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Revisiones

Behavioural therapy in the treatment of obesity (I): new directions for clinical practice

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Abstract

Objectives: **Behavioural therapy (BT) in obesity treatment helps individuals to develop skills to achieve healthier body weights. Instead of helping to decide *what* to change, it helps to identify *how* to change; lifestyle modification is essential for any treatment of obesity, be it dieting, medication, surgery, etc.**

Physicians often tend to be unwilling to use BT considering it time-consuming and skill-intensive. However, BT can be standardized and used more readily in clinical practice. Besides, new approaches have been developed which contribute to increase the success of the treatments, like non face-to-face techniques, or the new cognitive therapy.

Setting: **Classical knowledge on BT has been updated with recent publications and information on these new approaches, combined with our own experience in the clinical treatment of obesity.**

Results: **Most research on BT has been conducted in university-based programs which, despite their importance, tell us little about its effectiveness in actual clinical practice. Future research might focus on determining how BT can be best applied in a real-world setting. Examples of new directions are increased maintenance periods, use of Internet, and new cognitive therapy. Besides, elucidating the genetic component in the prognosis of weight management —the nutrigenomic approach— could assist in the development of more effective and individually tailored therapeutic strategies; indeed, single nucleotide polymorphisms in candidate genes have been related with eating patterns.**

Conclusions: **This review gives a renewed perspective of BT for obesity, offers key-pointers and describes specific ways in which medical professionals can promote and encourage self-care of patients.**

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Key words: *Behavioural therapy. Obesity. Clinical practice. Cognitive therapy.*

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TERAPIA DE COMPORTAMIENTO EN EL TRATAMIENTO DE LA OBESIDAD (I): NUEVAS DIRECCIONES EN LA PRÁCTICA CLÍNICA

Resumen

Objetivos: **La terapia conductual (TC) en la obesidad busca desarrollar habilidades que promuevan un peso saludable. En lugar de *qué* cambiar, se trata de identificar *cómo* cambiar, pues modificar el estilo de vida es esencial para cualquier tratamiento de la obesidad, ya sea dietético, farmacológico, quirúrgico, etc.**

Los profesionales médicos suelen ser reacios a emplearla, considerando que exige tiempo y habilidades específicas. Sin embargo, la TC puede ser fácilmente estandarizada y aplicada en la práctica clínica, y nuevos enfoques y técnicas contribuyen a un mayor éxito del tratamiento.

Ámbito: **Se ha actualizado el conocimiento existente sobre TC, combinando información sobre los nuevos enfoques con nuestra propia experiencia en el tratamiento clínico de la obesidad.**

Resultados: **Los estudios sobre TC provienen principalmente del ámbito académico y, aunque son importantes, dan poca información sobre la efectividad de la TC en la práctica clínica. Investigaciones futuras deberían determinar cómo la TC puede ser aplicada en un contexto clínico realista. Ejemplos de los nuevos enfoques son: el incremento del período de mantenimiento, el uso de internet, o la nueva terapia cognitiva. Asimismo, considerar el componente genético en la prognosis del control del peso corporal podría ayudar a desarrollar estrategias terapéuticas más efectivas y personalizadas; de hecho, ciertos polimorfismos génicos se han relacionado con la adopción de determinados patrones alimentarios.**

Conclusiones: **Esta revisión presenta una perspectiva renovada de la TC para la obesidad, ofrece puntos clave y describe vías específicas por las que el profesional médico puede promover la participación activa de los pacientes.**

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Palabras clave: *Terapia conductual. Obesidad. Práctica clínica. Terapia cognitiva.*

Introduction

Obesity treatment has undergone numerous changes in recent decades. Up to the 1960s, hypocaloric diets were practically the only treatment recommended, while the 1970s saw the introduction of behavioural therapy, promoting a change in lifestyle and eating habits of the patient as an alternative therapy.[1] Since then, many studies have underlined the importance of behavioural therapy in all forms of weight control, be they dietetic, pharmacological, exercise-based, or even involving morbid obesity surgery. However, in 1988 the American Medical Society declared that behaviour therapy itself did not produce favourable results unless accompanied by dietetic treatment and increased exercise.[2]

Behaviour therapy (BT) is based on the classical principles of "conditioning", which indicate that eating is frequently associated with external events that are closely linked to ingestion.[3] The use of behavioural techniques is intended to help the patient to identify those signals that trigger inappropriate behaviour, both as regards eating and physical exercise.

It is also a question of the patient learning to develop new responses in the face of these signals, seeking positive reinforcement or reward when the correct behaviour is followed. This type of intervention has evolved from its beginnings and, alongside classical self-monitoring techniques and stimulus control, new techniques involving social support and increased physical exercise have been included.

In the last twenty years, BT for obesity control has incorporated cognitive therapy techniques. The underlying principle is that our thoughts directly affect our emotions and, as a consequence, our acts.[4] It is a question of changing our pessimistic thoughts, frequently associated with negative and sometimes self-destructive events, for others that lead to more suitable behaviour as far as eating is concerned.

With cognitive therapy patients learn to establish realistic goals, both as regards weight and behaviour, and to evaluate their progress in modifying eating and exercising habits. The aim is also to correct the negative effects that are produced when objectives are not achieved,[5-7] basing treatment on techniques previously developed for depression, anxiety and bulimia nervosa.[8,9]

Despite the many widely attested benefits associated with weight loss, the usefulness of dietetic treatment is questioned by some sectors of the scientific and medical community, since some studies have shown that as many as 80% patients abandon treatments before achieving their goal; within a year they will have regained 30-50% of the weight lost and after four years their weight will have stabilised at 4% below the initial weight.[10,11] The situation has nonetheless improved substantially in the recent years, due largely to the increased length of behavioural therapies.[12]

At the present time, the greatest challenge in obesity treatment is to prolong the effects of weight loss.[13] Indeed, the new techniques of eating behaviour have considerably diminished the rate of treatment abandonment.[14,15] Identifying barriers to weight loss is crucial to understand the progress of the patient and the success of the treatment. Barriers to weight loss have been previously examined in a Northern European population[13] and recently in a Mediterranean population from South East Spain.[14]

New behavioural programmes include genetic analysis. It is believed that an elucidation of the genetic component in the prognosis of weight management could assist in the development of more effective and individually tailored therapeutic strategies.

Definition of behavioural therapy in relation to obesity

The principle behind body weight control is relatively simple, requiring the long-term balance between energy intake and expenditure. For many people, achieving this balance requires little conscious effort. However, the continuous increase in the numbers of overweight and obese people in modern society indicates that controlling body weight is no easy task.

Behavioural therapies consider that, to confront this situation, people need to be educated concerning the processes involved in body weight control in the long term. It is necessary for the patient to learn how to apply the adequate techniques to achieve this end. The obese patient should be helped to identify and modify erroneous eating habits and the exercise they take.

In general, behavioural therapy (BT) is the clinical application of behavioural sciences and comprises both behaviour correction and cognitive behavioural therapy.[16] This type of therapy has been used since the 1950s to treat behavioural problems that are not easy to treat psychiatrically. "Behaviour" in this context includes emotions, anxiety and depression, and "cognition" refers to individual perception and thoughts.

BT can be applied in a wide spectrum of clinical applications, *e.g.* psychosomatic, general and preventive medicine.[17,18] In this type of therapy it is important to make oneself familiar with specialize terminology, although the methods applied are commonsense and, in practice, patients are usually receptive to them.

As regards obesity, BT may be defined as a group of techniques used to help patients to develop skills that permit them to attain their healthiest weight. Rather than help to decide *what* to change, the method consists in identifying *how* to change. The patient must understand that the proper control of body weight will not depend on willpower, but on the development of skills that will allow them to normalise their relation with food, and that such skills can be learnt.

Principal characteristics of behavioural therapy

In the first place, BT is directed at attaining *objectives*. The goals must be clear and easily measurable.

Table I
Daily log from a behavioural therapy patient (adapted from Garaulet[19])

Hour	*Food and drink consumed*	*Place*		*Portions optional calories*	*Comments*
9:00 am	1 glass milk + sugar 1 toast with ham 1 orange juice	Bar	*	1Ma, 1B, 1P, 2F, 20 kcal	Toast weighed approx. 60 g, though I did not weigh it.
3:00 pm	1 salad + oil 1 plateful lentils + rice 1 cup fruit salad	Home (dining-room)	*	2V, 1B, 1P, 1Fat, 2F	I did it great, I felt satisfied.
7:00 pm	1 portion chocolate	Home (bedroom)		150 kcal	I was bored reading in my bedroom.
10.00 pm	Sandwich cheese + ham 1 low-fat yoghurt + cookies 1 banana	Home	*	1B, 2P, 1M, 1F	I felt completely satisfied.

Note: You should write down your intakes as soon as possible. Put an asterisk in column 4 when you think you have eaten or drunk too much; use your own point of view and no one else's.
a Initials preceded by a number indicate the standardised portions consumed from each group of food: M: milk; B: bread and cereals; P: protein (meat, fish, eggs, etc.); F: fruit; V: vegetables.

For example, to walk four times a week, prolong meal times by at least ten minutes or reduce the number of self-critical comments. Such specific goals will help to assess the success achieved. In BT it is crucial to establish concrete, short-term objectives and to develop specific techniques for each.

Secondly, the treatment is orientated towards a *process*. Once the objective has been established, the patient is encouraged to study the factors that will enable it to be reached. The effectiveness of the treatment is based on techniques that can be learnt and put into practice. The key to success lies in the ability to apply these techniques, rather than in willpower.

Thirdly, BT looks for *small changes* that are easily made, rather than dramatic changes that will almost certainly be short lived.

Techniques used in behavioural therapy

Different behavioural treatments tend to use different techniques, as specified below:

– *Stimulus control:* this refers to how our immediate environment can be altered to promote behaviour that will help the patient to lose weight. For example, restricting the number of places where eating is permitted, eating slowly, not missing meals, keeping palatable food in opaque containers, etc.

– *Self-monitoring*: this is considered one of the principal pillars of BT and refers to keeping a daily log of food consumed and exercise taken.[19] The aim is to increase the patient's awareness of what they eat and of possible situations of risk that may influence eating habits. By means of this daily log, the patient may learn, for example, at what time they usually eat, that they eat when stressed, depressed, bored, or in the company of certain people, etc. (table I).

– *Positive reinforcement*: with incentives not related with food, such as new clothes when a given objective is attained, or small gifts, prizes or diplomas when the aimed weight is reached.

– *Cognitive restructuring*: by this means, patients learn to recognise and modify weight-related thoughts or beliefs. This is an attempt to revise thoughts of self-defeat and attitudes such as "all or nothing". This technique helps patients with low self-esteem, by substituting negative and self-destructive thoughts by positive and stimulating ones.

– *Preventing relapses*: by teaching how to identify "slips" and which techniques can be applied to avoid them.[20]

Other techniques include stress confrontation, social support (friends and family), problem resolving, controlling the speed of eating, etc.

The importance of group therapy

Behavioural therapy is usually carried out in groups of ten to twenty people in sessions lasting 60-90 minutes led by dieticians. Treatment may also be individual, although studies have suggested that group therapy is more effective.[21,22]

In a previous study, participants could choose between individual and group therapy and were then randomly allocated to one of four different groups: those who chose and received group therapy; those who chose individual therapy but were assigned to a group; those who chose and received individual therapy; and those who chose group therapy but were given individual therapy.[23] As figure 1 shows, after six months group treatment produced greater weight loss than individual therapy, probably because of the empathy generated in a group situation, the social support offered, and a healthy dose of competitive-

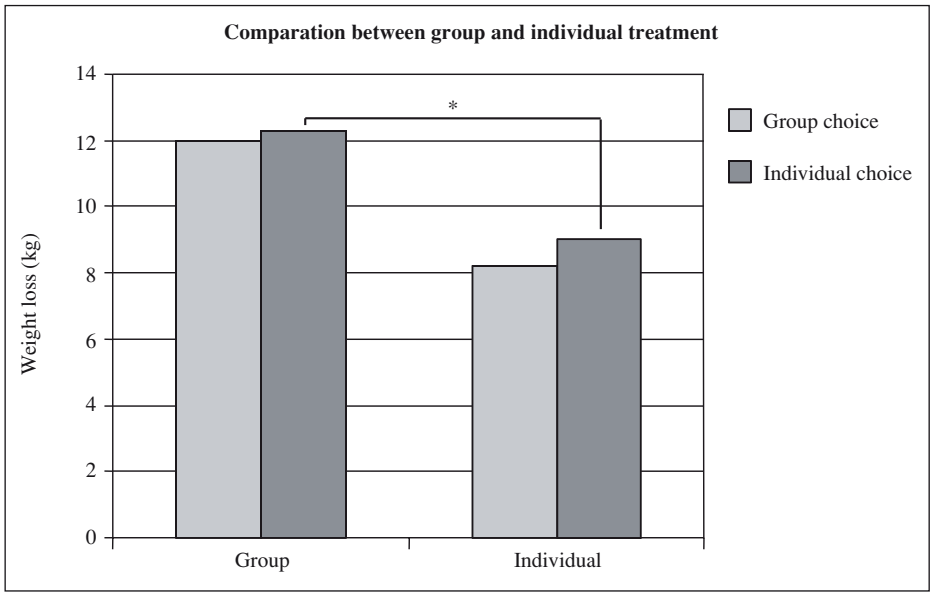

*Fig. 1.—Weight loss after 6 month treatment in patients assigned to group therapy vs. patients receiving individual therapy. (Adapted from Wadden et al.[23]). *Significant differences between group choice and individual choice; $P < 0.05$.*

ness, all of which helped to produce a change in lifestyle. These results are in agreement with those found in a Mediterranean Population from Spain (Garaulet Method). In our group-based therapy, we have obtained an average weight loss of 650 g/week.[14]

The choice of topics in group work is of crucial importance and will differ between therapies. Cooper and co-workers, for instance, used topics such as "recording what you eat", "energy balance", "social eating", "preparing for the holiday", or "special occasions".[13]

In Garaulet Method the talks included in the treatment can be classified into four types:[14,24]

– Nutrition-based, providing the patients with information that helps them to choose the most appropriate food.

– Physiology-based, to help explain why we put on weight, processes of nutrient absorption and digestion, which hormones and peptides participate in regulating appetite, and the physiology of weight loss.

– Behavioural and cognitive sessions, which help the patient to control stimuli, avoid negative thoughts or detect the main obstacles to weight loss.

– Practical ideas, like how to organise outings, shopping lists, alternatives to dinner, the importance of breakfast, etc. Every week the sessions explain one simple recipe.

Physical exercise in behavioural therapy

Physical exercise is a key component in treating obesity, since it can help to increase energy expenditure, diminish food intake, increase self-esteem and overcome depression.[25-27] Even so, some studies have shown that contribution of exercise to weight loss is slight; for example, it would be necessary to walk 60 km to metabolise 1 kg of body fat.

Certainly, the effect of exercise on weight loss varies, and while most studies demonstrate small decreases in weight of approximately 2 kg,[28] others point to no benefit at all. When the weight loss achieved by behavioural treatments involving either physical exercise or changes in eating habits were compared, the former was seen to be less successful. However, exercise is clearly beneficial for the well being of the obese individual, since it increases the maximal oxygen uptake (VO_2 (max)) and therefore cardiorespiratory health.[28]

Several studies have shown that exercise can be a useful tool for maintaining long-term healthy weight loss. Unfortunately, in clinical practice most programmes based on exercise raise false expectations in patients, which lead to exercise being abandoned.

In BT, one of the main concerns in recommending exercise is to establish programmes suited to the individual, and most importantly to set attainable goals. The reduction of sedentary habits —of which watching television is the paradigm—[29] is important in the treatment of obesity. Behavioural studies have shown that the reduction of sedentary habits is as important for losing weight as taking specific exercise.[30]

The use of a pedometer as an incentive to reach 10,000 paces per day is a practical help in this respect.[31] Activity logs, too, are useful for recording the degree of inactivity, that is, the number of hours spent sitting or lying, the activities that form part of the daily life of patients, and the time dedicated to specific exercise (table II). Cooper and co-workers, in their BT programme,[13] classified physical activity into three categories and provided a series of recommendations concerning each (table III).

Table II
Summary of daily activity of a BT patient (adapted from Cooper et al.[13])

Inactivity (hours)	*8 hours in bed, 3 hours sitting*
Daily activity (paces)	*3.860 paces*
Specific exercise (minutes o type)	*Tennis (1 hour)*

The role of diet in behavioural therapy

Theoretically, losing weight through the diet should be easy, since it consists of producing an energy deficit in which energy intake is less than energy expenditure. However, dieticians know how difficult it is to instil correct eating habits in modern day society, where it is so easy to obtain tasty, high-calorie food and where any celebration is an excuse for over-eating.

From a BT point of view, it is important to bear in mind the principle behind this type of therapy —changing a patient's habits, especially with a view to long-term change. In this sense, not all diets are useful for BT even if they have demonstrated their usefulness for reducing weight.

The idea is to educate the patient to assume correct eating habits that will last a lifetime. The health professional has the obligation to keep abreast of all the myths and errors that different diets give rise to, and to transmit to the patient recommendations based on established nutritional knowledge.[32]

The effectiveness of behavioural therapy in the treatment of obesity

Clinical trials have been carried out to analyze the effects of BT on weight loss. The typical design of such experiments consists of weekly group meetings during the first stage of the treatment (3-6 weeks); every two weeks during the maintenance phase (6-12 months) and monthly or every two months afterwards.[33,34] Wing made a revision of these treatments from 1996 to 1999 and found an average weight loss of 10.6% (9.6 kg) during the initial phase of treatment, and 8.65% (6 kg) during a follow up lasting 18 months.[35] Several studies published between 2000 and 2004 offered similar results.[36] In addition, a revision of how behavioural techniques evolved between 1974 and 2002 showed that 80% patients completed the treatment.[35] Recent data from our method showed even more encouraging results, with an average weight loss of 10% initial weight and 90% patients who completed the treatment.[14]

It is important to note that treatments have tended to grow in length, from approximately 8 weeks in 1974 to about 31 weeks between 1996 and 2002. In 2008, we have reported 34 weeks of treatment, including the maintenance phase.[14] The weight loss recorded is approximately 500 g per week, which has remained constant through all this time. It must be also noted that the initial weight of patients has increased spectacularly from 74 kg in 1974 to 95 kg in 1991.[35]

Table III
Classification of physical activity and advice for patients (adapted from Cooper et al.[13])

Inactivity
At the end of the day, try to remember with the highest precision how many hours you have spent sitting or lying. Do it in 24h periods (midnight to midnight), count the number of non-sleeping hours and write it down in an activity table.

Activity and lifestyle
Physical activity due to daily routines is included here, such as walking, standing, walking up stairs, housecleaning, gardening, riding a bike or swimming. With the exception of the latter two, we recommend to quantify these activities in approximately half an hour, or in paces using a podometer.

Specific exercise
At the end of the day, you should write down the time spent in performing exercise. To be considered as specific exercise, it should imply an effort that makes your heart and breathing rates increase. Such activities include running, swimming, riding a bike and vigorous walking.

Dropping out treatment

One of the major problems for weight loss programmes is the number of people who abandon treatment. Indeed, some studies have suggested that as many as 80% patients give up before reaching their target weight, although Wing and Jeffery[37] referred to much lower figures (11-15% during follow up studies lasting 6-18 months).

According to our own research,[14,24] the main causes for abandoning treatment have substantially changed in the last ten years. While in 1999 holidays (23%), search for quick results (23%) and social reasons (11%) were the main reasons of attrition, the main cause for dropping-out nowadays is stress (37%), followed by holidays (15%), and no subject reported search for quick results as cause of attrition. These results indicate that stress is becoming an important issue in obesity treatment, and that patients are currently more conscious about reasonable goals for weight loss than previously.

Still some patients cite active social lives or work that involves eating out frequently as the causes for abandoning treatment. Following a diet is very difficult if you have to eat out often or the daily routine is interrupted, especially in diets with fixed menus.

Main barriers to losing weight

In the course of trying to lose weight, most patients will encounter a variety of obstacles. The identification of these barriers to weight loss is crucial in order to

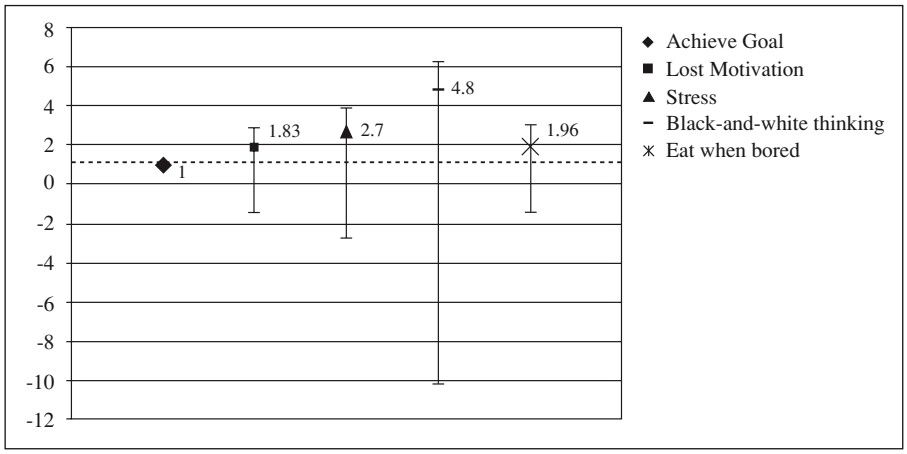

Fig. 2.—Odds ratio for the prevalence of main barriers of weight loss in those patients who do not achieve their goal (10% initial body weight), as compared with those who achieve it (Adapted from Corbalán et al.[14]).

know if they are limiting the progress of the patient and the success of the treatment.

These barriers have been already examined among the Northern European population[13] and recently in a Mediterranean Population from South East Spain.[14] The test consisted of 29 questions classified in the following 6 sections: 1) meal recording, weight control and weekly interviews; 2) eating habits; 3) portion size; 4) food and drink choice; 5) way of eating, and finally 6) other obstacles to lose weight.[13,14] Total weight lost and weight loss rate were also related with the patients' behaviour.

Interesting, women were found to face more than double number of barriers than men. Results also indicated that subjects who lost less than 10% of initial body weight had a significantly greater "barriers-to-weight-loss" score than those who achieved the weight. Moreover, subjects who did not reach their weight goal had lost motivation, experienced stress about eating and were liable to eat when bored. Subjects also reported that thinking in black-and-white terms (*i.e*. all or nothing) undermined their attempts to lose weight (fig. 2).

Subjects who attended the review sessions (group therapy) weekly and those who affirmed to write down absolutely everything in their notebooks achieved greater total weight loss.[14] One of the main tools of the behavioural treatments is writing down absolutely everything. Studies show the convenience of patients doing a self-monitoring of their meals [38]. People who monitor themselves carefully and accurately are likely to lose significantly more weight than those who do not.

Putting weight back on

A frequently discussed topic among experts in obesity is whether increases in body weight after treatment have a physiological basis or are due to behavioural factors.

Some authors think that regaining weight is the consequence of strong biological pressures. They refer to physiological changes, such as diminution of total energy expenditure, leptin secretion or increase in ghrelin,[39] and base their arguments on the *set point* theory, which claims that the organism tends to maintain a physiological weight despite great changes in daily ingestion.[40] On the other hand, other authors maintain that failure to keep a stable body weight is due to the individual's incapacity to stick to changes in lifestyle over a long period of time.

According to Hill and Wyatt,[41] weight recovery in most obese subjects is due to environmental factors. Rather than be subjected to metabolic reactions, people tend to return to their original weight precisely because they live in a society which encourages energy intake but discourages physical activity; in other words, in a society that is toxic from an obesity point of view.

The therapist must therefore transmit a clear message to patients: although maintaining weight loss is not easy, treatment should not be regarded as a useless attempt to overcome biological predestination that keeps us fat.[41]

Strategies for increasing the success rate of treatments

BT provides patients with a series of tools to overcome barriers to weight loss, such as eating healthily or increasing physical activity. However, maintaining such habits is difficult, since we live in an increasingly sedentary society and eat too much food with a high calorie density. A healthy lifestyle needs planning, skill in the choice of healthy alternatives and in estimating portion sizes, and diligence in recording the calories ingested and the energy expended. All this needs time to be learnt and maintained.

Recent studies have tried to identify strategies that make the maintenance process easier. These include:

1. Food provision: Jeffrey and co-workers examined the impact of food provision on weight loss recorded from 202 obese subjects.[42] Those who were

Table IV
Barriers to weight loss for a mediterranean population (adapted from Cooper et al.[13])

Here is a list of the problems which frequently prevent individuals from losing weight. Please consider which (if any) applies to you, and place a tick in the relevant column.

	No	*Sometimes*	*Yes*
1. Writing down in the notebook: – Is absolutely everything written down? – Do you accurately measure your portions? – Do you carefully calculate calories? – Do you write down floating portions[a]?			
2. Weighing and weekly reviews: – Do you get your weight checked here once a week? – Do you check your weight at home too? – Are you holding weekly review sessions?			
3. Your eating pattern: – Do you eat vegetables three times a week? – Do you eat fish once a week? – Do you have a complete breakfast? – Do you skip any meals? – Do you tend to nibble? – Is there any particular time of the day when you tend to overeat? – Do you have "binges"[b]?			
4. Your portion sizes: – Are your portion sizes on the large side? – Do you buy food in great packages (chocolate, cakes, potatoes, etc.)? – Do you take second helpings? – Do you eat leftovers?			
5. Your choice of foods and drink: – Are you prone to eat energy-rich (i.e., high-fat) foods? – Do you eat sweets? – Do you drink alcohol? – Do you actively avoide any food?			
6. How you eat: – Do you eat very fast? – Do you eat in places other than the kitchen or dining room? – Do you eat while watching television? – Do you eat while driving or engaged in other activities? – Is your eating planned in advance?			

[a] Floating portions: extra-calories permitted.
[b] Binge eating: compulsive eating.

given food along with standard behavioural treatment lost more weight at six months (10 *vs* 7.7 kg), twelve months (9 *vs* 4.5 kg) and 18 months (6.4 *vs* 4 kg) than those prescribed a hypocaloric diet with behavioural treatment**.** A study by Wing and co-workers[37] showed similar results since those patients to whom food was provided showed higher weight losses at both 6 months and 18 months. Other studies point to similar findings when two or three meals per week are substituted by dietetic foods (milkshakes, biscuits, etc.) or by meals packed in controlled portion sizes.[43,44]

2. Change expectations: Several studies have shown that it is possible to help patients by setting realistic goals as regards weight loss. This increases self-confidence and self-control, since success motivates people to continue.[45] It has also been claimed that moderate weight loss can improve the clinical sate of a patient,[46] and even small losses (of about 5 kg) can improve a person's psychobiology.[47] Clinical studies have shown that it is feasible to lose 5-10% of initial body weight in most cases, and it is for this reason that Cooper and Fairburn[48] have suggested for new treatments to propose losses within this range –more modest goals than were previously set.

Every attempt should be made to minimise weight loss: "rather than losing weight, it is a question of not putting weight back on".

3. Maintenance programmes: Many of the techniques used during maintenance will differ from those used to lose weight. Motivation is the main problem during this time since the patient does not have the previous objective, which was to lose weight. In such cases it is frequent for a patient with little motivation to tire of attending group therapy and to find maintaining weight a boring task.

Relapses occur during maintenance since patients continue to set unattainable goals, which are associated with low self-esteem and an excessive preoccupation for a set image. It is difficult to convince patients that they should not continue losing weight but concentrate on maintaining the weight loss for successive years. All these aspects require the dietician's capacity not only to provide sufficient support but also to supply it for sufficient time. Some useful techniques are[49] increasing the length of maintenance, using Internet, the new cognitive therapy treatment, and the nutrigenomic approach.

3.1. Increasing the length of maintenance. The improvements achieved in recent years are mainly due to longer behavioural treatments.[50] New BT programmes aim to keep subjects involved in the treatment for longer periods of time, and it has even be argued that obesity should be treated as a chronic illness with life-long follow up.[51]

Unfortunately efforts made in this direction have achieved poor results. Jefrey and co-workers[34] have shown that attendance of monthly maintenance meetings falls to below 25%. Wing and co-workers[52] found similar results in a two year long maintenance programme, during which attendance reached 61% in the first two months but fell to 27% in the last few sessions.

3.2. Using Internet. Harvey-Berino and co-workers[53] proposed the use of Internet to prevent patients from tiring of attending clinics. Studies show that during the first months results are worse than for face to face meetings.[54] However, as regards maintenance the results are contradictory: patients attending face to face sessions lasting 12 months were more successful at maintaining weight loss than those connecting through Internet. In contrast, in longer term maintenance programmes lasting 18 months, Harvey-Berino showed Internet to be as successful as attending therapy sessions.[53]

3.3. Exercise or diet. Studies comparing the efficacy of exercise-based maintenance programmes and those based on changes in eating habits have shown the latter to be more effective at maintaining weight loss, especially when they involve reduction in the consumption of fat. Even so, the importance of exercise is borne out by several studies.[15]

3.4. New cognitive therapy treatment. Cooper and Fairburn consider the two most important reasons for abandoning maintenance to be, firstly, that patients consider that they have not achieved the set goal yet and give up trying; secondly, under these circumstances, individuals do not realise the importance of learning techniques to maintain weight, so that they return to old eating habits and therefore put on weight.[48]

Patients may become demoralised when the rate of weight loss slows down and tend to underestimate the significance of any loss, often ignoring the positive changes they have achieved (clothes size, agility, etc.) Other patients continue thinking that they are capable of losing more weight, so that when this fails to happen, they regard it as a personal failure or lack of discipline, which has an adverse effect on their self-respect. They do not realise that this is a general issue and occurs with most people in a similar situation.

Based on cognitive therapy, Cooper and Fairburn developed a new approach, trying to reduce the regaining of lost weight and to help the patient to overcome psychological problems by acquiring effective long-term behaviour patterns.

The authors propose three key points: first, treatment must help the patient to accept and evaluate any weight loss achieved; second, the patient must be encouraged to adopt as a goal weight stability and not further loss; third, the patient should be taught behavioural and cognitive skills to achieve adequate control of their weight. The maintenance programme is divided into two phases, the first lasting 24-30 weeks and the second 14 weeks. In each phase, several modules are proposed, in which different behavioural techniques are applied. This programme is described in detail in the book "Cognitive-Behavioural Treatment of Obesity. A clinical Guide".[13,48]

4. Nutrigenomic approach: Weight loss in response to weight management shows a wide range of inter-individual variation which is largely influenced by nutritional, hormonal and psycho-behavioural factors which can predict the response of a patient to a weight reduction programme. Success of obesity therapy is, at least in part, dependant on the genetic background of the patient. This has been object for interesting research; studies carried out in monozygotic twins analyzed the interaction between genetic factors and weight loss programmes; several studies emphasized the familial aggregation in the ability to lose weight; and the role of parental obesity in this respect has been frequently demonstrated.[55] Other studies dealt with the effects of polymorphisms in candidate obesity genes on body weight loss and weight loss maintenance.[56]

The Human Obesity Gene Map counts about 250 genes or gene loci possibly involved in the development of obesity.[55] While for some single nucleotide polymorphisms —*e.g.* the P12A variation in PPAR?— consistent data are present, others show varying results concerning their association with obesity. Attending to weigh reduction, data are even more contradictory. While some studies find no associations between

weight loss and genetic background,[57] others have shown that changes in fat mass were predicted by the polymorphisms of several obesity candidate genes and explained 8.5 % of the fat mass variance.[55] Examples of genes related to changes in fat mass were leptin, G protein, ADRB3, PPARγ, or perilipins.[55,56]

With respect to behavioural treatment, several studies have found that inter-individual differences in eating behaviour and compliance with a weight loss regimen could have a strong hereditary link (heredity rate of 40%).[55] The study of de Krom *et al*.[58] tested several single nucleotide polymorphisms in candidate genes and their effect on eating patterns. They found that obese carriers of common allelic variations in the leptin (LEP) or leptin receptor (LEPR) genes had increased risk to display extreme snacking behaviour, and that obese carriers of the common allelic variation in cholecystokinin had increased risk of eating greater meal size. These rather new genetic information could be very useful to define the particular behavioural and cognitive techniques to be used with each patient.

Help for health professionals in clinical practice

Health professionals are usually reticent about the use of behavioural therapy to treat obesity, and tend to underestimate the effects of suitable education on lifestyle habits. However, it is important for the sector to realise that BT is easy to standardise and can be easily applied in clinical practice.

To help patients to help themselves, health professionals need to have suitable techniques at their disposal. The process may consist of different levels of preparation such as guidance, communication, nutritional education, eating habits and behavioural techniques. Four requirements have been described for the patients' behaviour to be changed: motivation, knowledge, techniques and support.[49]

As regards knowledge, health professionals are usually well prepared, although perhaps this is not so in the other three requirements. Green and co-workers[59] have shown that patient support is frequently inadequate and that knowledge of negotiation techniques is scant, as is the skill of setting goals and objectives.

The principal characteristics of the therapist must be the unconditional acceptance of the patients as they are, to be *natural* and to show empathy.[60] All criticism is to be avoided. The cultural context in which the patients find themselves must be clearly understood, as should any difficulties that they find in changing their habits. Stunkard and Sobal[61] have shown that in society as a whole there is strong prejudice against obese people, and this prejudice is sometimes transmitted to the therapist. Several studies have suggested that professionals often consider obesity as the reflection of a lack of willpower, and even regard the patient as lazy and unattractive, demonstrating in the process certain discriminatory attitudes.[62,63]

Table V
Guides for the professionals to help patients in clinical practice

1. Teach *why*. The professional must be clear with the patient and explain the reasons for the treatment. Patients are adult people who need to feel interested in the therapy techniques.
2. Decide *what*. Specific goals must be established in the short-term, helping the patient to select the objectives and to design a weight loss plan.
3. Define *how*. It is important to identify barriers to weight loss and the tools to achieve it.
4. Avoid criticism to the patient. Body weight control is difficult, and questioning the patient's motivation is of no use.
5. Have patience.
6. Help the patient to maintain their self-esteem throughout the treatment.
7. Be realistic about weight loss expectations. Avoid hardly attainable goals.
8. Focus on the importance of the changes in the patient's habits, rather than on the quantity of the weight lost.
9. Stress the advantages and success that are not related to weight loss, such as improvement of agility, quality of life, reductions in serum lipids, control of blood glucose, diminution of blood pressure, etc.
10. The patient must feel comfortable to return to the treatment after relapses. Sometimes, the patient quits the therapy because they feel guilty or afraid of having disappointed the therapist.

Treating obesity is clearly not easy and the results are often worse than expected. It can even affect the self-esteem of the professional, especially after a long time being engaged in the activity. In this case, it will be of use to look at the relevant scientific literature and see whether the results obtained are similar. If feelings of frustration are evident, they are best shared with colleagues and, more than anything, ineffective therapy should not be applied. Table V shows a series of guidelines to help patients in the clinic.

Small details are important for the obese individual to feel comfortable in the clinic.[60] A scale capable of showing weight of all likely patients is necessary, because it would be humiliating for the patient if their weight exceeded the scale. Special arm blood pressure readers are recommended, because if they are too tight readings may be incorrect. Furnishings should be appropriate, like chairs without arms for group sessions and waiting rooms, since obese people may not be comfortable in chairs designed for slim persons; open spaces and large doors; cheerful colours that help reinforce positive thoughts, etc.

In conclusion, if the health professional is to achieve positive results in the treatment of obesity, training courses at local or national level need to be offered; they should be available at convenient times and be of the correct duration. In USA, for example, public

health proposals include recommendations for improving the training of those dedicated to treating obesity.[64] These could serve as a model for national strategies in other countries such as Spain, aiming to improve eating habits and encourage regular exercise, with special emphasis on prevention during childhood.

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Key words: Behavioural therapy. Obesity. Clinical practice. Cognitive therapy. Correspondence: Marta Garaulet.Â New behavioural programmes include genetic analysis. It is believed that an elucidation of the genetic component in the prognosis of weight management could assist in the development of more effective and individually tailored therapeutic strategies. Definition of behavioural therapy in relation to obesity. The principle behind body weight control is rela-tively simple, requiring the long-term balance between energy intake and expenditure. For many people, achieving this balance requires little conscious effort. Clinical Practice Guidelines for the Surgical. Treatment of Atrial Fibrillation. Vinay Badhwar, MD, J. Scott Rankin, MD, Ralph J. Damiano, Jr, MD, A. Marc Gillinov, MD, Faisal G. Bakaeen, MD, James R. Edgerton, MD, Jonathan M. Philpott, MD, Patrick M. McCarthy, MD, Steven F. Bolling, MD, Harold G. Roberts, MD, Vinod H. Thourani, MD, Rakesh M. Suri, MD, DPhil, Richard J. Shemin, MD, Scott Firestone, MS, Niv Ad, MD.Â Surgical ablation for symptomatic AF in the setting of left atrial enlargement (â€¡4.5 cm) or more than moderate mitral regurgitation by pulmonary vein isolation alone is not recommended. (Class III no benet, Level C expert opinion). Intensive behavioral counseling and behavioral therapy to promote sustained weight loss through high intensity interventions on diet and exercise. The intensive behavioral intervention for obesity should be consistent with the 5-A framework that has been highlighted by the USPSTF: Assess: Ask about/assess behavioral health risk(s) and factors affecting choice of behavior change goals/methods. Intensive Behavioral Therapy for Obesity (NCD 210.12). Page 1 of 5. UnitedHealthcare Medicare Advantage Policy Guideline.Â Agree: Collaboratively select appropriate treatment goals and methods based on the patientâ€™s interest in and willingness to change the behavior. Obesity is a multi-factorial disorder, which is often associated with many other significant diseases such as diabetes, hypertension and other cardiovascular diseases, osteoarthritis and certain cancers. The management of obesity will therefore require a comprehensive range of strategies focussing on those with existing weight problems and also on those at high risk of developing obesity. Hence, prevention of obesity during childhood should be considered a priority, as there is a risk of persistence to adulthood.Â Currently, P57 is in Phase II testing and Table 2 summarizes some other important drugs union are under clinical trials for the treatment of obesity. Table 2 List of some important drugs under clinical trials for weight reduction. Full size table. Surgery.