Review Article

Behavioral therapy for management of obesity

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ABSTRACT

Obesity is a major public health problem and is implicated in the rising prevalence of cardiac disease and type 2 diabetes mellitus in India. Management of an obese patient includes therapeutic lifestyle changes of increasing physical activity and reducing calorie intake. This combination can result in about a 10% loss of initial body weight. To reinforce this intervention, behavioral therapy needs to be incorporated into the overall intervention under the belief that obesity is a result of maladaptive eating behaviors and exercise patterns. This review explains the principles of behavioral therapy, including the underlying assumptions and characteristics. The common components of behavioral therapy for obesity are explained. The different settings where behavioral therapy can be administered are mentioned. The review focuses on how behavioral therapy can be incorporated in the routine clinical management of obesity by primary and secondary care physicians who encounter obese patients.

Key words: Behavioral therapy, obesity, therapeutic lifestyle changes

Introduction

Obesity has been an important public health problem in the developed world. In India, paradoxically, obesity coexists with rampant undernutrition, but is emerging as an important health problem. In urban parts of India, estimates varying between 30 and 65% of adults being overweight, obese or having abdominal obesity have been seen in various surveys.[1] This rising prevalence of obesity has coincided with an increasing prevalence of obesity related disease like type 2 diabetes mellitus (T2DM) and cardiovascular disease (CVD).[2,3]

The cornerstone in the management of an obese patient is therapeutic lifestyle intervention which includes restricting calories and simultaneously increasing physical activity. This combination has been known to produce weight loss of up to 10% of the initial weight. To reinforce lifestyle changes, behavioral therapy (BT) has been incorporated into the overall intervention under the belief that obesity is a result of maladaptive eating patterns and exercise habits.[4] In 2011, we know that this is not entirely true, and genetic, metabolic and hormonal factors may play an additional role in the gain of weight in obese individuals.[5,6] Despite its drawbacks, BT can help individuals predisposed to obesity to develop a set of skills that can help them to achieve a healthier weight. This review focuses on the history, principles and common components of BT for obesity. There is also an attempt to bring some practical pointers that we can adopt when dealing with patients of obesity. The overall placement of BT in the management of an obese patient is given in Figure 1.

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Four Decades of Behavioral Therapy

The oldest report of the use of BT in the management of obesity came out around 1967.[4] Since then, there has been an explosion of approaches and the use of BT in the management of obesity. Over the last two decades, cognitive behavioral therapy (CBT) has been introduced into the psychological therapy of obesity. There was an increase in the average weight loss in patients enrolled into BT programs by 75% from what was seen in 1974 to what was achieved in 1994.[7] This has been due to the

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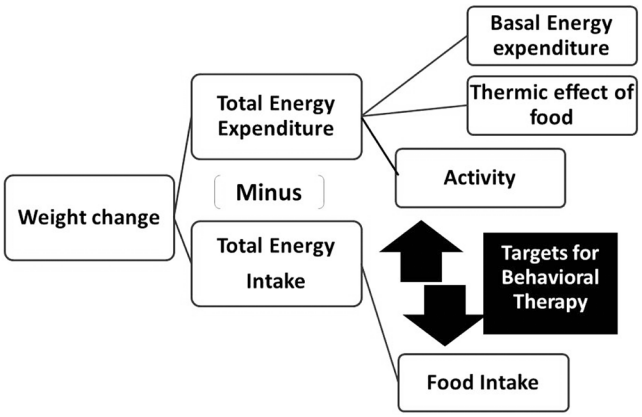

Figure 1: Targeting obesity by behavioral therapy

gradual realization that BT interventions are more effective when they are of longer duration and are more intensive. Typically, an earlier 8-week program led to an average 3.5 kg weight loss compared to the newer 21-week programs where the average weight loss is 8.5 kg.[7] Combining BT with pharmaceutical agents can enhance the magnitude and duration of weight loss.[8]

Principles of Behavioral Therapy

Assumptions

The two main assumptions that underlie the use of BT for management of obesity are:

1. obese individuals have maladapted eating and exercise patterns and
2. these maladaptive behaviors can be modified with specific interventions leading to weight loss.

With the above assumptions, principles learnt from schools of classical and operant conditionings are applied to train obese individuals to learn new behaviors that reduce calorie intake or increase physical activity.

Characteristics

BT for an obese individual has certain specific characteristics.[9]

1. Clear goal setting includes setting up feasible goals that can be easily measured. This may include goals like brisk walking at least four times a week, increasing meal times by 10 minutes, etc.
2. Process orientation helps individuals in identifying how to change habits rather than deciding what to change.[10]
3. Focusing on small changes rather than large changes.

Common Components of Behavioral Therapy

Most of the following components are used in the common behavioral packages for weight control.

1. ***Self-monitoring*:** This is one of the key elements in a BT package. Self-monitoring includes maintaining food diaries and activity logs. In a food diary, the participant writes down everything that they eat, the calories consumed and the situation in which the eating was done. Maintaining these diaries for the first 6 months is predictive of success at losing weight.[11] Even in a placebo versus pharmaceutical agent trial, those who successfully maintained a record of food intake lost twice as much weight compared to those who did not.[8]
2. ***Stimulus control*:** This is the second key element of the BT package. Here, the focus is on altering the environment that activates eating and modifying it to help in avoiding overeating. Stimulus control includes proper purchase of food items, excluding energy-dense processed food from the shopping basket and introduction of more fruits and vegetables. Others include altering the amount of food served on the table or reducing the size of plates and containers, concentrating on eating without being distracted by television or reading material and reducing proximity to food.[12,13]
3. ***Slower eating***: Slowing the speed of eating to let signals for fullness to come into play. Techniques include concentrating on tastes, pausing in between meals and drinking water in between meals.
4. ***Goal setting*:** Setting realistic goals for the patient intending to lose weight in terms of weight loss per week/ month.[14]
5. ***Behavioral contracting***: Reinforcement of successful outcomes or rewarding good behaviors is important. Rewards could include small tokens or even financial incentives. In a 16-week randomized control trial in 57 predominately male subjects, a financial inducement led to an average weight loss of 6 kg compared to the control group which lost 1.77 kg.[15]
6. ***Education***: Nutritional education is an essential component of any successful BT package. A structured meal plan devised for an individual patient in consultation with a dietician results in a greater weight loss compared to the absence of a structured meal plan.[16,17]
7. ***Increasing physical activity***: Increasing physical activity is another important component of a successful BT package. Repeated studies have shown that self-monitoring and increasing physical activity are consistently associated with better outcomes in the long and short term.[17]
8. ***Social support***: Behavioral modification is more sustainable in the long term in the presence of social support. Enhancing social support by including spouses and family members is one of the best ways to

accomplish this. A recent meta-analysis has concluded that including family members led to an additional 3 kg weight loss compared to programs that did not include family members.[18]

9. ***Other less proven components:***
   - Cognitive restructuring and adopting positive outlooks
   - Problem solving
   - Assertiveness training includes learning to say no
   - Stress reduction

A more detailed review of these components that constitute the "behavioral package" is summarized in manuals like the LEARN Programme of Weight Management.[19]

Setting for Receiving Behavioral Therapy

***Clinic setting*:** BT can be administered in the clinic by trained personnel, either individually or as part of a group.

***Self-help groups*:** Self-help groups like Overeaters Anonymous and Take off Pounds Sensibly (TOPS) are non-profit organizations that provide members with components of BT. Though there is nothing to suggest that these programs are effective in weight reduction, the risks and costs involved in these programs are minimal, and in turn the programs provide social support to individuals who otherwise lack them.[20]

***Commercial weight loss programs*:** Large commercial groups provide BT to participants at a cost and include prepared meals, regular meetings and printed materials.[21]

***Internet based programs*:** Internet based weight loss programs are available with both non-profit self-help groups and commercial entities. Many of these programs include behavioral modification components, and some limited data suggest that those programs that include behavioral modification package are more effective than the others.[22,23]

Short-Term and Long-Term Efficacy of Behavioral Therapy

Most weight loss studies include an initial phase (weekly group meetings/3–6 months) followed by a maintenance phase of biweekly meetings (6–12 months) and monthly meetings thereafter. A review of studies done between 1996 and 99 revealed a weight loss of 10.6% in the initial phase and 8.6% in the follow-up phase.[24]

Over long term, that is, after 2 years of contact, some kind of intervention is required to preserve the benefits accrued. These include some kind of ongoing contact with the patient or some interactive technology-based intervention.

Improving Outcomes with Behavioral Therapy

Despite providing skill sets to individuals with obesity, more strategies have been introduced to simplify the decision-making process for an individual. These include the following:

1. ***Food provision*:** Patients who received food provision along with standard BT package lost more weight compared to those who received standard BT alone.[25]
2. ***Meal replacements*:** When patients had one or two meals replaced with a liquid or solid replacement meal, they tended to lose more weight.[26,27]
3. ***Pharmacotherapy*:** Combination of BT with drugs that modify appetite (e.g. Sibutramine) or the absorption of food (e.g. Orlistat) works in tandem by modifying the external environment (BT) and the internal environment (drugs).

Can we Improve Outcomes in Real-World Medical Clinics Using these Behavioral Strategies?

As practising physicians, we can improve outcomes with management of obese patients by setting up some simple rules:

1. Encouraging positive attitudes to obese and overweight patients among ourselves and our support staff in the clinic including dieticians and nurses.[28]
2. Improving clinical encounters with obese patients. There are some recommendation for this:
   a. Assume obese patients know that they are obese.[29]
   b. Assess patient's interest/motivation for weight loss with non-judgmental questions like "What do you think about your weight?"[29]
   c. Empathize with the patients by telling them that weight control is tough and chances of failure are high even within the best of programs.[29]
   d. Listen carefully to the presenting problem regardless of the weight.
   e. Create friendly clinics by having scales that can weigh all patients, having seats without arm rests that can seat obese patients, having larger blood pressure cuffs, etc.[30]
   f. Learn some counseling skills.[30]

Special Situations

Behavioral therapy in obese children and adolescents

BTs have met with some success and appear to be useful

in the treatment of pediatric obesity. The important components of BT in children and adolescents are similar to those of adults with two additional components given below:

1. ***Parental involvement*:** For successful outcomes in pediatric obesity, parental involvement becomes vital. In the initial interview, the physician should gauge the degree of parental readiness to change. The parental readiness to change may be classified as pre-contemplation (no intention to change), contemplation (considering to make the change, but not yet committed), preparation (intention to change), action (modifying behavior), and maintenance (maintaining the behavior change). Only the children of parents willing to change should be enrolled into BT programs.[31]
2. ***Reduction of inactivity*:** In addition to increasing physical inactivity which is common with adults, children need to be actively encouraged to change behaviors that tend to increase inactivity. Prime examples include reducing screen time (television viewing, internet use, mobile phone use, general computer use and computer games).[32]

The non-adherent patient

Like in any other field where new skills are being learned, setbacks are very common in the practice of BT in the management of the obese patients. Hence, effective management of non-adherence is vital to both the patient and the practitioner. The following tips are designed to help the health care provider deal with non-adherence:[9]

1. Assume non-adherence is a consequence of a lack of planning rather than a lack of motivation.
2. Analyze with the patient what went wrong and try and work out solutions to these with the patient.
3. Help obese patients recognize non-adherence and help them to assume responsibility for the same.
4. Avoid criticisms. This helps preserve patient's self-esteem.

Conclusions

Optimal treatment of on overweight/obese patient is initiated with a combination of diet and exercise. Adherence to both these treatment plans requires changes in behavior which can only be brought about by BT. Pharmaceutical agents are eventually added to this and not vice versa.

The two most powerful strategies among the various components available are monitoring food intake and increasing physical activity.

BT needs to be added to the treatment plans of patients who intend to lose weight and should also be continued in patients who have lost weight regardless of how they lost weight including those who lost weight following bariatric surgery.

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