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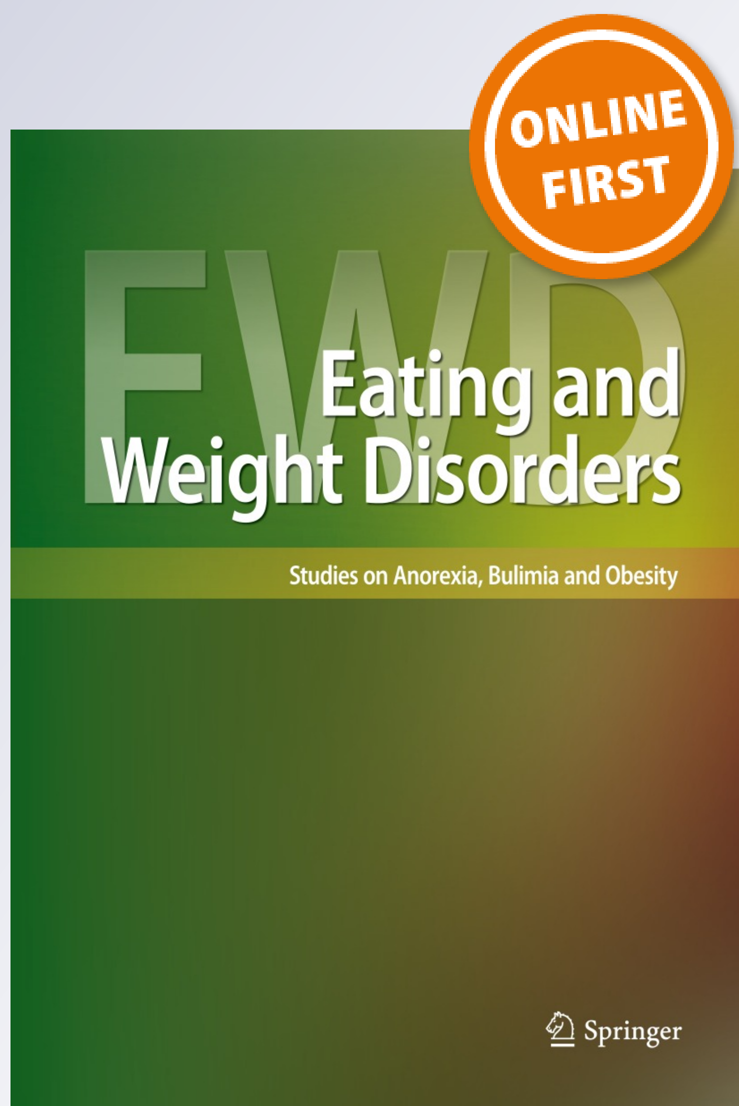
Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity
Official Journal of the Italian Society for the Study of Eating Disorders (SISDCA)

ISSN 1124-4909

Eat Weight Disord
DOI 10.1007/s40519-014-0115-6



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CASE REPORT

Addressing the fear of fat: extending imaginal exposure therapy for anorexia nervosa

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Received: 11 March 2014 / Accepted: 13 March 2014
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Exposure therapy is fundamental for the treatment of core fears in anxiety disorders and it has been proposed that exposure therapy should be extended to anorexia nervosa (AN) [1]. Exposure therapy for AN has primarily focused on exercises such as mirror exposure to address body image anxiety and food exposure to address avoidant eating behavior [1]. Recently, exposure for mealtime anxiety was shown to be more efficacious than cognitive remediation therapy [1].

These types of exposure therapy show promise for the treatment of AN. However, they are limited because they only address stimuli that are accessible in vivo (food, bodies). Therefore they may not expose the patient to all of their fears, including the core fear of fatness, which can be conceptualized as an irrational belief driving avoidance behavior [1]. In imaginal exposure, patients are able to address hypothetical fears that cannot be replicated in everyday life (e.g., immediate fatness or abandonment).

Imaginal exposure is highly effective for anxiety disorders and is the core feature of prolonged exposure therapy for PTSD [PET; 2]. In PET, patients create a script recounting their traumatic experience with the help of their therapist. The script is edited throughout treatment to focus on the most feared aspects of the trauma, which often elicits previously unidentified fears. Imaginal exposure is audio recorded, and the patient listens to the recording as daily homework. Through this type of exposure therapy, patients learn to face their fears and learn that they can tolerate the anxiety elicited by discussing those fears.

Imaginal exposure therapy draws on the avoidance–anxiety model [3]. In this model, avoidance is the chief maintaining factor of anxiety. For example, a patient with PTSD fears that she will re-experience her trauma. Motivated by the anxiety produced by this fear, she avoids leaving her house after dark because nighttime is associated with trauma. Therefore, she never learns that she can leave the house after dark and not re-experience trauma. Alleviation of anxiety becomes increased paired with avoidance behavior via a process of negative reinforcement, promoting the maintenance of the disorder.

Imaginal exposure is used in anxiety disorders to face fears that are not accessible or practical to address via in vivo exposures. For example, a patient with PTSD cannot re-experience her trauma in real life, but she can imagine the past trauma and experience the subsequent anxiety. In AN, fear of fat is the central fear driving avoidance of eating [1]. Patients associate becoming fat with negative consequences, such as abandonment. Avoidance of eating prohibits learning that maintaining an optimal weight is not a predictor of such catastrophic outcomes. For patients with AN, catastrophic outcomes such as abandonment or immediate fatness are similarly impossible to recreate as in vivo exposures. Patients cannot become fat solely for the purpose of the exposure, but they can imagine what it would be like to become fat.

We theorize that using imaginal exposure to face the fear of hypothetical fatness can break the avoidance–anxiety cycle. We are unaware of any literature using imaginal exposure therapy to induce fears of fatness and conducted a case study to test whether imaginal exposure was feasible to (a) induce fears of fatness and (b) promote reduction in anxiety and eating disorder symptoms.

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The case

The patient was a 34-year old Caucasian woman diagnosed with AN-restricting type, with a chronic history, beginning in adolescence. She was admitted to a partial hospitalization program (PHP) after failing to gain weight in family-based treatment. She had been in outpatient therapy with a variety of therapists for many years and had never achieved a period of remission. The patient endorsed many fears associated with "becoming fat" and the consequences of gaining weight, and she endorsed avoiding eating as a mechanism to manage the subsequent anxiety.

Assessment

We utilized the Eating Disorder Examination-Q (EDE-Q) [4] and Clinical Impairment Assessment (CIA) [5] to measure disordered eating and impairment due to an eating disorder. The patient's weight was tracked daily. During exposures we tracked anxiety levels with the Subjective Units of Distress Scale (SUDS) [6], a behavioral measure used during exposure therapy.

Treatment

Overview

The patient completed 12 sessions of CBT and exposure targeting her fear of becoming fat conducted across 28 days (beginning 9 days after intake to PHP). Sessions 1–2 included education on the CBT model and the principles underlying exposure therapy. Sessions 3–12 consisted of: completion of an imaginal exposure, processing the exposure or automatic thoughts related to the exposure, or development of the exposure script.

Avoidance model of anxiety adapted for AN

The patient's core fear was gaining weight, and a main trigger of this fear was eating. She believed that becoming fat would result in the dissolution of her marriage and loss of her identity. She attempted to avoid her anxiety by eating restrictively, avoiding certain foods, and exercising compulsively. She weighed herself multiple times per day and body checked via pinching. The patient was encouraged to break the anxiety cycle by using imaginal exposure (imagining herself becoming fat) and learning to sit with her anxiety rather than use avoidance behaviors. The patient was taught to observe and describe her anxiety.

Imaginal exposure sessions

The patient completed five imaginal exposures utilizing three versions of an exposure script specific to the patient's core fear of becoming fat. In each exposure session (approximately 3–7 days apart), the patient read the script. As described in imaginal exposure protocols, the client was instructed to vividly imagine that she was currently experiencing the scenario described in the script [2]. Please see Example 1 for an excerpt from the final, most difficult version of the script. The patient was instructed to sit with and be mindful of her anxiety resulting from imagining the scenario and to restrain from any anxiety-reducing compulsions.

Exposure 1

The patient read the exposure script aloud and revealed that she had additional feared consequences of becoming fat, which included being viewed as a failure, judgment by her family, no longer feeling important, and divorce from her husband. The patient was unable to articulate these fears during the initial script-planning session and reported that they had not been unveiled to her until her anxiety had been raised by the initial exposure. These fears were incorporated into a revised version of the script.

Exposure 2

The patient reported that her anxiety returned to baseline, 24 h after the initial exposure. The patient read the original exposure script and completed an additional exposure with the revised version of the script that included the additional feared consequences associated with becoming fat.

Exposure 3

The exposure was repeated using a script that included all feared consequences. The patient revealed an additional feared consequence of eating: "that her metabolism was so messed up she would become obese".

Exposure 4

The exposure was repeated with a revision of the script, incorporating all fears and consequences. In addition, the patient revealed the fear that "if she no longer had an eating disorder, she would lose the support she had gained from her friends and family".

Exposure 5

In this final exposure, the patient and therapist used a synthesized version of all scripts. The patient completed

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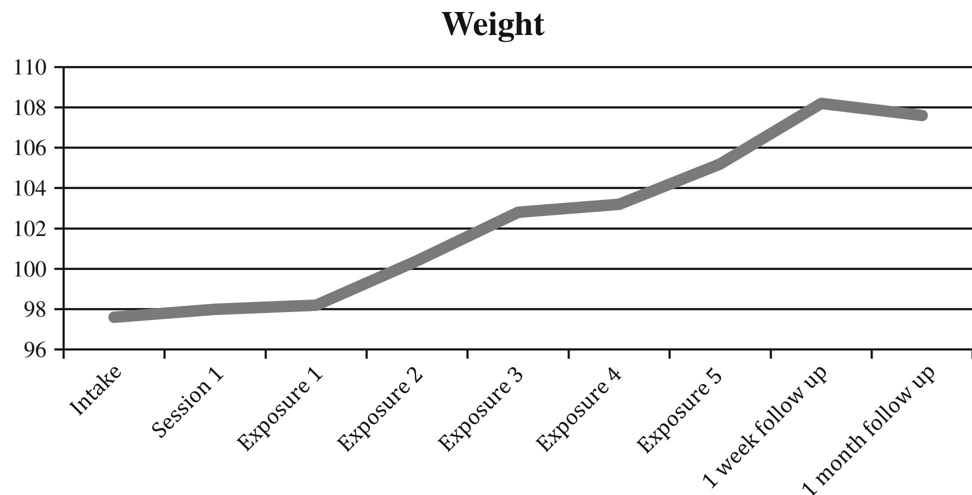

Fig. 1 Weight during course of imaginal exposure treatment and at follow-up. Session 1 was psycho-education. Intake to Exposure 1 is 18 days. Exposure 1 to Exposure 5 is 17 days

cognitive restructuring on the thought, "I will no longer be special without an eating disorder" and "My husband will leave me if I gain weight".

Homework

Each imaginal exposure session was audio recorded and the patient listened to each session daily during the course of treatment [2]. The patient also recorded herself reading the final script aloud and listened to this recording before meals.

Outcome

Disordered eating and impairment scores decreased from intake to end of exposure therapy and at 1-month follow-up after exposure therapy cessation.

Disordered eating

We tested whether the change between intake score (4.76: item mean scores of 4 attitudinal subscales; scoring higher than 95–99 % of adult women: restraint = 5.8, shape concern = 5.63, eating concern = 3.2, weight concern = 4.4) and 1-month post-treatment (3.76: scoring in the 90–95 % of adult women: restraint = 2.8, shape concern = 5.25, eating concern = 3.0, weight concern = 4.0) was clinically significant and reliable using the Reliable Change Generator. Results indicated with 95 % certainty that a clinically significant and reliable change occurred.

Impairment

For impairment, there was 95 % certainty that a clinically significant and reliable change occurred (intake = 41, 1-month follow-up = 32).

Weight gain

As can be seen in Fig. 1, the patient's weight increased over the course of therapy (28 days) and maintained at the 1-month follow-up. There was a 1.72 BMI increase (intake = 16.75, 1-month follow-up = 18.47).

Anxiety during imaginal exposure

Anxiety decreased during the exposures (1st exposure SUDS = 8.5/10, final exposure SUDS = 5/10), providing evidence of habituation to the exposure, even as the script became harder and more specific to the patient's core fears.

Post-treatment functioning

The patient was discharged at the end of the course of imaginal exposure therapy. The client stated: "I am not thrilled with my body, but am able to tolerate it. I can also admit that none of my eating disorder's predictions about the danger of "fatness" have come (true)".

Discussion

We presented a case study of a patient diagnosed with AN who completed 12 sessions of CBT including 5 sessions of imaginal exposure focused on the patient's fears of becoming fat. The client associated becoming fat with judgment, rejection, and becoming "abandoned, alone, and utterly helpless". The patient identified these fears through imaginal exposure and habituated to the anxiety that these fears produced. The patient also completed psycho-education, cognitive restructuring, and listened to recorded

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exposures as homework. Over the course of therapy, the patients' scores on disordered eating and clinical impairment decreased and her BMI increased: gains were maintained at 1-month follow-up. Imaginal exposure may be a feasible treatment for AN and can be conducted in a PHP setting. Clinicians could use this case as an example and consider integrating imaginal exposure into their treatment of AN.

However, this report is based only on one patient with substantial fears surrounding her eating disorder and should be replicated in larger samples over longer time periods. It is plausible these effects were due primarily to the simultaneous treatment in the PHP program. We hope that future researchers will conduct randomized control trials to disentangle these effects. Nevertheless, we did show that this type of therapy was feasible in a PHP setting.

Overall, we think the inclusion of imaginal exposure therapy holds great promise for the treatment of AN. It allows the patient to face fears that are otherwise unavailable for exposure work (e.g., the fear that one will be abandoned) or that the client may be unable to identify without the use of exposure methods. Imaginal exposure could be a useful adjunct to family-based therapy or CBT for AN and could be combined with relapse prevention strategies. Future research with multiple patients and case–control studies should test this proposition in the hopes that this treatment may help relieve the suffering associated with AN.

Example 1. Excerpts from the final version of the imaginal exposure script

"I am eating too much. My stomach is huge. My worst fear is becoming true; I am becoming fat…I have made a decision to betray my eating disorder. I am now a complete failure with no self-control. I hate my body. I'm miserable, sloppy. Other people judge me. They think I am a fat, lazy slob. People are grossed out and avoid me. I lose friends, my kids notice my changing body and call me fat. Without my eating disorder I cease to be important. There is nothing worthwhile about me other than my thinness. I return to work, people notice, comment on my increased weight. They think I am crazy, gross, and overweight. Even my own mother judges and criticizes me. People become disgusted and reject or abandon me. I am truly alone and clearly unloveable. My husband divorces me. He takes the kids because the courts deem me mentally unfit. I have to move out. I am obese and alone. I am bad, deep down, to the core of my being. I am abandoned, alone, and utterly helpless".

Acknowledgments We would like to acknowledge the client for all of her hard work in therapy. This work is supported by the National Institute of Mental Health F31-MH096433-01 to Cheri A. Levinson.

Conflict of interest We have no conflicts of interest to report.

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