The Effect of Cognitive Therapy on Weight Loss in Women

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Abstract

Obesity is a persistent health problem. The literature suggests cognitive therapy is a beneficial addition to diet and exercise used to promote weight loss. This article describes an evidence-based practice change project that occurred over a seven week period. Participants were women over the age of 30 with a body mass index (BMI) over 25. Participants attended six, weekly group presentations introducing cognitive behavior techniques to be implemented with a balanced diet. Evaluation of the practice change compared week one weights and BMIs with week seven. Implications to clinical practice could be reduction of obese and overweight women.

Keywords: women, obesity, overweight, cognitive behavior therapy, diet, exercise

Linear time trend forecasts suggest that by 2030, 51% of the population in America will be obese (Finkelstein et al., 2012). Given the relationship between excess weight, poor health, and high medical expenditures, successful cost containment efforts will need to address obesity (Finkelstein et al., 2012). During the last century, women seem to be busier than any other time in history, many caring for families, extended families, and working one or more jobs. Making time for a healthy meal and exercise seems impossible. According to the American Congress of Obstetricians and Gynecologists (2011), approximately two out of three women in the age range of 35–65 in the United States are overweight. Women have about 25% body fat, compared with 15% for men. This extra fat makes it easier for women to gain weight and harder to lose it.
1. **Background Information/Significance of the Problem**

According to the Centers for Disease Control and Prevention (CDC) (2008), overweight and obesity are labels for ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems. Overweight is defined as a body mass index (BMI) between 25-29.9 while obesity is defined as BMI of 30 or greater. According to the CDC (2008), over 60% of U.S. adult women are overweight. Many women are consumed by the number on the scale and are not familiar with BMI. Being overweight increases the risk of coronary artery disease, cardiovascular disease, stroke, type 2 diabetes, hypertension, asthma, arthritis, gallbladder disease, certain types of cancer, and infertility (US Department of Health & Human Services, 2009). Treatment of these disorders translates into health care dollars. According to the CDC (2010) the medical costs associated with obesity are staggering, totaling approximately $147 billion in 2008.

The current best evidence demonstrates that clinical practice in the treatment of overweight and obesity is failing. In order to determine that a practice change is necessary, it is important to assess what type of practice is occurring. In a survey completed by 620 physicians, lack of physical activity along with overeating a high fat diet were identified as the most important causes of obesity (Foster et al., 2003). Accordingly, Phelan, Nallari, Darroch, and Wing (2009) found, from a survey of 188 physicians, that the most common strategies recommended for weight reduction was increasing physical activity, reducing consumption of fast foods, reducing portion sizes, and reducing soda consumption. Less likely to be recommended was regular self-weighing, recording food intake, and temptation control.

2. **Supporting Evidence for Practice Change**

According to Teixeira et al. (2009), long term behavioral self-regulation is the hallmark of successful weight control. In a one year study of 225 overweight and obese women, the researchers found that decreasing emotional eating behaviors and adopting a flexible dietary restraint pattern were critical for sustained weight loss. Texiera et al. (2009) found that the majority of variables, especially eating related factors such as cognitive restraint, emotional eating, and eating self-efficacy predicted weight loss change immediately after the intervention. Long term outcomes at the two year follow-up were more associated with exercise self-efficacy behaviors.

In a similar study, Stahre, Tarnell, Hakanson, and Hallstrom (2007) compared cognitive therapy with psychoeducation and monitored weight loss up to 18 months. The control group had a mean weight loss of 0.7 kg at the end of the program and an increase of 0.3 kg at 18 months. This study was significant for several reasons. The dropout rate was low during the treatment phase suggesting that participants found both programs acceptable. The long term efficacy of cognitive treatment suggests that it was satisfactory. With the group format and short term duration, the cognitive program could be attractive from a cost-effective standpoint (Stahre et al., 2007).

In a larger study of 105 obese patients, Stahre and Hallstrom (2005) concluded that cognitive group treatment was highly acceptable among the participants. The project was completed by nearly all the participants. The 10 week treatment program resulted in an average weight loss of 8.5 kg. At 18 months the average weight loss was 10.4 kg, demonstrating that short term treatment with cognitive therapy had lasting results.

Three meta-analyses related to cognitive behavior therapy and weight loss were identified. Anderson, Konz, Frederich, and Wood (2001) in a review of 29 studies concluded that a combination of very low energy diets combined with behavior modification represents an important advance in enabling obese individuals to initially lose substantial amounts of weight. They also concluded that more research is needed to enable most individuals to sustain lifestyle changes in physical activity and food choices for successful weight maintenance. Lin, O’Connor, Whitlock, and Beil (2010) reviewed 73 studies in an effort to assist the U.S.
Preventative Services Task Force in updating previous recommendations on dietary counseling and physical activity to reduce cardiovascular disease. They concluded that high intensity counseling on lifestyle choices to improve diet or increase physical activity changed health behaviors and was associated with small improvements in adiposity, blood pressure, and lipid levels. Lastly, Spahn et al. (2010) reviewed 214 articles regarding behavior change theories and strategies in nutrition counseling to facilitate health and food behavior change. They concluded that strong evidence exists to support the use of cognitive behavioral theory in facilitating modification of targeted dietary habits, weight and cardiovascular and diabetes risk factors. In review, most studies agreed that cognitive therapy has a beneficial effect on the treatment of obesity in both the short and long term treatment.

3. Framework for Evidence-Based Practice Change

Changing clinical practice is complex. According to Malloch and Porter-O’Grady (2006), this is a new world for clinical practice. The mechanisms upon which we once depended for clinical decision-making, practice application, and documentation are passing. The challenge for clinical leaders is to introduce a framework for evidence-based practice and transform the approach to health care delivery (Malloch & Porter-O’Grady, 2006). In the past, clinical decisions relied on clinical experience, expert opinion, collegial relationships, pathophysiology, common sense, community standards, and published materials. Evidence-based practice (EBP) uses the same sources of clinical advice, but passes all of them through the filter of a question, “On what evidence is the advice based?” (Malloch & Porter-O’Grady, 2006, p.9). Because practice change is complex, many models have been developed to systematically guide the implementation of evidence-based practice (Melnyk & Fineout-Overholt, 2011). The organizational framework for this project is based on the conceptual model of cognitive behavior by Beck, the theoretical underpinnings of Pender’s Health Promotion Theory, and the Model for Evidence-Based Practice Change.

The Cognitive Model, developed by Beck in the treatment of depression, proposes that dysfunctional thinking is common to all disturbances (Beck, 1976). The model hypothesizes that people’s emotions, behaviors, and physiology are influenced by their perception of events (Beck, 2011). Simply stated there is a situation or an event that produces automatic thoughts that provoke a reaction (Beck, 2011).

Pender et al. (2011) revealed that each person has unique personal characteristics and experiences that affect subsequent actions. This mirrors the core values central to the cognitive behavior model. The behavior-specific cognitions in the health promotion theory are considered to have major motivational significance and formulate a “core” for intervention because they can be modified (Pender et al., 2011). These cognitions include perceived benefits and barriers to change, perceived self-efficacy, activity-related affect, interpersonal influences, and situational influences (Pender et al., 2011). In the health promotion theory, these variables are the target of nursing intervention because they are amenable to change, closely related to the basic concept of the cognitive behavior model principle number six. The third aspect of the health promotion theory is behavioral outcomes (Pender et al., 2011). According to the theorist, behavioral outcomes requires a commitment to a plan of action in a given time frame with identification of strategies to elicit, carrying out, and reinforcing the behavior consequences.

The Model for Evidence-Based Practice Change was developed by Maryanne Russwurm and Jane Larrabee in 1999 and later revised by Larrabee (2004). There are six steps to the Model for Evidence-Based Practice Change. Each step has tasks that require skills in research, quality improvement, communication, organization, critical thinking, and use of team work tools (Larrabee, 2004). Steps include assessing the need for practice change and identification of the problem; collecting and critically analyzing the best evidence; designing, implementing, and evaluating practice change; and lastly, integrating the change into practice (Melnyk & Fineout-Overholt, 2011).
4. **Purpose of the Project**

The purpose of this project was to help women recognize sabotaging thoughts related to weight and diet and promote healthier changes that could decrease rates of overweight and obesity. The driving question in this project was: *Does group cognitive therapy affect weight loss outcomes in overweight/obese women?*

4.1 **IRB Approval**

To protect potential participants, the project needed to be reviewed by the agency Institutional Review Board (IRB) for safety and confidentiality purposes. An expedited IRB application was submitted and approved.

4.2 **Practice Setting/Population**

The idea for the practice change was generated through an expressed frustration among the providers in the clinical practice with the inability to assist women in losing weight. Many patients had tried multiple diets without obtaining lasting results and would ask the providers for help losing weight. Participants would be patients of the gynecology practice over the age of 30 with a BMI over 25.

5. **Project Design**

A sign was posted in the waiting room for one week asking anyone over the age of 30, and overweight who would like to participate in a 6 week weight reduction project to take the letter of information and inform the nurse when entering the exam room for their scheduled appointment. If they expressed interest, weight, height, and BMI were collected and calculated, and documented. The patients were contacted by phone, inviting them to participate if they were over age 30 with a BMI greater than 25. Participants meet individually with the project implementer during week one to discuss the project and sign the consent form. A brief diet history, weight, height, and calculation of starting BMI were obtained. Each week the participants attended a 60 minute group session with a PowerPoint presentation given. Handouts of the presentation were also given with room for note taking. Topics such as: journaling, self-talk, developing response cards, diet selection, schedule planning, and identification of thinking patterns were reviewed and discussed.

Participants were allowed to choose their own diet as long as it was healthy and well balanced. With behavior change, any well balanced diet may be beneficial, because the change is in the behavior, not necessarily the components of the diet. Initiating the chosen diet started following week two. This allowed the participants to obtain some cognitive tools for success prior to starting the diet. At the end of the six weeks, the participants met with the project implementer individually to obtain weights, and heights, calculate ending BMI, and complete a short survey.

6. **Plan for Project Evaluation**

To determine the effectiveness of the project, the initial measures of weight and BMI (week one of the project) would be compared to the week six weights and BMI. Pre and post weight comparison would be made using the paired $t$-test set at a two-tailed $<0.05$ significance. It was expected that there will be a small reduction in both weight and BMI given the short length of actual time dieting with the addition of cognitive therapy tools. All participants would be weighed using standard balanced scales. Weight and height measurements were obtained on the same scale and BMIs would be calculated using those measurements. In addition, the participant survey from week six would be collected and analyzed.

To be included in the data, participants would have to attend four of the six presentations. Options for make-up sessions would be provided in order to maintain the cohesiveness of the group. In order for the project to be deemed successful, the majority (>50%) of the participants would lose weight and the survey would report utilization of the cognitive behavior techniques and satisfaction with the intervention.
7. Results

No formal measurement tool was utilized during the evaluative stage of this project. Instead, statistical data was entered into a tabular format and comparisons were made. The comparison of interest for this project was week one weight and BMI compared to week six weight and BMI. Additionally, survey results were reviewed for overall acceptance of the intervention. Prior to this practice change, the only treatment of overweight and obesity used in the practice was diet and exercise counseling.

There were 27 patients that responded to the sign posted in the office. Of the 27 patients, 26 met the criteria of age and BMI. In order to be included in the evaluation, patients had to attend four of the six PowerPoint presentations and complete the final weight, for BMI calculation, and the post survey. Of the 26 patients that met the initial criteria, 21 patients (81%) met the criteria to be included in the evaluation.

The findings from the data evaluation can be found in Table 1. The mean pre weight was 202.33 (45.44 standard deviation) and the mean post weight was 196.8095 (45.6439 standard deviation). Using the t-test for comparison from pre to post weight, the mean weight loss was 5.52 (two-tailed p-value <0.0001). Nineteen of the 21 patients (90.5%) demonstrated a weight loss. One patient stayed the same and one patient gained weight (3 pounds). The range of weight loss was 3-12.25 pounds. This corresponded to a reduction in BMI in those 19 patients. Of particular note, a participant had a reduction of BMI to the healthy category. The two-tailed P value was less than 0.0001 which by conventional criteria, is considered to be extremely statistically significant. The mean of Pre minus Post equals 5.52 which indicated a 95% confidence interval. In addition, the completion survey demonstrated overwhelmingly positive responses to the use of cognitive therapy as shown in Table 2.

8. Discussion

It was discovered during the diet histories obtained that the patients had tried a multitude of diets without lasting success. It was also revealed that primary care encounters regarding weight loss were often prompted by the patient, not the provider, and often included a lecture on low fat, low cholesterol diets and an exercise regimen. In this evidence-based project utilizing cognitive behavior techniques in addition to diet and exercise, a weight loss was experienced by 90.5% of the patients and 81% of patients completed the project. Additionally every participant (100 %) demonstrated satisfaction with the cognitive behavior interventions.

The findings of the data collected during this evidence-based practice change project were comparable to the findings presented in the literature review and proved the efficacy and significance of using cognitive behavior therapy techniques as an addition to diet and exercise to promote weight loss in women. Stahre in two separate studies (2005, 2007) found cognitive behavior techniques beneficial to traditional weight loss treatments of diet and exercise in both short term and long term settings, and also was reviewed to be an acceptable intervention due to the low drop-out rate.

9. Limitations

A limitation that was identified early in the project was the possibility of limited number of patients to participate in six consecutive sessions. If the project were to be replicated, posting the sign for longer than a one week time frame would allow for more responses from the patients wishing to participate.
10. Implications for future nursing practice

At the completion of the project, several ideas and recommendations were developed including the possibility of replicating the project, and allowing more time for patient responses to participate. The project was viewed as a starting point for practice change in this particular setting and patient population. The reimbursement aspect will need to be further investigated in order for primary care providers to allot time for this intervention in their practice schedule.

Translating evidence that will improve patient outcomes is the priority of nursing practice. Advanced practice nurses practicing in primary care are in the position to recognize and treat overweight and obese patients. Current practice can be improved through the inclusion of cognitive behavior techniques as a treatment modality to promote better diet choices and to increase exercise. On a larger scale, the dissemination of such evidence allows for evidence-based practice change, locally, nationally, and globally.
Table 1  
*Pre and Post Intervention Weights and BMIs*  

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre Intervention</th>
<th>Post Intervention</th>
<th>Weight Change (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>BMI</td>
<td>Weight</td>
</tr>
<tr>
<td>1</td>
<td>223.25</td>
<td>42.2</td>
<td>219</td>
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<tr>
<td>2</td>
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<td>28.2</td>
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<tr>
<td>21</td>
<td>170</td>
<td>29.2</td>
<td>162</td>
</tr>
</tbody>
</table>

*BMI range = Normal 18.5-24.9, Overweight 25.0-29.9, Obese > 30*

Table 2  
*Completion Survey Results*  

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you use the cognitive techniques with your diet choice?</td>
<td>Yes (100%)</td>
</tr>
<tr>
<td>2. Did you find them helpful in maintaining your diet choice?</td>
<td>Yes (100%)</td>
</tr>
<tr>
<td>3. Do you think it is likely you will continue to use the newly learned</td>
<td>Yes (100%)</td>
</tr>
<tr>
<td>techniques as you continue your diet choice?</td>
<td></td>
</tr>
<tr>
<td>4. Did you find the techniques easy to implement?</td>
<td>Yes (100%)</td>
</tr>
<tr>
<td>5. Do you feel like you will now be better able to make better/healthier</td>
<td>Yes (100%)</td>
</tr>
<tr>
<td>food choices consistently?</td>
<td></td>
</tr>
</tbody>
</table>


