

Psychological treatment of childhood obesity: main principles and pitfalls

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The Ecological Systems Theory is an interesting framework that captures the multicausal interaction of hereditary, environmental and child characteristics that place a child at risk for overweight [1]. This theory serves as a guideline for the multidisciplinary assessment of obesity in childhood (see chapter X) and for the treatment. The benefits of a multidisciplinary approach focusing on healthy eating habits, moderate exercise and cognitive-behavioural modification are well established [2]. Several studies have shown positive and encouraging outcomes in short-term. This chapter will provide an overview of the main principles of the cognitive behavioural lifestyle program for obese children. Thereby, both working with children as well as how to involve parents will be addressed. However, also pitfalls in treatment need to be considered. To this day, obesity interventions, especially for adolescents and adults are also characterized by limited weight changes, relapse and a large drop-out (for adolescents, see [3]; for adults, see [4]). This chapter will focus on drop-out and will address some structural actions to overcome it.

Overview of treatment modalities

After the screenings phase, when a multidisciplinary program is indicated, the patient will be directed to a treatment format, taking into account the age, degree of overweight, level of motivation and results of the screening.

Based on the Cochrane review [5], for children under 8 years, treatment exclusively focuses on parents. From 8 years on, children can be involved in treatment. However, until the age of 12, parents have to be considered as major agents of change. Overweight children can be treated in an outpatient centre with a standardized protocol. However, when eating pathologies and/or emotional problems are detected during screening, individual care will be needed. For instance, dealing with binge eating episodes asks for a specialized care, combining two treatment protocols. When psychopathology is detected, a redirection to mental health care will be necessary before working towards weight control. On the other hand, when no psychological indicators are found, the standard treatment program can be initiated. This is a cognitive behavioural program intended to support a healthy lifestyle in long term. This can be in a group format and consists of a combination of nutritional, physical and psychological consults. We will discuss this program in detail. It is based on the work of Braet, Joossens, Mels, Moens, & Tanghe, A. [6]. Table 1 gives an overview of all techniques.

Working with children and youngsters: main components and overview of interventions

The main components of a standard cognitive behavioural lifestyle program are: self-monitoring (completion of diet and/or physical activity records), stimulus control techniques (to reorganise the environment), goal setting and contingency management, and problem solving techniques. These interventions are aimed to support the main treatment goals: (1) learning the child

to self-regulate its behavior and to resist temptation; (2) the installation of a healthy lifestyle in the longterm.

Self monitoring. The patient keeps record of his eating and drinking behaviour on a daily basis. This is an evaluation method but also has a therapeutic goal. It helps the patient to gain insight in his or her eating pattern and behavior, which is necessary to work towards self control. This food diary will guide goal setting through the whole program and will be discussed in every session.

Nutritional and physical activity advices. Education about what is meant by 'a healthy lifestyle' is given. Sometimes simple advices are sufficient: drinking water at mealtime, choosing products low in fat, the importance of a structured eating pattern, healthy in-betweens, a balanced breakfast, ... These advices are based on the guidelines of national centres of health promotion. It is essential that these healthy guidelines are followed by the whole family, not only the child with overweight. Guidelines on how to incorporate physical activity are also needed. We advice activities of low to moderate intensity during 30 minutes, such as walking, biking, swimming, dancing, ... Also lifestyle changes need attention like taking the stairs in stead of the elevator, helping with household tasks, walking to do the courses,... These advices will lead to small treatment goals imbedded in a contract.

A behavioural therapeutic approach of weight control consists of a weekly evaluation of new, small attainable steps. This is the same procedure for children, adolescents and adults. Every session a new goal is determined. This has to be formulated in a contract with realistic and clear criteria. Reinforcers for attained steps have to be incorporated as an important feedback mechanism. Social reinforcers stay the most efficient form of feedback. In adolescents and adults, this method is part of a self control training. Every session, patients are encouraged to formulate a new step (goal setting), to keep a food diary (self observation), to evaluate progress (self evaluation) and to internalize feedback (self reinforcement).

Moreover, it is strongly recommended that patients restrict the places in which they eat (only at the kitchen table), restrict the places in which they store food and that they only eat at fixed moments. This *stimulus control technique* has traditionally been successful in obesity treatment. The mechanism is that by restricting eating places/situations the memorial value of cues will extinct, which makes it easier to resist.

Like in other cognitive behavioural interventions, also in this program *coping and problem solving skills* are taught (from the age of 8). The patient learns to analyse difficult situations and to formulate and evaluate different plans. These steps of the problems solving skills training are guided by self instructions that can be written on cue cards (to support the learning process). More advanced cognitive techniques are administered to detect automatic thoughts and core themes. These thoughts are challenged in order to formulate alternative (more helpful) cognitions. Core themes to be handled within the treatment of overweight are: dysfunctional thoughts on what and when to eat and not to eat (for instance 'skipping breakfast is good'); dysfunctional thoughts on self image and on the effects of restrained eating.

In 2010, Moens, Braet and Van Winckel [7] conducted an 8-year outcome of overweight children (n=90; mean age of 10.1 ± 2.6 at baseline and a mean adjusted BMI of $153.1 \pm 20.7\%$ at baseline) who were treated with the above described standardized program. They found that children obtained a mean reduction of 8% in adjusted BMI at the 8-year follow-up. A total of 59 children (66%) were successful in obtaining weight control; 40% of the children decreased their adjusted BMI by 10% or more. As such, treatment of childhood obesity by means of a multidisciplinary cognitive behavioural program enables the majority of children to obtain long-term weight control.

How to involve the parents

Because the home environment is the principal learning environment to establish a healthy life style, several reviews plead for the involvement of parents in the treatment of obesity in children [8]. In 2012 we evaluated a program in which parents were targeted as the exclusive agents of change. The program consists of 6 biweekly sessions in group format. The sessions are led by a dietician and a child psychologist. While the dietician gives nutritional advices, the psychologist supports behavioural change in the long term. Next to the above described cognitive behavioural techniques also parenting skills are included in this format. The ultimate goal is to install a supportive family climate in which all members follow the new healthy life style. Therefore, parents have to be positively involved towards their children on the one hand, but also be structured and set boundaries on the other hand. The psychologist will focus on general parenting skills to guide this process in each family. Parents learn to observe their children and learn how they can teach their children to cope with problems, both difficult eating situations (like birthday parties), as well as emotional situations (like coping with being bullied). These new parenting skills demand a lot of practicing. In this context, working in groups is ideal and role play is included in every session. Outcome evaluation showed a significant decrease in adjusted BMI over a 6-month period for the intervention group. Parents reported significant positive changes in children's eating behaviour and a significant positive increase in familial health principles see [9].

Pitfalls in the treatment of childhood obesity and how to overcome them

Even though studies demonstrate good effect sizes in children [1], this treatment also struggles with problems. First, too little families with a child with overweight apply to a therapist. Although direct evidence is missing, this might be due to the fact that there is too little awareness of the problem [10]. Moreover, it has become apparent that those who do go in treatment, do not always lose weight or many even drop out. In an Italian study Pinelli et al. [11] reported a drop out percentage of more than 90% in several treatment centers for children with overweight.

Therefore, it is important to identify who benefits from a particular treatment. In 2002, Byrne [12] reported a first overview of four psychological factors that could predict weight retention and relapse: (realistic) weight goals, confidence (self-efficacy), coping behavior and 'healthy' dieting behavior. In a review of 29 prospective studies investigating predictors of therapy success, Texeira et al. [13] particularly focused on lifestyle cognitive-behavioral therapy programs for patients with overweight and obesity. They found evidence for three psychological factors that generally fit the factors reported by Byrne: cognitive style, motivation and treatment history with a limited number of

(failed) treatments. Furthermore, they found that a higher degree of overweight at the start of the treatment is associated with more weight loss. Another study showed that a higher BMI, weight-related health problems and psychosocial stressors appear to increase the risk for drop out, but this is not consistently found throughout literature [14].

For children and adolescents, it seems that the effectiveness of an obesity treatment is largely influenced by their family factors (such as social support, parental child-rearing strategies that are based on positive reinforcement and an increased parental involvement during the treatment) [15,16]. Obese children coming from a family in which both parents also have weight problems, seem to do less well in treatment [17]. In addition, also intrapersonal factors seem to determine the success of a treatment. More specifically, Van Egmond-Froehlich et al. [18] found that a lower level of attention and a higher level of hyperactivity/impulsivity in adolescents is associated with less long-term success after a residential treatment.

Our concern for internal quality assurance, has led us to investigate drop out in the treatment of obesity. We examined all forms of drop-out, also when the drop-out took place before or during the diagnostic phase. Out of the 117 notifications during that year – apart from 9 study refusals, i.e. people who did not want to take part in the study – 36 patients did not qualify for the treatment because they did not meet the inclusion criteria of the clinic (weight criterion, language, or living at too long a distance of the hospital). Another 24 patients did not start with the treatment, even though they were eligible (they did not longer show up during or after the first intake session). Thus, 48 people eventually started with the treatment, of which 38 completed treatment [19]. Based on our experiences and funded within scientific insights into predictors of treatment failure, we will discuss some factors that are associated with failures. In addition, we will indicate how to handle failures.

Realistic expectations about the treatment goals

Jeffery et al. [20] showed that patients with a more realistic expectation had a better likelihood of reaching their goals. With realistic expectations in an outpatient setting we mean that children accomplish weight control (and thus that they don't gain weight), lifestyle adjustments and that adolescents lose weight up to 0.5 kg per week with a maximum of 10% weight loss over a 1 year period. Despite public opinion, which persists in believing in crash diets and 'slimming 20 kg in 10 weeks', a strong anti-diet movement arose in the academic world since the publication of Wilson [21]. Diets upset the metabolism and causes the body to switch to a lower usage, whereby after an initial weight loss during the diet, the obese patient gains weight even faster when resuming his initial eating pattern [22].

For people who ask for assistance and immediately want to see big changes, realistic weight goals are disappointing. A second problem is that they often minimize the risks of their overweight. Some patients choose to 'wait' until they qualify for a third line care. The consequence of this is that people drop out soon after they heard the realistic rationale of outpatient treatment.

Good communication about the rational of the treatment

A good treatment includes a 'paradigm shift', where the focus is no longer on weight loss, but on behavioral change. Therapists, who work ambulatory with obese patients, should be trained in good communication of this rationale.

Rationale: 'Because drastic diets and weight loss do not guarantee long-term success, our aim is to narrow the medical risks that has been shown to decrease when adopting a healthier lifestyle. In other words, our treatment goal mainly comprises lifestyle adjustments. Only ambulatory programs that strive for achievable goals in the area of health, by following the national recommendations for diet and exercise, are acceptable. These are currently included in all guidelines for a good evidence-based obesity treatment. This treatment consists of multiple weekly sessions with a gradual lifestyle modification. This leads to weight control or to a limited weight loss, with an acceptable maximum decrease of 10 – 15% over a period of one year. This rationale of weight control goes for about 90% of all obese patients who seek for help in the first or second line. This means that the obese patient will always have some overweight, but that this overweight no longer increases and the health risks decline significantly.'

Time should be spent on good communication and challenging the patient's cognitions on the pro's and contra's of weight control via cognitive behavioural techniques.

Promoting a supportive network

The role of social support is rarely discussed [13]. When children are asked about their motivation to lose weight and the maintenance of behavioral change, they report that emotional support and the recognition of the problem by their parents are most important [23]. Hence, the motivation of younger patients should always be seen in relationship to the collaboration and motivation of their family members.

Social support consists of several aspects. Emotional support is one of them. In addition, the practical arrangements that are inherent in the participation of a therapy for overweight (for example transport organization, food shopping, planning an exercise program,...) often depend on a supportive environment. In practice, it is striking that it is often the environment that reacts disappointed to the imbalance between the efforts for a treatment and the result of it. This can be intercepted by involving the parents more intensively, and, to thoroughly communicate realistic weight goals and rationale of the treatment.

Furthermore, especially the importance of a treatment program and the belief in the possibilities for change should be explained. This is supported by a study in which parents of children with overweight are asked about the reasons for not taking part in a weight control program, even after a referral by the school doctor. Besides practical barriers, the perception of the problem, the content and the purpose of the program, the perceived importance of the treatment and the belief in the possibility to change were the obstacles that were mainly reported [24].

Build in extra motivational techniques

It is important to invest in motivating the patient and his environment and in keeping them motivated in the initial stages of a treatment. This is certainly the case for patients who have (repeatedly) attempted and failed treatment before [13]. This calls for the introduction of a motivational stage, where, besides paying attention to problem insight, the focus lies on increasing the patient's self-efficacy.

Whether someone is sufficiently motivated, can be tested in different ways. For example, carefully filling in a food diary, is a good indicator. Research showed that a simple checklist completed by the treatment team is also a good predictor of the treatment result [19]. For this, the entire team can be asked by default to make a prediction about the treatment result, based on a Visual Analogue Scale. When several team members fill in an unfavorable prediction, it can be decided to start with focusing on the motivation. Useful motivational techniques are: the cost-benefit analysis, value-directed working, future-oriented writing and the motivational interview.

For instance, the cost-benefit analysis includes that two columns are constructed: a column with the advantages and one with the disadvantages of the weight loss. While focusing on the desired effect, the column with benefits offers a list of motivators, such as 'feeling fitter', 'having more energy', 'choosing nice clothes', while the column with disadvantages offers a list with pitfalls, such as 'no longer being able to eat what I want', 'difficult to sustain'. If necessary, a weight factor can be assigned to each argument. Next, it's investigated whether the disadvantages of the persistent complaints are in proportion to the benefits of losing weight. This technique can be applied in children from 8 years of age.

Correct evaluation of the severity of the weight problem and comorbid problems

Goossens et al. [25] studied the treatment outcome of a residential treatment for obese adolescents (8 – 18 years). The results showed that a higher degree of overweight is always a good predictor for quick weight loss during the first weeks. But the consequence of a large amount of weight loss during the first month of the treatment was that they were less successful in losing weight at the end of the treatment. For this, the patients have to be warned.

Another pitfall is when people suffer from mental health problems and this is their reason to seek help for a weight problem. Mental health problems (like anxiety feelings, negative thoughts, low self-esteem, social problems) with low to mild impairment however, do not need to influence the effect of the treatment for obesity in a negative way. This was demonstrated in children by Braet, Mervielde & Vandereycken [26]. We can hope that, as the result of the weight loss, also the other problems reduce spontaneously. This was confirmed in the study of Moens, Braet & Van Winckel [7]. Based on baseline factors, they compared families that went through more than half of the sessions of an outpatient obesity treatment with families who stopped before half of the treatment sessions. The children in both groups did not differ from each other in terms of age, gender, overweight prior to the treatment, overweight of the parent, socio-economic status and psychopathology of the parent. The presence of psychological complaints in the child turned out to be the main significant difference between both groups. Especially the children who went through more than half of the sessions in the

program had more behavioral and/or emotional problems at the start. Paradoxically, this could indicate that a child faster drops out when it has no additional mental health problems.

We presume that having overweight in a society that favors thinness and that stigmatizes overweight as being lazy and stupid, can be seen as a stress factor. As a result, more and more patients with overweight feel isolated, ashamed and guilty and they develop low self-confidence, anxiety or depression [27]. They try to deal with these emotions by eating them away, which results in further increase in weight. Emotional eating is a well-known problem and does not always resolve with weight control. In contrast, emotional eating can counteract a good weight control treatment. As an example, it is possible that the family discovers that despite all their hard work to prepare healthy meals, the child with overweight secretly eats candy. This might discourage the family and result in quitting the weight control treatment as it seems useless. This illustrates that it is extremely important to allow room for all frustrations of family in treatment.

Psychiatric co-morbidity demands careful evaluation and selection of which disorder has to be treated first.

We have to differentiate mental problems from a psychiatric diagnosis of a disorder (like anxiety disorders, depression, eating disorders,...). When psychiatric problems are presumed, it seems useful to take a clinical interview and to investigate the possibility of diagnosing DSM disorders. At the same time, we endorse the artificial character of psychiatric labeling of children and youngsters. Psychological assessment as such will mainly describe symptoms of children on a dimensional continuum and will focus on their interference in daily live. When the child in particular is not able to go to school, to engage in leisure activities and to adequately interact with significant others, the presence of more severe psychological impairment should be taken into account and the need for psychiatric advice should be considered. Especially, since it was found that the presence of psychiatric disorders enhances the risk of drop out [28]. The relationship between obesity and psychiatric disorders is complex, dynamic and still the subject of many studies. For example, binge eating, might be an antecedent or a consequence of the weight problem (see chapter XX). For instance, the binge eating may be seen as a consequence when its caused by depressed feelings or after having followed a wrong diet. When binge eating disorder is diagnosed, then it should be carefully reconsidered whether these problems should be targeted before starting the standard weight control program. Braet [29] found that the presence of an eating pathology in children before the start of a residential treatment for obesity also had a negative influence on the amount of weight loss 2 year after following this treatment. This evidences that for adolescents it might be useful to start a specific treatment either before or at the same time of the weight loss program.

Estimating the patients' strength

The failure of treatment of obesity can be explained in different ways. Partly, the nature of the problem might be responsible because overeating can be seen as failing impulse control [30]. Systematically attending treatment and changing one's life style demands a lot of self-discipline from the overweight patients, which conflicts with their problem. Baumeister and Heatherton [30] introduced

a strength model in which impulse control is a resource that can diminish and be amplified again. However, this 'amplification' becomes more difficult when the person faces a lot of burden, such as an accumulation of stress factors. As a matter of fact, there is more stress in families with obesity problems [31]. Thus, the strength of a patient with obesity is usually diminished at the time they need more strength. This explains why patients only chose to be treated when the problem becomes too serious (to severe or psychological suffering). At the same time, this represents an important pitfall for treatment.

Based on the strengths model, failure can be seen as a consequence of demanding too much: the system is overloaded [32]. Kazdin et al. developed a questionnaire, the Barriers to Treatment Participation Scale (BTPS, [33]). This scale was based on experiences of therapists with patients who dropped out during treatment. The items of the BTPS were grouped in four categories: stressors and practical obstacles that make treatment more difficult, problems with demands within treatment, observed importance of treatment, and problems within the therapeutic relationship. This list might reveal a lot of important information for the therapist with regard to the resilience versus the burden of an individual patient and his environment.

Conclusion

The benefits of a multidisciplinary approach for overweight children focusing on a healthy life style instead of on very strict diets are well established. Cognitive behavioural modification procedures support behavioural change in the long term. However, important pitfalls in treatment need to be considered. Relapse and drop out rates are probably highest in the treatment of obesity.

There are several reasons to keep considering processes and reasons that can explain failure in obesity treatment. One reason is that treatment failure leads to feelings of personal failure, both in patients as therapists. Moreover, there are also economical reasons. A patient who drops out, remains a risk patient who needs more medical care. They often return to health care at a later time, which doubles (or even multiplies) the costs to healthcare. On top of that, it affects the efficiency of healthcare because when people do not come to their appointment, they hinder others to come. As such, "waiting time" is not used efficiently in this way. A better insight in these reasons can lead to new interventions to increase attrition to therapy and to advance (cost) efficiency of the treatment. On the other hand, it might help put negative feelings as result of drop out into perspective, making obstacles for treatment more discussable.

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Table 1 Overview of treatment goals linked with cognitive behavioural interventions and methods for children and parents

Treatment goals	CHILD		PARENTS	
	Intervention	Methods	Intervention	Methods
Children can resist temptation Parents install a healthy lifestyle for the whole family	Self control training Problem solving skills	selfregistration, selfobservation, goal setting, self evaluation coping with difficult situations	Positive involvement and parental support Consequent disciplining	Behaviour observation, focus on small attainable steps, encouragement, support of new goals. Setting and monitoring of new family rules
Children learn how to delay gratification in function of lifestyle goals in the long term	Working memory training	Braingame Brian		
Children learn to cope with emotions	Emotion regulation	Active coping skills, behavioural activation	Problemsolving skills Active coping, communication	Parents talk to their children about difficult situations. Attention for parent-child interaction
Children control their binge episodes	Dietmanagement Cue exposure Cognitive therapy	selfobservation, regular eating pattern, exposure to snacks with responsprevention. Recognition and challenging triggering cognitions		Making a regular eating pattern available.
Children and parents stay motivated	Cognitive therapy	Cost/benefit analysis Challenging cognitions	Cognitive therapy	Challenging cognitions that hamper progress

