

# VU Research Portal

## Long-term weight management in children and adolescents with severe obesity: psychological aspects

Halberstadt, J.

2015

### **document version**

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

### **citation for published version (APA)**

Halberstadt, J. (2015). *Long-term weight management in children and adolescents with severe obesity: psychological aspects*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

### **E-mail address:**

[vuresearchportal.ub@vu.nl](mailto:vuresearchportal.ub@vu.nl)

## Summary

## Summary

No parent wants their child to be severely obese and unhealthy. Yet, more than eighteen thousand children and adolescents in The Netherlands alone suffer from the severe form of obesity. The prevalence of severe obesity in children and adolescents is high not only in The Netherlands, but worldwide.

Adequate long-term health care for this chronic disease is imperative, given its possible adverse social, psychological and physical consequences. Adequate obesity treatment achieves improvements in health and risk profile through lifestyle adjustments. A better health can improve quality of life and advance social participation in the short run and later in life. Unfortunately, treatment options are currently limited and evidence of what works for whom is scarce.

This thesis explores ways to improve health care for children and adolescents with severe obesity and their families, specifically when taking into account the psychological aspects of long-term weight management for this often neglected patient group.

In the past decade important steps in policy, practice and research were taken to improve evidence based diagnosis and treatment of severe childhood obesity in the Netherlands. As a result a national guideline and a national integrated health care standard were published, encompassing the results of national multidisciplinary consensus about a model for optimal diagnosis and management of severe childhood obesity.

As the national health care standard ('Zorgstandaard Obesitas') states, the starting point for determining the needed level of care after the diagnosis is established, is the stepped care model: care is not offered earlier or more intensive than necessary, but not later or less intensive than needed. If the initial treatment is insufficiently effective a more radical or more intensive form of treatment can then be chosen, if appropriate.

The recommended treatment for severe childhood obesity is a one year long intensive family based combined lifestyle intervention with a focus on self-management. This intervention should be directed at nutrition and physical activity with attention for behavioral change. The intensive treatment period of one year should be followed by one year of supervised relapse prevention and subsequently, if needed, by long-term behavioral and weight maintenance support delivered locally. In the case of complex cases and/or an insufficient response to ambulatory treatment, the option of immersion treatment in the intensive treatment phase can be appropriate.

In order to evaluate such an immersion treatment, the Health Effects of Lifestyle Interventions in Obese children and adolescents Study (HELIOS) started in 2009 at the VU University Amsterdam in cooperation with the childhood obesity clinic Heideheuvel (part of Merem Treatment Centers) in Hilversum. A total of 120 children and adolescents (8-19 years) with an average SDS-BMI of 3.4 and a BMI comparable to above 40 kg/m<sup>2</sup> in adults and their parents/caregivers were included. The study population suffered from severe obesity and had not been able to profit sufficiently from previous treatments. They received a one year, partly inpatient, intensive lifestyle intervention with an emphasis on nutrition, exercise and behavior and on implementation of the learned behavior in the home situation. The study encompassed a prospective intervention study of the psychological aspects of long-term weight management (n=120) described in this thesis and a randomized controlled trial on (cost) effectiveness (n=80) of the treatment with varying inpatient periods that is described elsewhere (dissertation S. Makkes, 2015).

The patients were treated in groups of 10 children (8-13 years) or 10 adolescents (13-19 years). Measurements were taken at three points in time: at baseline (start of treatment), at the end of treatment (1 year after baseline) and at follow-up (2 years after baseline). The primary outcome measurement was the gender and age-specific change in SDS-BMI. Measurements included weight and height, questionnaires on psychosocial characteristics and two behavioral computer tasks measuring the general ability to self-regulate.

Successful long-term weight management after a lifestyle intervention is possible for children and adolescents with severe obesity, as has been shown by other studies and was confirmed in HELIOS: on average the participants had a statistically significant decrease in their BMI and their SDS-BMI between baseline and the end of treatment one year later. This effect was partially maintained at follow up two years after baseline, although there was an average increase of BMI and SDS-BMI in the year following treatment. In addition statistically significant improvements in the quality of life were achieved.

In order to improve the care for children and adolescents with severe obesity, insight into the determinants of the remarkable individual differences in long-term weight change is important. More insight in the psychological factors that determine the long-term outcome of lifestyle interventions, can contribute to the improvement of interventions and lead to better meeting the health care needs of children and adolescents.

## Summary

The ability to self-regulate is a promising psychological factor that may help explain individual differences in long-term weight change because sustained behavior change requires a certain degree of self-regulation. In HELIOS we assessed three psychological aspects that are related to self-regulation: general self-regulation, eating-specific self-regulation and food addiction.

General self-regulation was operationalized with two facets of self-regulation that seem critical when controlling food intake: inhibitory control and sensitivity to reward, both assessed with a behavioral computer task. Inhibitory control is the capacity to inhibit impulses and responses. Sensitivity to reward encompasses both the sensory pleasure the reward produces and the degree of motivation to get hold of the reward.

The study showed no statistically significant association between inhibitory control or sensitivity to reward after treatment and subsequent weight loss maintenance. None of the psychosocial factors that were examined as moderators, showed a statistically significant interaction, except for parental feeding style. Parental control over eating at the end of treatment supported weight loss maintenance in participants with a low inhibitory control at the end of treatment.

The role of eating-specific self-regulation as determinant of long-term weight change was also investigated. For this the participants eating styles were evaluated with the Dutch Eating Behavior Questionnaire-child report that measures external, emotional and restraint eating.

The results indicated that for girls, but not for boys, higher levels of restraint and external eating at the end of treatment were associated with more weight (re)gain during the following year. Yet, for girls and boys no statistically significant association between emotional eating at the end of treatment and weight change during the following year was found.

Summarizing, we found a few potentially important effects related to self-regulation and weight loss maintenance that warrant further investigation, however the factors that explain the large range of long-term outcomes still need to be elucidated.

In addition to assessing determinants of long-term weight change, an explorative study with 20 of the 120 HELIOS participants looked into the concept of food addiction. The Yale Food Addiction Scale for children (YFAS-C), an assessment tool that examines the contribution of an addictive process in problematic childhood eating behavior and obesity, was translated into Dutch for HELIOS.

The study findings suggested that on an individual level food addiction can be a useful concept for understanding disordered eating and that obese adolescents with food addiction may represent a subgroup of patients that might profit from interventions tailored to acknowledge this aspect.

The results described in this thesis illustrate that despite a growing body of research, the knowledge and understanding about psychological factors that influence how, when, why and how much people eat (or feed) is still limited.

The assessed aspects of general and eating-specific ability to self-regulate after treatment were only very partially associated with long-term weight change. Possibly they get overruled by other, stronger influences on eating behavior. For the individual child there might have been many clinically relevant factors we did not measure, but that had a vast impact on their behavior during or after treatment. Self-regulation, in its many forms, is one factor of many that influence peoples eating behavior. Concurrently, individual behavior and body weight is influenced by biological factors like heredity and by often powerful environmental factors like socio-cultural and economic factors and the physical environment.

The good news is that despite the lack of statistically significant findings in the relation between the different aspects of self-regulation and weight change after treatment, sustainable behavior change appeared to be possible. This is illustrated by the long-term improvements in weight status and quality of life.

Several recommendations can be made based on the presented findings and reflections.

For individually tailored care, better assessment tools are needed so subgroups of patients can be identified that based on their 'patient profile' can be designated to participate in a certain weight management program. Patient profiles for obesity should be based on at least three components: weight related health risk, health-related quality of life and capacity for self-management. In addition, it is useful to do more research on other psychosocial factors that possibly play a role in treatment success and can contribute to a better match between patient and treatment. The psychological aspects of self-regulation examined in this thesis are worthwhile further investigating, for example their interrelatedness in children and adolescents with severe obesity.

## Summary

Another important research recommendation is to evaluate the whole care chain from early signaling and diagnosis, to treatment, relapse prevention and long-term behavioral and weight maintenance support delivered locally. The perspectives of the patients themselves and their parents should be incorporated in such an evaluation.

A recommendation for policy makers is that the whole integrated care chain, as described in the integrated health care standard for obesity, should be reimbursed. Furthermore, it is important to whenever possible, prevent kids from developing (severe) obesity. This implies that the integrated care should not only be available for the heaviest group but also for those with (a high risk of) obesity. The aim should be to realize integrated care with available, accessible, if possible local, matched, effective care for all levels of overweight and obesity, including severe obesity.

In addition, for adequate obesity management, the development of strategies to effectively prevent overweight and obesity is essential. Ideally prevention already starts around the time of conception, thus giving children the best start in life possible in terms of a healthy lifestyle and environment. The first 1000 days in a child's life, starting at conception, are of critical importance for their later health.

Health care professionals should be aware of the meaningful improvements in weight status, health and quality of life that are possible to achieve with children and adolescents with severe obesity in the short and the long term, as HELIOS showed.

In conclusion: research, policy and practice can and should strengthen each other in the improvement of care for the vulnerable group of children and adolescents with severe obesity and their families.