under the same circumstances (the so called overeating episodes) and BE episodes lies in whether or not the patient has experienced loss of control during the eating episode. To detect BE, the clinician should ask about each form of overeating. Also it is important to remark that the different types of episodes are not mutually exclusive, so it is possible for a patient to report different types (3).

Table 1. Difference between overeating and binge eating

	Amount eaten	
	'Large'	Not 'large', but viewed by subject as excessive
Loss of control experienced	Objective Binge Episodes	Subjective Binge Episodes
No loss of control	Objective Overeating	Subjective Overeating

Binge eating in children and adolescents

In children and adolescents, research regarding the conceptualization of BE has expanded during the last decade. Marcus and Kalarchian made one of the first attempts to develop youth-specific research criteria for conceptualizing BE(D) in children of 14 years and younger (8). Again, the LC criterion occupied an important place within these provisional criteria whereas the large quantity of food criterion was kept out of the definition of BE. The authors argue that because of the variability of food-intake over time in growing children, LC represents a more salient feature in the evaluation of problem-eating compared to the amount of food that has been eaten. Also there is a possibility that

children and adolescents do experience LC but that this is not accompanied by eating large amounts of food because they do not yet have access to large amounts. As such, they are not in a position to decide for themselves how much they eat and therefore their binges are to be considered to be of a limited scope.

It is important to recognise BE in children as in many cases weight control programmes are not developed for treating symptoms of disordered eating (9). In the short term, some intervention studies have observed a reduction in various measures of eating pathology (10), however this has not been observed in the long term (11). Furthermore, for professionals like dietitians, general practitioners or pediatricians it is sometimes difficult to understand and treat these binges, specifically when they are related with other psychological factors.

Over the past years, several researchers investigated the importance of LC for classifying disordered eating in youth. In these studies it was concluded that the presence of LC, even if it is not accompanied by eating objectively large quantities of food, is associated with elevated levels of eating pathology, maladjustment and poorer quality of life in domains of health, mobility and self-esteem (12-18). In other words, for the identification of disordered eating in children and adolescents we need to acknowledge that it is clinically relevant to focus on all experiences of LC episodes. The Children's Eating Disorder Examination Questionnaire (ChEDE-Q) is proven to be an appropriate instrument for screening for disordered eating in general and BE-episodes in specific (19). In case of elevated levels of disordered eating, a clinical interview is warranted to further examine the presence of eating disorder pathology (20). [Table 12 provides an overview of the main instruments that can be used to detect BE.](#)

[Table 12. Assessment of binge eating in youth](#)

Instrument	Method	Specifications with regard to binge eating	Age
Children's Eating Disorder Examination (ChEDE) (20)	Semi structured clinical interview	DSM-Eating disorder diagnoses possible OBE, SBE, LC presence and frequency over last 3 months	8 to 18 years
Children's Eating Disorder Examination-Questionnaire (ChEDE-Q) (19)	Self-report questionnaire	Screening for DSM Eating disorder diagnoses OBE, SBE, LC presence	8 to 18 years

		and frequency over last month	
Eating Disorder Inventory (EDI-III; Garner, 2004 ²¹)	Self-report questionnaire	No separate binge eating scale, binge eating – item is part of Bulimia subscale (together with e.g. compensatory behaviors)	Clinical and non-clinical norms for females (13-53 years)
Questionnaire of eating and weight patterns-revised (QEWPR; Yanovski, 1993 ²²)	Self-report questionnaire	Assess aspects of binge eating disorder and subclinical binge eating	10-18 years (adolescent and parent version)

Although LC was found to be the most important criterion for classifying BE, some results show that assessing the binge size may still provide valuable information as well. For example, researchers concluded that within the LC group, different clinical profiles emerge depending on whether or not large quantities of food are reported. More specifically, these researchers found that overweight youth reporting OBE were characterised by the highest levels of eating –and psychopathology. The clinical profile of youngsters who reported SBE fell in between that of those without LC and those who reported OBE (12;15). Moreover, the phenomenology of LC eating was further examined in a multisite study among 445 European and American youth with the use of clinical interview methodology. LC was associated with eating forbidden foods before the episode, eating when not hungry, eating alone, experiencing secrecy and negative emotions and a sense of numbing while eating (21²³). Based on the aforementioned findings researchers developed a set of provisional criteria for a new diagnosis, the loss of control eating disorder (LOC-ED), in children. In these diagnostic criteria the binge size criterion is included as a possible characteristic of LC but not as a necessary condition for diagnosing a child with LOC-ED (1). Thus, although LC seems to be the most important criterion for identifying aberrant eating episodes, the binge size criterion should not be totally neglected.

Prevalence of binge eating

Prevalence rates of BE in children and adolescents differ across studies. Differences depend on which definition of BE is used (assessing LC in general, or solely focussing on OBE), which instruments assess BE (clinical interview versus self-report questionnaire versus laboratory test meal),

and finally which sample are studied (overweight or normal weight, treatment seekers versus non-treatment seekers). Nevertheless, despite overall differences between studies, some interesting trends are to be noted.

First of all, studies indicate that BE is reported by a substantial part of youngsters from the general population. For example, in Australian and American adolescents it was found that up to 25% report OBE (2224; 2325). Also in European samples of children (8-11 years) and adolescents (12-16 years), respectively 12% and 17% reported having experienced at least one episode of LC over the past month (16; 2426).

Second, among the group of children and adolescents, those who suffer from overweight appear to be at an increased risk for developing BE pathology. Researchers studied a sample of non-treatment seeking overweight children (6-10 years old) using a self-report measure and found that 33.1% experienced LC (2527). Other researchers studied a sample of both overweight and normal weight children (aged 6 – 13 years old) using a clinical interview and concluded that overweight children (14.6%) reported significantly more LC compared to their normal weight (3.8%) peers (17). Elevated reports of LC are especially found among samples of overweight youngsters who were at the start of a treatment. More specifically, it was found that respectively 36% and 30% of treatment seekers reported LC (12; 13). Moreover those who report LC appear to be characterized by a higher degree of overweight (2628).

Third, in overweight youth LC is generally more frequently reported by those children and adolescents who seek treatment (40%) compared to those who do not seek treatment for their overweight (20%) (2628).

~~Finally, among overweight youth, sex and age differences regarding the occurrence of LC seem to be less pronounced (12, 13). Fourth, in contrast with what is generally found in adults (29) and in adolescent community samples (30; 16), no significant differences with regard to the occurrence of BE were found between boys and girls in overweight samples (13, 15).~~

~~Finally, with regard to the importance of age, both in community samples, as well as in overweight samples, studies show that binge eating appears to be equally reported between eight and 18 years of age (13; 16).~~

Development and maintenance of binge eating

With regard to the origin of BE, literature displays an uneasy balance between research exploring the role of particular putative causal factors and theories that attempt to combine such factors into a comprehensive model. Overall, it is assumed that factors on both socio-cultural, familial and individual level may contribute to the development of binges (2731).

To date, little youth-specific theoretical models exist to describe the development and maintenance of psychopathology (and more specifically in this case BE pathology) in children and adolescents. Therefore, researchers in the paediatric field are compelled to rely on adult models. In the following section, two important etiological theories for explaining BE are outlined.

The cognitive behavioural theory (CBT)

In the CBT (2832), a central role is proposed for a dysfunctional process for evaluating one's own self-worth. In contrast with most people who evaluate themselves on the basis of their performance in a variety of life domains (such as the quality of their relationships, work, parenting, etc.), people with eating disorders judge themselves largely, or even exclusively, in terms of their shape, weight and eating habits and their ability to control them. As a consequence of this over-evaluation, their entire lives are focused on efforts to control their diet, pursue weight loss and avoid overeating and weight gain. This dysfunctional system for evaluating self-worth is also labelled as the core psychopathology of eating disorders. BE is indirectly linked with this core psychopathology and develops as a result of the subjects' failing attempts to restrict their eating. So according to this theory another important characteristic of BE is dietary restraint. The concept of dietary restraint refers to an individual's attempt to restrict food intake in order to control body weight (2933). As part of this restriction, rigid diet rules are often followed. In a moment of weakness however, these rigid rules may be disrupted and as a consequence of that an individual may totally lose control over his or her eating behaviour. In turn, binge eating is evaluated by the subject as a failure and this maintains and even magnifies the core psychopathology as well as the subjects' attempts to restrict their eating, which places the subjects in a vicious circle.

Recently, among overweight youngsters, a relationship was demonstrated between this core psychopathology and the presence of maladaptive cognitive schemas thereby indicating that this core pathology may be considered as a cognitive vulnerability in overweight youth as well (3034).

Moreover, LC was also consistently found to be associated with more concerns about eating, weight and shape in both treatment seeking and non-treatment seeking overweight children and adolescents (12; 13). This evidence for the relationship between the over-evaluation system and LC among overweight youth demonstrates that being concerned about ones eating, weight and shape is not simply a characteristic of being overweight but can be considered an important feature of eating disorder pathology. Among non-treatment seeking overweight (3135) and normal weight children (17) it was already found that those reporting LC were characterized by elevated levels of dietary restraint.

In order to investigate how the three main features of the CBT, that is the over-evaluation system, dietary restraint and LC, operate together this pathway was investigated in a large sample of both treatment seeking and non-treatment seeking overweight youth. After taking into account possible differences between treatment seekers and non-treatment seekers, it was found that the over-evaluation of eating, weight and shape was positively associated with dietary restraint and dietary restraint was in turn positively related to LC thereby reconfirming the value of this pathway among overweight youth (3236). Consequently it is recommended to assess the relevant variables of this model via psychological measures when BE is reported (for example by using the ChEDE-Q).

The interpersonal vulnerability theory (IPT).

According to the Interpersonal Vulnerability Theory (3337; 3438), disturbances in early child-care taker relationships lead to insecure attachment, which in turn may lead to social self-disturbances, feelings of loneliness and low self-esteem. This can then cause affective dysregulation, which in the end may trigger BE as a means of coping with the aversive emotional states.

Among overweight samples, significant associations were detected between emotional eating, anxiety and depression on one hand and LC on the other hand (12; 13; 15). Also in the laboratory, a causal association was found between the experience of negative emotions and BE in youth (3539).

In younger populations, the assumptions of the IPT were tested in a sample of 8 to 17 year old non-treatment seeking youngsters and found positive associations between social problems and LC. This association was mediated by negative affect, thereby providing initial support for the IPT (3640).

Also, in a cross-sectional study among a community sample of 8-11 year old children researchers found that those who reported LC were characterised by lower self-esteem and a less secure attachment towards both of their parents. The relation between self-esteem and LC was fully mediated by attachment towards mother and partially mediated by attachment towards father (3741). Furthermore, in a recent study a relationship was found between parental rejection and emotional eating in obese youngsters, mediated by maladaptive emotion regulation strategies of the youngster. This suggests that parental rejection may undermine the child's ability to regulate emotions. Subsequently, the child may use food to escape from negative emotions, which may lead to weight gain and eventually obesity (3842). Finally, researchers observed less interpersonal involvement and more maladaptive family functioning during mealtimes in the home environment of children (8-13 years old) with LC eating compared with those who do not experience LC (3943). Consequently, when BE is reported it is recommended to assess these relevant variables via psychological measures as well.

Course and prognosis of binge eating

To date, few longitudinal studies exist that examined the psychological impact and course of LC in youth. Results of a prospective study indicates that LC eating in youngsters predicts increased weight gain over time (4044). Recently, researchers examined LC in a sample of 6 to 13 year old children (enriched for overweight) and concluded that LC at baseline was associated with the development of partial- and even full syndrome binge eating disorder 4.7 years later. Moreover, 52.2% of the children who experienced LC at baseline still reported LC at follow-up. The presence of LC at baseline predicted increases in disordered eating attitudes and anxiety at follow-up. Also, compared with children who never experienced LC or who reported LC at baseline but not at follow-up, those children who persisted in LC also experienced more increases in disordered eating attitudes and in depressive symptoms (4145). In line with these results, other researchers concluded from their longitudinal study that in non-treatment seeking preadolescents, LC has a moderate stability with almost half of LC eaters showing a tendency toward persistent or recurrent eating problems over a 2-year period (4246).

A six-year follow-up study of overweight youngsters who followed an inpatient treatment showed that LC is a relatively stable construct among 25% of overweight youngsters. Moreover especially older youngsters and youngsters who were characterized by elevated levels of shape

concerns at baseline tended to persevere in LC six years later. When subdividing the LC criterion into SBE and OBE, results showed that OBE represented the most stable types of aberrant eating episodes. Furthermore, in the subsample of youngsters who already reported LC at T1, the general mean scores of the eating pathology subscales did not significantly decrease over the six-year period showing once again that overweight youngsters reporting LC may be considered a specific group at risk (11).

Conclusion and Implications

BE can be conceptualized by a feeling of losing control over eating behaviour and may be accompanied by the ingestion of large amounts of food. Compared to normal weight youth, overweight youngsters appear to be at an elevated risk for experiencing BE episodes. Because of the high prevalence rates, its stability over the time, the association with other eating disorder characteristics (like rigid dieting), as well as more psychopathology (like depression) and weight gain over time, BE may serve as an important component of the screening and treatment of overweight in children and adolescents. However, the detection of BE may be complicated since the associated feelings of guiltiness often lead to the fact that patients tend to hide it. So, it should be systematically detected.

We can conclude that obesity specialists must always be alert for BE characteristics. If they fail to recognize the dietary restraint attitudes of their young patients this may end up in inducing more rigid dieting-intentions which in turn may result in psychological side-effects and LC. On the other side, exploring factors like emotional eating, low self-esteem, negative mood or social isolation is also relevant as it can guide our understanding of a second acknowledged pathway that leads to disturbed eating behaviour. When BE is identified in the initial consult, when there appear to be difficulties within the child or the home environment that could interfere with the treatment, and when the assessing clinician does not feel adequately skilled, it is appropriate to discuss with the parents the option of referring the child and family for more in-depth assessment by a suitably qualified paediatric psychologist. Consequently it is recommended not only to assess BE and its psychosocial characteristics but also to refer for a specialized treatment where these psychological components can be disentangled.

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