

Psychological considerations for lifestyle weight management programmes for children and young people, and the use of behaviour change theories

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1. The psychological consequences of obesity and the experiences of children and young people who are obese.

It is reasonable to assume there will be psychological consequences of growing up fat given the climate of negativity and discrimination that surrounds obesity. However, psychological distress is not uniform within obesity. Some obese individuals have serious psychological problems. Others have mild problems, and some very few at all. Evidence is becoming available that helps to better understand the relationship between obesity and distress, the factors that mediate this relationship, and the age when distress becomes apparent.

Self-esteem, quality of life, and mood disorders are areas in which the relationship between distress and obesity is well evidenced and will be the focus of this section.

A recent systematic review concluded there was strong evidence that paediatric obesity impacts on **self-esteem** and **quality of life** (Griffiths et al, 2010). Six of nine studies found lower global self-esteem in obese compared with healthy weight children and adolescents. Similarly, four out of five studies that incorporated a self-esteem dimension within quality of life scales reported significantly lower scores in their obese samples. Nine out of eleven studies using child self-report, and six out of seven studies using parental report, found significantly lower total quality of life scores in obese youth. Of the assessed sub-domains of self-esteem, athletic/physical competence and physical appearance perceptions revealed the greatest impact of obesity. All studies evaluating these domains found lower scores in obese youth. Similarly, on the related constructs of quality of life scales (physical functioning, physical/general health and appearance), the majority of studies reported impairment in obese samples. Obesity also impacted on social acceptance and functioning; lower scores were reported in half of the self-esteem studies and the majority of quality of life studies that examined this dimension.

Studies of weight management programs help address direction of influence. In a review of the literature on structured weight management programmes for children and adolescents that included a measure of **self-esteem**, 18 of 21 studies were observed to report some end of intervention improvement in self-esteem (Lowry et al, 2007). However, the relationship with weight change was less clear. A similar proportion of studies found, as failed to find, a relationship between decrease in weight and improvement in self-esteem. Furthermore, some studies observed self-esteem improvements in the absence of weight change. The possibility of psychosocial benefit from interventions without significant weight loss is intriguing and suggestive of important roles in weight management programmes for social support, acceptance, and skill mastery.

In terms of what predicts impaired **quality of life** in young obese adolescents, degree of overweight, presence of depressive symptoms, poor perceived peer support, and low socioeconomic status have all been identified (Zeller & Modi, 2006). Evidence reviews identify physical functioning difficulties and psychosocial impairments as the main areas affected, as noted above (Tsiros et al, 2009).

Research into the relationship between obesity and **depression, anxiety and other mental health problems** typifies that in psychological well-being more generally. The pattern of results from cross-sectional studies suggests the following. First, the relationship is stronger in women than in men. Second, the relationship is most apparent in those with severe obesity. Third, obese individuals in clinical treatment are more likely to be depressed or anxious than those in the community. Fourth, the relationship emerges during adolescence. Fifth, it is mediated by a number of social and psychological variables.

Recent longitudinal research has brought sophistication to this issue. There are several reports that show **depression** in adolescence is associated with later weight gain and risk of subsequent obesity. Meta-analysis confirms a more than doubling of the risk of later obesity in depressed adolescent girls, an effect that is larger in size than the effect of passive smoking on the development of cancers (Blaine, 2008). In contrast, obesity in a sample of older adults doubled the risk of depression 5 years later, even after controlling for baseline depression. Accordingly, a bi-directional causal model has been proposed using the available evidence to indicate the main pathways that mediate and moderate the relationship between

obesity and depression (Markowitz et al, 2008). This has been adapted by Napolitano and Foster (2008) who have suggested separate but related models for adults and adolescents (Figure 1). Similar bi-directional processes are likely in the relationship between obesity and other types of psychological morbidity.

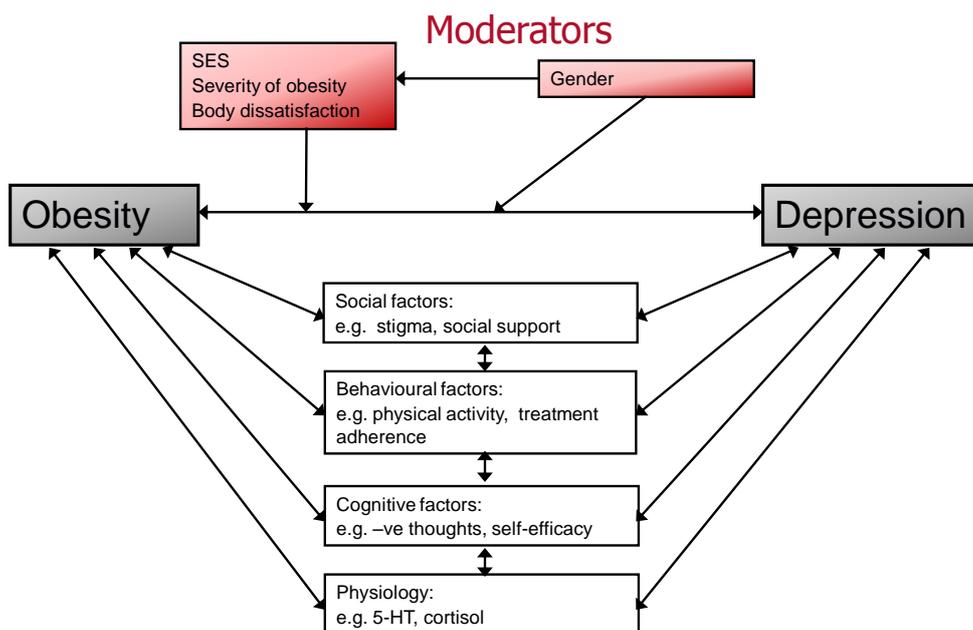


Figure 1. A bi-directional relationship between obesity and depression (after Markowitz et al, 2008 and Napolitano and Foster, 2008)

Three further issues are relevant here. First, **victimization** for overweight (or fat teasing) is both a recognised mediator between obesity and depression (e.g. Madowitz et al, 2012), and extremely common in both community and clinical samples. For example, two thirds of adolescents attending US weight loss camps report victimisation, with peers and friends being the main perpetrators (Puhl et al, 2013). Second, several studies from different parts of the world have observed emotional and behavioural problems and impaired quality of life in **preschool-aged** children (e.g. Griffiths et al, 2011; Kuhl et al, 2012). These are mostly manifest in problems with conduct and with peers. Some obese children and adolescents therefore have a long history of potentially unmanaged psychological issues. Third,

disordered eating such as binge eating is more likely in obese adolescents, as it is in obese adults (Goldschmidt et al, 2008). It should be noted that there is no evidence that participation in treatment for obesity or school-based prevention programmes increases the risk of developing an eating disorder (Butryn & Wadden, 2005; Austin et al, 2012). Indeed, properly conducted weight management is associated with an increase in adolescent's well-being and reduction in eating disorder symptoms.

2. What weight management programmes should do to address these issues.

It would be difficult to argue that all weight management programmes should include the resource and expertise necessary to manage disordered eating, depression, or low self-esteem. Increased risk of these problems is difficult to reconcile with the individual and age variability noted above. Most community-based and intensive camp or clinically-based programmes have opportunities for obese children to discuss victimization and/or distress either with programme staff or within group settings. Exchanging experiences with other obese children can be reassuring and empowering. However, there will be some who fail to disclose or whose psychological problems require specialist attention. Most programmes would look to the child's GP as a referral route to CAMHS as integration with mental health services is rare (Walker & Hill, 2009).

3. Behaviour change theories in weight management. Do these apply to children? Is there evidence that these approaches are effective in supporting children to change their behaviour?

In their overview of evidence-based treatment of obesity in children and adolescents Stewart et al (2009) observe that behavioural change techniques are central to treatment and variously employed in lifestyle programmes. Many of those techniques used with adults are recommended in evidence-based guidelines for children. These include decisional balance (readiness to change), goal setting, self-monitoring, problem solving barriers, and rewards. They are fundamental to behaviour change and included in more general advice to NHS health trainers that is directed at several health outcomes (BPS, 2008).

Theories of how to change behaviour can be represented as 3 groupings: **learning theory**, **self-regulation theory**, and **social cognitive theory**. Approaches using principles of learning theory change behaviour by changing the antecedents (e.g. features of the environment) and/or the consequences of behaviour (via rewards). Self-regulation changes behaviour through goal setting, self-monitoring, comparison of behaviour with some standard, and subsequent effort to reduce the discrepancy between self and standard. Social cognitive approaches develop self-efficacy - the “I’m confident I can do it” part of the behaviour change process - by exposure to mastery experiences, social modelling, and social persuasion.

All three of these behaviour change theory approaches are relevant to, and used in, weight management for children. However, they are highly reliant on the **social context** in which they are applied. Take, for example, developing self-efficacy. Bandura’s initial account of **self-efficacy** was in the context of treating phobias (Bandura, 2004). Guided mastery involved creating experiences where phobics learned that the dreaded object/situation was safe and experiences where phobics could exercise control over what they feared. Most children and adolescents will need adults enable and encourage mastery experiences that lead to successful outcomes. Those that demand perseverance are especially potent in developing self-efficacy and are unlikely to happen through a child’s efforts alone. Being in the presence of others with the same problem or faced with similar challenges enables both social modelling and social persuasion. So, seeing others succeed through sustained effort leads to modelling of the necessary competencies or strategies. Likewise, others can convey faith in people’s abilities and arrange things in ways that make success more likely. Well organised and regular group experiences can facilitate self-efficacy in weight management and this likely contributes to the success of intensive programmes such as weight loss camps.

Another area of social input for this age group is that of **the family** (Gruber & Haldeman, 2009). They are agents through which all behaviour change approaches can be enhanced (or undermined). Accordingly, the family-based behavioural approach of Epstein and colleagues, for example, has shown its effectiveness over a 10-year follow-up period (Epstein et al, 2007). Conventional wisdom is that parents

should be less involved in adolescent weight management and that directed at younger children can be done exclusively via parents.

The American Heart Association (AHA) published a scientific statement on **parents and adult caregivers** as ‘agents of change’ for treating obesity children in 2012. Their conceptualization of behaviour change strategies that include parents is depicted in Figure 2, and matches the theory groupings above. Rather surprisingly, their systematic review identified 12 randomized controlled trials that overall showed no strong evidence that greater parental involvement was associated with better weight loss outcomes in children. However, greater parental adherence to behaviour change strategies (role modelling, involving children in family meal preparation, etc) did predict better child weight outcome after 2-5 years. Restricting the evidence reviewed to RCTs does exclude a large literature related to eating behaviour, physical activity and sedentariness in which the family system is regarded as essential in effecting children’s weight management.



Figure 2. Core strategies for changing behaviour in family-based interventions for paediatric obesity that include parent and adult caregivers (from Faith et al, 2012).

A further recent statement from the AHA relates to social networks, social media, and electronic technologies in child obesity management and prevention (Li et al, 2013). Increased understanding and interest in **social networks** has led to proposals for strategies that affect behaviour change via different levels of children’s

social environment (e.g. Koehly & Loscalzo, 2009). Furthermore, the use of **SMS messaging** with teenagers would seem an effective way of reminding, motivating, and reinforcing behaviour change related to weight management, although evidence of effectiveness is so far in short supply (e.g. Nguyen et al, 2013; Niet et al, 2012).

References

- Austin SB et al (2012). Effect of the Planet Health Intervention on eating disorder symptoms in Massachusetts middle schools, 2005-2008. *Prev Chronic Dis*, **9**,120111. DOI: <http://dx.doi.org/10.5888/pcd9.120111>
- Bandura A (2004). Swimming against the mainstream: the early years from chilly tributary to transformative mainstream. *Behav Res Therap*, **42**, 613-630.
- Blaine B (2008). Does depression cause obesity? A meta-analysis of longitudinal studies of depression and weight control. *J Health Psychol*, **13**, 1190-1197.
- BPS (2008). *Improving health: Changing behaviour. NHS health trainer handbook*. Department of Health; London.
- Butryn ML & Wadden TA (2005). Treatment of overweight in children and adolescents: does dieting increase the risk of eating disorders? *Int J Eat Disord*, **37**, 285-293.
- de Niet J (2012). The effect of a short message service maintenance treatment on body mass index and psychological well-being in overweight and obese children: a randomized controlled trial. *Pediatr Obes*, **7**, 205-219.
- Epstein LH, Paluch RA, Roemmich JN, Beecher MD (2007). Family-based obesity treatment, then and now: Twenty-five years of pediatric obesity treatment. *Health Psychol*, **26**, 381-391.
- Faith MS et al (2012). Evaluating parents and adult caregivers as “agents of change” for treating obese children: Evidence for parent behaviour change strategies and research gaps. *Circulation*, **125**, 1186-1207.
- Goldschmidt AB et al (2008). Disordered eating attitudes and behaviours in overweight youth. *Obes*, **16**, 257-264.
- Griffiths LJ, Dezateux C, Hill AJ (2011). Is obesity associated with emotional and behavioural problems in children? Findings from the Millennium Cohort Study. *Int J Pediatr Obes*, **6**, e423-e432.
- Griffiths LJ, Parsons TJ, Hill AJ (2010). Self-esteem and quality of life in obese children and adolescents: a systematic review. *Int J Pediatr Obes*, **5**, 282-304.
- Gruber KJ, Haldeman LA (2009). Using the family to combat childhood and adult obesity. *Prev Chronic Dis*, **6**, http://www.cdc.gov/pcd/issues/2009/jul/08_0191.htm.
- Koehly LM, Loscalzo A (2009). Adolescent obesity and social networks. *Prev Chronic Dis*, **6**, http://www.cdc.gov/pcd/issues/2009/jul/08_0265.htm.
- Kuhl ES et al (2012). Impaired health-related quality of life in preschoolers with obesity. *J Paed Psychol*, **37**, 1148-1156.
- Li JS et al (2013). Approaches to the prevention and management of childhood obesity: The role of social networks and the use of social media and related electronic technologies. *Circulation*, **127**, in press.
- Lowry KW, Sallinen BJ, Janicke DM (2007). The effects of weight management programs on self-esteem in pediatric overweight populations. *J Pediatr Psychol*, **32**, 1179-1195.
- Madowitz J et al (2012). Teasing, depression and unhealthy weight control behaviour in obese children. *Paediatr Obes*, **7**, 446-452.
- Markowitz S, Friedman MA, Arent SM (2008). Understanding the relation between obesity and depression: Causal mechanisms and implications for treatment. *Clin Psychol Sci Prac*, **15**, 1-20.
- Napolitano MA, Foster GD (2008). Depression and obesity: Implications for assessment, treatment, and research. *Clin Psychol Sci Prac*, **15**, 21-27.
- Nguyen B, Shrewsbury VA, O’Conner J, Steinbeck KS, Hill AJ, Shah S, Kohn MR, Torvaldsen S, Baur LA (2013). Two-year outcomes of an extended adolescent weight loss maintenance intervention involving novel additional therapeutic contact: the Loozit[®] randomised controlled trial. *Int J Obes*, in press.
- Puhl RM, Peterson JL, Luedicke J (2013). Weight-based victimization: Bullying experiences of weight loss treatment-seeking youth. *Pediatrics*, **131**, e1-e9.
- Stewart L, Reilly JJ, Hughes AR (2009). Evidence-based behavioural treatment of obesity in children and adolescents. *Child Adoles Psychiatr Clinic N Amer*, **18**, 189-198.

Tsiros MD, Olds T, Buckley JD et al (2009). Health-related quality of life in obese children and adolescents. *Int J Obes*, **33**, 387-400.

Walker, L. & Hill, A J. Obesity: the role of child mental health services. *Child & Adolescent Mental Health*, 14, 114-120, 2009.

Zeller MH, Modi AC (2006). Predictors of health-related quality of life in obese youth. *Obes*, **14**, 122-130.