

Symposium on 'Behavioural nutrition and energy balance in the young'

Childhood obesity: from nutrition to behaviour

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Obesity in children is difficult to treat, but it seems to be easier to treat than adult obesity. The first step in treatment is to identify effective advice relating to nutrition and physical activity. In most treatment studies the macronutrient composition of the diet is not of major importance for treatment outcome. In relation to physical activity fat-utilisation strategies have been described. The second step includes appropriate approaches to lifestyle change. In Europe there are no drugs approved for children, and surgery for children is still limited to research projects. Thus, the major challenge is to develop effective ways of changing lifestyle. Family therapy may be an effective approach in preventing severe obesity from developing during puberty, and a therapeutic strategy based on treatment studies is described. The family-therapy techniques used here are intended to facilitate the family's own attempts to modify their lifestyle, and to increase their own sense of responsibility and readiness to change, i.e. these variables are the prime targets during therapy. Thus, the family, not the therapist, assumes responsibility for the changes achieved. This approach may be helpful in making the therapeutic process less cumbersome for the therapist. Instead of the therapist attempting to persuade the obese subjects to lose weight, it might be more effective to teach them to control their eating patterns through their own efforts. The treatment model includes structural family therapy and solution-focused-brief therapy. The use of such a model makes it possible to train therapists and health professionals to use an evidence-based intervention model.

Family therapy: Childhood obesity: Systemic family medicine

Treating obesity in children, although difficult, seems to be easier than treating adult obesity^(1–3). The first step is to identify effective advice on nutrition and physical activity.

In relation to nutrition, several studies have investigated an epidemiological association between BMI and food habits, but the results have been inconclusive, as pointed out in a recent review⁽⁴⁾. From the epidemiological perspective, the cross-sectional Bogalusa Study, which has investigated 1562 children aged 10 years over a 21-year period, has found that the consumption of sweetened beverages, sweets and meat and the total consumption of low-quality foods are positively associated with overweight status⁽⁵⁾. Furthermore, the total amount of food consumed, specifically from snacks, is positively associated with overweight status. However, the percentage variance explained from the eating pattern–overweight models is very small.

In relation to treatment, a meta-analysis has shown that low-carbohydrate non-energy-restricted diets in adults appear to be at least as effective as low-fat energy-restricted diets in inducing weight loss for ≤ 1 year⁽⁶⁾. However, in a recent study of forty-one 8–12-year-old obese children who were randomly assigned to a 24-month family-based behavioural treatment the macronutrient content was found to be important⁽⁷⁾, with the diet targeting an increase in fruit and vegetables and low-fat dairy products showing a higher reduction in BMI than reducing intake of high-energy-dense foods⁽⁷⁾. For children there is no conclusive evidence in relation to low-glycaemic index or high-protein diets, although reduction in intake of soft drinks seems to be effective in prevention⁽⁴⁾. Thus, in most treatment studies the macronutrient composition of the diet is not of major importance for treatment outcome.

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In relation to physical activity, a systematic review of randomised controlled trials of physical activity treatment in overweight and obese children has found that an aerobic exercise prescription of 155–180 min/week at moderate-to-high intensity is effective in reducing body fat⁽⁸⁾, although the effects on body weight and central obesity are inconclusive. In treatments involving physical activity practical fat-utilisation strategies have been described, as it is important to reduce sedentary activities, encourage play, focus on daily activities such as walking to school, encourage hobbies and promote sports⁽⁹⁾.

The second step includes appropriate ways of changing lifestyle. Since in Europe there are no drugs approved for children, and surgery for children is still restricted to research projects, the major challenge is to effectively modify lifestyle.

The working hypothesis is that intervention in the family context will have a greater impact on the adolescent child than individual counselling. Thus, the child's likelihood of maintaining a socially- and medically-acceptable weight will be increased by facilitating the functioning of the family, irrespective of whether this strategy is perceived by the observer as impaired or not, and irrespective of the individual's genetic susceptibility to obesity.

Background

Family therapy has been tried as treatment in several chronic diseases. Medical family therapy as a new concept has been discussed⁽¹⁰⁾, although the novelty of the concept has been questioned⁽¹¹⁾, and a theoretical background has been documented⁽¹²⁾. The present authors, whose work has been highlighted as a good example of the proposals⁽¹¹⁾, have found that the family is an appropriate system to help in dealing with chronic diseases such as obesity in children. The family is the system that is closest to the individual and provides considerable opportunities for support^(3,13). Furthermore, the efficacy of this approach is reflected in its success in treating eating disorders such as anorexia nervosa^(14,15).

Systemic family medicine

Systemic family medicine is a field of medicine that can be defined as an integration of system theory, family therapy, general practice and modern clinical medicine. System theory is based on the core premise that the wholeness of any phenomenon cannot be understood by only examining its component parts. Initially, psychiatrists applied system theory to clinical practice in order to treat severe psychiatric cases, and subsequently consideration has been given to its application to clinical medicine. Currently, in the field of family therapy systemic family medicine is a useful bio-psychosocial model that gives the doctors and their teams a creative complement to the regular medical and biological model. The traditional paradigms of linear causality are replaced here by a circular model in which different factors interact and are connected to each other. Illnesses are in this perspective part of a pattern. Families

and networks are often active in a helping process. The therapist is also a part in this ongoing dialogue.

During past decades there has been an increased number of studies relating to the family and the family's influence on chronic illness^(16–18). In most of these studies there is a family dysfunction associated with poor coping, low adherence and adverse health outcomes^(19–21). Research has demonstrated that families and their network influence most of health-related behaviour and has highlighted the limitations of meeting the patient alone.

Other therapies

Behavioural therapy

Behavioural therapy has been used in obesity management since the success of a programme based on the premise that obesity is a 'learned disease', possible to cure by 're-learning'⁽²²⁾. However, ideal behavioural programmes with successful long-term results have been difficult to develop (for review, see Brownell & Wadden⁽²³⁾).

Although there is a major genetic influence in obesity⁽²⁴⁾, psycho-social factors have also been identified. In 1983 it was observed that groups in which obese children and their mothers meet the group therapist separately give better results than those in which the children are seen alone or along with their mothers⁽²⁵⁾. The effects of parent interaction have also been studied using three groups that were provided with similar diet, exercise and behaviour management training but differed in the reinforcement for weight loss and behaviour change⁽²⁾: the child and parent group reinforced parent and child behaviour change and weight loss; the child group reinforced child behaviour change and weight loss; the non-specific control group reinforced families for attendance. The best result was achieved in the parent and child group. Behavioural therapy has also been used in a school setting, with the programme consisting of behaviour modification, nutrition education and physical activity, and the involvement of the parents and school personnel⁽²⁶⁾. Furthermore, a systematic review of the evidence has shown that preventive strategies have an effect on childhood obesity, although the most appropriate method has yet to be established⁽²⁷⁾.

Behavioural therapy views obesity as a result of bad eating habits such that insufficient control of stimulus or rewarding behaviour results in an increased food intake. These habits can be broken down into small sequences (e.g. frequency of chewing, frequency of meals etc.) that can be modified. The parents can be regarded as a reinforcement of the children's eating habits; for example, a monetary deposit may be paid back to the patient during weight reduction⁽²⁸⁾.

This behavioural approach has yielded successful short-term results when compared with no treatment or education. However, long-term results have been less encouraging in adults⁽²³⁾. Nonetheless, a 10-year follow-up has shown that results are sustained when booster sessions are provided for a period of 4 years, which indicates the difficulties of maintaining good results⁽²⁹⁾. In children long-term results are much more encouraging^(2,30).

Psycho-dynamic therapy

Psycho-dynamic therapy is probably less used for obesity treatment than for treatment of anorexia–bulimia. However, clinical observations of obesity^(31,32) have also included the family⁽³³⁾. The obese child is described as living in a dysfunctional family, i.e. one in which there is disturbed communication between parents and child. The child has difficulty in discriminating between its emotions and other sensations from the body, such as hunger. Eating is then used as a replacement for other emotional needs. This response is founded early in the mother–child relationship if the child's need of love, warmth, food etc. is not adequately fulfilled. There is a symbiosis between mother and child, from which the father is often absent or peripheral.

The impact of the family

Family therapy has been used for children with behavioural and/or emotional disturbances, and for children with chronic diseases. The family is regarded as basic to the child's psychological development and a major factor influencing his or her quality of life.

Many studies have been performed and they have been evaluated in several reviews^(14,15,34,35), which show family therapy to be effective in asthma, diabetes, anorexia nervosa, bereavement and adult schizophrenia. It has also been possible to develop different diagnostic procedures for families with children showing symptoms of somatic or psychic origin⁽³⁶⁾. Psycho-educational family therapy has been used in schizophrenia. The relative effectiveness of the educational and therapeutic parts of the programme has been studied and it has been shown that both are needed⁽³⁷⁾. Another Swedish study has shown family therapy to be a cost-effective treatment for childhood asthma⁽³⁸⁾.

Subsequent to the original suggestion that family therapy might be helpful in treating obesity⁽³⁹⁾, the authors' studies have provided evidence to support this hypothesis^(3,13). There are several different ways of providing family therapy, but, the basic principles are the same. First, the objective to change and develop the family structure, based on the needs of the child and the other family members, is important. Second, the family hierarchy, including grandparents, is taken into account. Third, the major way of achieving these goals is to engage the family by gathering them together to discuss the problems or solutions. Finally, the family lifecycle is also important, as needs differ as the family evolves. For instance, an additional child requires a changed family structure in which every member has to adapt and yet still retain his or her own individuality. In the authors' studies the solution-based-brief therapy^(40–43) has been used in combination with proposals for the treatment of psychosomatic families^(44–46). This method, termed structural family therapy, simply attempts to re-establish a workable family structure by 'getting the family back on track'.

Solution-based-brief therapy

Solution-based-brief therapy has emanated from the field of family therapy, which has its origin in the schools of

interactional, relational and systemic theory. From the 1950s family therapy began to evolve from the current research on human communication^(47–50), and subsequently several schools within the field have developed. During the 1980s a type of therapeutic interaction termed solution-based-brief therapy was introduced^(40–43). This therapy was unusual, as its recognition resulted from its originality and simplicity; at least on the surface.

The inspiration for this therapy was provided by post-structuralist philosophers such as Wittgenstein and Derrida, who were among the creators of the perspectives of constructivism^(51–54). This concept describes how the individual in their inner world, and in dialogue with significant others, constructs an image of the world they are living in. The relationship with language is also like a barrier that can be passed by communication with others. An individual uses language but language also uses the individual. This interaction becomes a map or construct that guides the individual in their life. The construct may or may not be continuously changing.

In the therapeutic interaction the therapist begins a kind of language game; 'the term means to bring into prominence the fact that the speaking of language is a part of an activity, or a form of life'⁽⁵³⁾. The language game is in this context a complete system of human communication, and is a way of describing the similarity between the attributes of communication between the therapist and the client and those of any other language system.

Standardised obesity family therapy

Standardised obesity family therapy (SOFT[®]; Childhood Obesity Unit, University Hospital, Malmö, Sweden) is a use of family therapy in a somatic context, as is systemic family medicine mentioned earlier. The first study associated with the development of this model has been described in detail elsewhere⁽³⁾. This trial is one of the few randomised controlled trials on the treatment of childhood obesity and was performed at the Department of Pediatrics, University Hospital, Malmö, Sweden, after screening a general population of schoolchildren aged 10–12 years. Families selected from the population-based sample were allocated to three groups: (1) conventional treatment, i.e. regular visits to a paediatrician and dietitian; (2) six sessions of family therapy; (3) no treatment. The duration of treatment was 14–18 months for both treatment groups. At follow-up 1 year after the end of treatment BMI was found to be lower in the family-therapy group than in the untreated control group. Furthermore, physical fitness was found to be higher and skinfold measurements lower when compared with the control group receiving medical check-ups and dietary advice. This method has now been applied at the Childhood Obesity Unit, University Hospital, Malmö, which serves children and adolescents in southern Sweden. The method has been further evaluated in the practical setting of this tertiary referral centre⁽¹³⁾.

The processes in therapy: approaching the family

The major problem in obesity is to establish adequate motivation for long-term treatment success. The thoughts

and opinions of the subject families will therefore be briefly discussed, based mainly on the experiences of the earlier study⁽³⁾.

In a family in which obesity frequently occurs there is a tendency to accept overweight as a positive identification across generational borders. Also, a parent may fear hurting the child physically or mentally by discussing weight control or changes of diet. The therapist has to approach this question with understanding.

Different family members vary in how they take advantage of the therapy. However, the child is usually the most interested, and therefore the most motivated, in regulating his/her weight, which could be related to increasing problems of the pre-adolescent in finding suitable well-fitting clothes, and also to a desire to look more like other children. Nevertheless, few of the obese 10–11 year olds have reported any problems relating to bullying by other children. They have also reported ordinary relationships with friends.

Even if the child is strongly motivated, he or she is closely dependent on the parent in relation to the choice of food purchased and served in their home. Usually, the families want to maintain their habits and conflict has arisen between this desire and the need for change in the family to help the obese child. In this situation therapy is a means of helping the family try out other solutions to the problem.

The strategy in therapy

The most useful strategy is to recommend small simple changes rather than more complex ones. The effect of a small change in diet or exercise, if allowed to exert its influence over a long period, is much greater than that of major changes that the family cannot maintain. Indeed, by walking or running 4 km per d (equivalent to 837 kJ (200 kcal) in a 40 kg child) the child can lose 1 kg within 35 d, or 5 kg in 0.5 year, even without a reducing diet⁽⁵⁵⁾. Alternatively, in order to lose 1 kg adipose tissue in a short period of time and in a more extreme way a 40 kg child may have to run 140 km or play tennis for 26 h. This example is also a metaphor for an effective change according to solution-based-brief therapy model.

The therapist uses the structural model^(44–46) as a frame perspective within which the solution-based model^(40–43) exerts its influence. Usually, the situations that the families want to discuss are those in which the child or parents experience difficulty in following the prescribed diet or recommended exercise, not the recommendations *per se*. During therapy adequate information is essential for success in finding solutions. Usually, the family is asked to discuss different solutions at home before the next session. The opinions and thoughts of the obese child are essential to the process.

Family interaction

How do families communicate their essential needs in relation to feelings, cognitive information and understanding? There are indications that the families are not homogeneous when their ways of communicating are taken

into account. Ways of relating to the obese child cannot easily be generalised, as families are different. However, some general observations will be made. The consequences of weight reduction may result in worries about the health and well-being of the child. Often the parents talk about this openly, especially the fear of developing anorexia nervosa. However, the children have much more courage and a more realistic view of an appropriate weight goal.

Practical approach

In the model used the treatment lasts for four to six sessions; sometimes there are even fewer sessions. The clients recognise the value of this type of therapy, which clearly differs from traditional psychotherapy. There is a strict focus on solutions rather than problems, unlike the vast majority of psychotherapy, e.g. psychodynamic therapy. Furthermore, the approach involves total respect for the patient and his/her values. However, it is necessary to introduce a goal in therapy, otherwise it is not possible to conduct any therapy.

In solution-focused therapy small achievable goals are recommended, as the accomplishment of the first goal may lead to the next. There is also a technique of using 'scale' questions to better visualise how the client approaches a goal. The desired state of change is also a question that provokes a lot of creativity and positive feelings. In order to take small steps discussion about solutions becomes realistic and invites a focus on change. 'Change is inevitable', is a statement that takes advantage of a process that is going on whether or not it is recognised; it is a fact of life on this planet⁽⁴⁹⁾.

In starting therapy a process lasting about 2 years is initiated with sessions from two to four times per year. Each session starts with an evaluation of the present situation and together with medical data works towards a conclusion at the end of session, with the family taking an active part in this process. The conclusion is always supportive and delivered in a positive manner. The underlying message is always: 'you are doing your best and we know it'. It also includes appreciation of valuable achievements by the family and further suggestions for homework.

Another approach has been used, which involves interventional interviewing⁽⁵⁶⁾; this technique uses circular and reflective questions^(57–59).

The outlining of the interview

To start with questions such as 'What has been working well since we met last?' is often very useful throughout therapy. Thus, the family is given the opportunity to reflect on the favourable circumstances and their contribution to them. Furthermore, the answers are considered by the therapist to be a sign of positive care by family members. The parents as well as the child are given credit for these achievements. Thus, positive sequences are initiated. Later, the family's specific problems may be revealed and detailed solutions may be discussed. Usually, the family is eager to discuss how to further reinforce those aspects of the child that are positive and function well.

The good intentions of the family to maintain results are clarified by discussing what every family member has done in detail and how they have done it. This creative process is used as a prophylaxis against future difficulties in maintaining normal weight. How different family members recognise the beginning of a relapse is valuable, as the child can be made aware of the dangerous chain of events that can follow. Usually one or several members of the family are given a task or a question to think over until the next session. The session finishes with the therapist complimenting all the family members.

At the beginning of the next session the outcome of the task is checked. Thus, a good cycle of events is created and the child is considered to function better. This process may be expanded to other areas of life with the help of parents and siblings. Finally, the initial problem of good eating behaviour is considered to be solved, although the family is aware of the risk of a relapse. At this point they also have a strategy for coping, by reminding the child of the good cycles.

A supervisor and co-therapist are involved in the study, and before compliments are given a short break is taken. The therapy includes those questions and solutions that the family is ready to discuss. One major topic can be the child's ideal weight and the family's reactions to the aspirations of the child. Often, both child and family have unrealistic expectations when it comes to achievable goals. After information on biological limitations, especially in childhood, most families accept more realistic goals and time schedules for its achievement. Another topic is whether the child can achieve his or her goal; the level of possibility is measured on a visual analogue scale from 0 to 10. All family members are asked to indicate a value, which might differ from time to time. The kind of support needed for the child to achieve this goal is discussed. Different suggestions and solutions are listed and discussed. The visual analogue scale is also used to measure available resources; the result is that many good suggestions can be made to both the child and other members of the family.

It can be the case that the families are eager to solve the problem but they lack effective solutions.

To summarise, the following items have been found to be useful:

- give the family low-intensity non-confrontational contact;
- identify the resources of the family and acknowledge them;
- show respect for the family and use non-condemning interventions;
- involve important individuals;
- try to identify the whole system and relate it to its context;
- accept the individual's definition of the problem;
- rephrase in a positive context;
- emphasise the positive solutions;
- start with the small simple solutions and give praise and show understanding;
- discuss an appropriate realistic ideal weight;
- inform about the time period needed to achieve the goal in the longer term;
- controlling overweight is hard work.

A case

All the family members were seen as being involved and enthusiastic. They all gave many suggestions on how to help the child. The family members asked many questions and were eager to collect information given by the therapist. The father was severely obese and had tried many sorts of treatments. He had an impressive knowledge of nutrition and healthcare issues, although he was not able to use it. The therapist encouraged him to believe that he would know what to do when the time came. He was also given credit for his earlier attempts to lose weight. The mother was also severely obese but more successful in her achievements. She was complimented on this success.

The child showed strong positive feelings towards her parents, which were confirmed by the therapist. So, all the members of the family were involved in her problem. The difficulty was defined as finding a suitable strategy and a way of knowing when the right time had come to apply it. It was necessary for the family to be convinced that a solution was close at hand before trying once more. The other children in the family and their experiences of weight control were thoroughly discussed and their strengths emphasised. One of the older children had normal weight and stated clearly that she had had the same difficulties as her younger sister up to the age of 15 years. She did not know how she had succeeded but the achievement was a turning point for her. The sister's efforts were emphasised by the therapist who complimented her on for her achievement. All the family members, including the child, stated that the sister's success would also be repeated in her case. The therapist stated that the sister's success was a good example of what strong conviction can achieve and that the child should be prepared when the time came. Suggestions were given to the family members as to how to discuss these matters and they were each of them encouraged to give their personal view to the child, to increase her readiness to change.

The therapist also asked the child to state her ideal weight, so that she would be more aware of when her goal was reached. The child was eager to discuss this issue and the family's reactions to her ideal weight were observed, with both the child and the other family members being complimented on their good judgement and patience; they were prepared to wait 2 or 3 years for a change to take place.

During therapy the family started with an intensive programme that resulted in a substantial weight reduction. The therapist then asked the family how they would notice a relapse as early as possible. Also, a slower rate of increase was recommended (a child is not recommended to lose weight at this age; instead they should gradually approach the normal weight for their height, as an increase in height naturally increases the weight). This view was well received by the family and was also compatible with their previously mentioned opinions.

Summary

The studies involving family therapy show it to be effective in preventing the development of gross obesity during

childhood^(3,13). This type of therapy is also effective for weight control in the severest cases of obesity (i.e. BMI >30 kg/m²). The lowest extent of childhood obesity, expressed in terms of BMI, at which future complications such as CVD and diabetes start to be over-represented, when compared with the normal-weight population, is not known. However, it has been demonstrated that obesity in childhood is associated with major adverse health effects^(60,61). Studies involving obese adults who had been adopted in early life have demonstrated the distinction between genetic and environmental influences on premature death⁽⁶²⁾. Furthermore, improvements in skin-fold thickness and physical fitness as a result of family therapy may indicate that the difference between the treatment and control groups in certain cardiovascular risk factors may be greater than that indicated by their respective BMI⁽³⁾.

In the authors' work intervention through family therapy has proved to be 40% more successful than conventional treatment, which includes medical check-ups and dietary counselling (it is important to note that conventional dietary counselling has inadequacies). Involvement of the entire family in the dietary and exercise training programmes is essential. Thus, an optimum programme will require participation of a multidisciplinary team to assist the paediatrician. Such programmes must be implemented and funded in paediatric clinics dealing with the prevention of atherosclerosis and obesity. The family therapy techniques used were chosen from both the structural family-based therapy and the solution-based-brief therapy. One therapist was a psychologist and the other a paediatrician. This combination of specialism ensures that the therapy has enough depth to cover all aspects of medical family therapy⁽¹⁰⁾. The method has subsequently been used by a multidisciplinary team^(3,13).

These studies are good examples of medical family therapy in which provision is made for the different needs of the individual, with standard family therapy techniques still achieving a good result. However, the need for urgent action in relation to childhood obesity makes further research in this field necessary.

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