The Use of Alternative Behaviors, Covert Sensitization and a Package Intervention in Treatment of Bulimia

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THE USE OF ALTERNATIVE BEHAVIORS, COVERT SENSITIZATION AND A PACKAGE INTERVENTION IN TREATMENT OF BULIMIA

by

Janice Marie Arone

A Thesis Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Master of Arts Department of Psychology

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THE USE OF ALTERNATIVE BEHAVIORS, COVERT SENSITIZATION AND A PACKAGE INTERVENTION IN TREATMENT OF BULIMIA

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Western Michigan University, 1984

Bulimia is a complex eating disorder that involves bouts of binge eating which are usually followed by a purge to rid the individual of the unwanted food. This disorder occurs primarily in females and may lead to several medical and psychological complications. The efficacy of two single component treatments and a package intervention designed to decrease variables related to binge eating were investigated with three bulimic females. The results of the research indicated that individuals who were exposed to the package intervention experienced the largest decrements in the binge eating when compared to the single component procedures.
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Janice Marie Arone
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CHAPTER I

INTRODUCTION

In recent years bulimia has been the topic of a large number of articles published in professional journals and the mass media. The recent recognition of bulimia as a disorder separate from anorexia nervosa (American Psychiatric Association, 1980) may be responsible for the increased interest in this eating pattern. In addition, societal pressures for women to remain thin may lead an increasing number of individuals to engage in binge eating thus making this behavior more prevalent.

According to the American Psychiatric Association, (Diagnostic and Statistical Manual of Mental Disorders III, 1980) bulimia is characterized by recurrent episodes of binge eating (rapid consumption of a large amount of food in a discreet period of time) and the termination of such eating by abdominal pain, sleep, social interruption, or self-induced vomiting.

Researchers working with a university population reported that the incidence of bulimia, as defined by the DSM III, ranged from 3.8% (Stangler & Printz, 1980) to 13% (Halmi et al., 1980) in a sample of college students and 87% (Halmi et al., 1980) to 89.5% (Stangler & Printz, 1980) of these individuals were female.

Prolonged binge eating and purging can result in several medical and psychological consequences. Medical complications include: electrolyte imbalance (Cullari & Redmon, 1982b; Mitchell & Pyle, 1982; Russell, 1979), menstrual irregularities (Cullari & Redmon, 1982b; Lucas, 1982; Pyle, et al., 1981), gastric rupture and dilation (Cullari & Redmon, 1982a; Loro & Orleans, 1981; Mitchell & Pyle, 1982), and dental enamel erosion (Lucas, 1982). Feelings of stress (Cullari & Redmon, 1982a; Loro & Orleans, 1981; Stunkard, 1959), boredom (Cullari & Redmon, 1982a), and loneliness (Cullari & Redmon, 1982a) are among the emotions associated with the onset of a binge. After this cycle is completed individuals report guilt (Johnson & Larson, 1982; Mitchell & Pyle, 1982; Stunkard, 1959) and depression (Allerdissen, Florin, and Rost, 1981; Mitchell & Pyle, 1982; Russell, 1979).

The early treatment of bulimia included several types of interventions such as psychoanalytic therapy (Guiora, 1967), pharmacological treatments (Green & Rau, 1974; Weiss
& Levitz, 1976; Wermuth, Davis, Hollister, and Stunkard, 1977), and aversion therapy (Kenny & Solyom, 1971; Wijesinghe, 1973). The results of these studies range from no effects on bulimic behaviors (Russell, 1979; Weiss & Levitz, 1976) to cessation of binge eating (Kenny & Solyom, 1971; Wijesinghe, 1973).

Guiora (1967) stated that the prognosis for his subjects treated with psychoanalysis was poor due to the hypothesized nature of eating disorders in psychoanalytic theory.

Pharmacological treatments for bulimia were first investigated by Green and Rau (1974). These researchers assumed that the etiology of compulsive eating disorders had a neurological and psychodynamic basis and that these behaviors should respond to treatment with anti-convulsant medication. Green & Rau reported that 90% of subjects with abnormal EEG's and various eating disorders resumed normal eating patterns after treatment with diphenylhydantoin.

Weiss & Levitz (1976) replicated Green & Rau and reported that anti-convulsant medication had no effect on their participant's binge eating. Wermuth et al. (1977) utilized a double-blind design to further investigate this treatment and found that no relationship existed between responsiveness to diphenylhydantoin and the presence of EEG abnormalities. Follow-up data collected by Wermuth
et al. concluded that drug treatment was effective in eliminating binge eating in a small number of subjects. Subsequent pharmacological research utilizing antidepressants and appetite suppressants have proven ineffective in altering eating habits associated with bulimia (Russell, 1979). The lack of consistent findings with this type of intervention may indicate its limited usefulness.

Early behavioral researchers utilized aversive techniques such as pairing electric shock with image formation of the binge-purge sequence (Kenny & Solyom, 1971) and massed electroshock during consumption of favorite foods (Wijesinghe, 1973) in an attempt to decrease binge eating. Both researchers also used "encouragement" (Kenny & Solyom, 1971) and "supportive counseling" (Wijesinghe, 1973) with their subjects thus making it impossible to attribute results solely to one of the two interventions. Kenny and Solyom (1971) reported their participant stated that no vomiting episodes occurred at a three month follow-up but researchers described her eating pattern as "mildly erratic." Wijesinghe (1973) stated that compulsive eating did not recur one year following treatment for both of his subjects. Results from these studies must be interpreted cautiously since they both lacked a controlled experimental design and did not report empirical data.

The majority of recent research has utilized multiple
interventions either in sequence or concurrently rather than stressing a single modality of treatment. Several studies (Fairburn, 1981; Grinc, 1982; Long & Cordle, 1982; Meyer, 1973; Welch, 1979) incorporated both cognitive and behavioral interventions in an effort to decrease bulimic behaviors. The cognitive procedures used in these studies included techniques such as restructuring (Fairburn, 1981; Grinc, 1982; Long & Cordle, 1982; Welch, 1979) to teach participants to change maladaptive thoughts about weight, body dimensions, negative self-image, vomiting, and food intake which supposedly relate to the bulimic behavior pattern. Meyer (1973) reported that thought stopping was not successful in eliminating episodes of binge-purging in a bulimic subject. Behavior interventions such as teaching alternative responses (Fairburn, 1981), stimulus control procedures such as avoiding food situations that led to vomiting (Grinc, 1982), assertiveness training and resocialization (Long & Cordle, 1982), delay therapy (Meyer, 1973), and response prevention (Welch, 1979) were also used in conjunction with cognitive procedures. Subjects in these studies all demonstrated a decrease or cessation of binge eating and/or purging. Maintenance of treatment gains were reported at follow-up intervals ranging from seven months (Meyer, 1973) to one year (Fairburn, 1981; Grinc, 1982; Long & Cordle, 1982). Con-
elusions about effective treatment techniques cannot be drawn from these studies due to the lack of adequate experimental designs, individual component analyses, and a prevalence of case studies.

A small number of studies (Cullari & Redmon, 1982a; Linden, 1980; Smith, 1980) have incorporated only behavioral interventions in the treatment of bulimia. These researchers have employed procedures such as teaching alternative responses (Cullari & Redmon, 1982a; Linden, 1980), assertiveness training (Linden, 1980), exposure with response prevention (Smith, 1980), and dietary modification (Cullari & Redmon, 1982a) with bulimic individuals. The subjects in these studies reported a decreased frequency or cessation of bulimic behavior which was maintained at follow-up intervals ranging from two weeks (Cullari & Redmon, 1982a) to eight months (Smith, 1980). Again, methodological weaknesses in these studies such as the application of multiple interventions simultaneously (Cullari & Redmon, 1982a; Linden, 1980) or sequentially (Smith, 1980) make identification of effective techniques difficult.

In summary, a variety of interventions have been evaluated with bulimics. Most interventions have reported positive impact on bulimic behavior and these gains were maintained at follow-up. Unfortunately the majority of
the studies are uncontrolled case studies without adequate experimental designs. This body of research has also relied upon self-report without assessing the accuracy of these data. Finally, it is difficult to determine the effectiveness of each procedure due to the use of package interventions in the majority of research. No previous research has analyzed the effects of the separate treatment components on the bulimic's behavior. These methodological problems make interpretations of prior research virtually impossible and suggest the need for well designed research to evaluate alternative promising treatments for bulimia.

Researchers (e.g., Cullari & Redmon, 1982a, 1982b; Loro & Orleans, 1981) view bulimia as a learned behavior with identifiable antecedents and consequences. Therefore, procedures that alter the stimuli and behaviors associated with these stimuli should be effective in reducing the frequency of binge eating and purging. Due to the range of covert and overt stimuli that may evoke a binge, interventions that address both classes of stimuli would appear to be most promising. In addition, techniques that alter the cues associated with binge eating should be effective in reducing the number of binges and thus preclude the need to purge. Two methods could be applied to achieve this effect.
An intervention that decreases binges by arranging a response contingent punishment should reduce the factors evoking a purge (i.e., a preceding binge). Because it is difficult to punish binge eating and purging directly due to its privacy, a cognitive intervention such as covert sensitization could be applied by bulimic individuals. This procedure involves a pairing of aversive thoughts and images with the binge-purge sequence. Although covert sensitization has not yet been applied with bulimics, it has been successfully used with over-eaters (Cautela, 1967, 1972; Janda & Rimm, 1972), alcoholics (Ashem & Donner, 1968; Cautela, 1970), and smokers (Cautela, 1970). Loro and Orleans (1981) suggested its use as a possible treatment for bulimia. It is hypothesized that the application of covert sensitization would lead individuals to pair aversive consequences with binge-purging and that they would begin to view this activity as undesirable and incorporate more acceptable behaviors in their repertoire.

A second technique designed to deter the occurrence of a binge and preclude the need to purge is the reinforcement of alternative behaviors substituted for a binge. Researchers (e.g., Cullari & Redmon, 1982a; Fairburn, 1981; Linden, 1980) have utilized this procedure to expand the individual's activities thus decreasing the bulimic's
social isolation and to substitute readily available alternative responses in an effort to avert a binge. It is possible that the reinforcers attained from engaging in these activities may compete effectively with bulimic reinforcers and thus eliminate binge eating.

The use of covert sensitization and alternative behaviors separately and as components of a package intervention would allow for an analysis of the effectiveness of these procedures. This study would expand the current literature by introducing research that utilized a component analysis as well as a new technique, covert sensitization, as a probable intervention for bulimia. A package intervention was incorporated for treatment purposes in an attempt to further decrease bulimic behaviors. A multiple baseline design across subjects with additive components (Bailey, 1977) was used to assess the impact of covert sensitization, alternative behaviors, and a comprehensive treatment package upon the individual's eating behavior.
CHAPTER II

METHOD

Subjects

Six subjects began the research but three did not complete any of the experimental phases due to attrition. All participants were females recruited through advertisements in the university newspaper and the student health center. The individuals who completed the study, Subjects 1, 2, 3, were ages 27, 24, and 25. These three participants reported binge eating for 12, 5, and 6 years, respectively.

In order to participate in the study, the subjects met the following criteria: (a) were not presently receiving treatment for bulimia that would interfere with the interventions and procedures of the research, (b) were binge eating and purging at least one time per week, (c) were exhibiting the criteria for the diagnosis of bulimia as defined in the DSM III (1980), and (d) were currently weighing not less than 25% of the standard weight for their height according to the Metropolitan Insurance Company's Height and Weight Table (1983). The subjects also received a physical examination at the student health center and approval for their participation in the study was
obtained from a physician. The 168 item form of the Minnesota Multiphasic Personality Inventory (MMPI) (Overall & Gomez-Mont, 1974) was also administered as a screening device to detect the presence of severe psychological problems. A licensed psychologist assisted in the interpretation of the profiles and approved each participant's inclusion in the research.

Informed consent to participate in the research was procured for all subjects and a release of information for the medical screening was acquired.

Setting and Materials

Weekly meetings for Subject 1 were held at her residence due to her lack of transportation. The treatment sessions for Subject 2 and 3 were held at an outpatient clinic on campus.

The materials used in the study included the following paper and pencil assessment devices: the MMPI (Overall & Gomez-Mont, 1974), the Binge Eating Scale (Gormally, Black, Daston, and Rardin, 1982), and the Reinforcement Survey Schedule (Cautela & Kastenbaum, 1967). The MMPI is comprised of statements about several aspects of personality that the subjects rated as true or false. The Binge Eating Scale included statements about the behavioral and cognitive characteristics of the binge-purge syndrome which
are selected as being descriptive of the behavior pattern of the testee. The Reinforcement Survey Schedule involved rating the desirability of several activities on a five point Likert scale. The scale included various behaviors that are further divided into specific categories (i.e., reading: adventure, mystery, poetry, etc.).

Subjects also maintained a Binge Record on which they recorded the urges to binge and their antecedents, number of binges and food consumed, duration of binge eating episode, interventions, and number and type of purge. Participants completed a Meal Record that included data on the type and quantity of food consumed for meals, snacks, and binges.

Dependent Variables

Information from the three day Meal Record probe and Binge Record served as dependent variables during baseline. The behavioral measures in the experimental phases of the study were the changes in the frequency and duration of binge eating and the frequency of purges. This information was recorded by the participants on the Binge Record which was completed daily and returned to the researcher. A binge was defined as the rapid consumption of a large quantity of food (often high calorie) within a discreet period of time, usually less than two hours. This defini-
tion is based on the criteria listed in the DSM III (1980). A purge was defined as the use of self-induced vomiting, purgatives (i.e., enemas, laxatives), diuretics, amphetamines, or other devices following a binge. The researcher was unable to perform any reliability measures for the information supplied by the participants due to the privacy of this behavior.

Two self-report assessment devices, the MMPI (Overall & Gomez-Mont, 1974) and the Binge Eating Scale (Gormally et al., 1982) were administered during the screening protocol and at the termination of the research. The information from these assessment instruments were used to analyze changes in psychological problems and eating habits.

Four weeks after the termination of treatment, the participants were contacted by phone and follow-up information was collected. Subjects estimated the frequency, duration, and intensity of binge eating and purging that had occurred following treatment.

General Procedure

Screening

Each subject completed a screening protocol consisting of an assessment and completion of the MMPI (Overall and Gomez-Mont, 1974), Binge Eating Scale (Gormally et al.,
1982), and the Reinforcement Survey Schedule (Cautela & Kastenbaum, 1967) to determine if they met eligibility requirements. If screening data indicated that the individual met the criteria for inclusion in the study, a physical examination was completed at no cost to the subject and a physician granted approval for subject participation.

Baseline

After procuring the physician's consent, baseline measures were initiated. Written and verbal instructions were given to the subjects to assist them in completing the Binge Record and three day Meal Record probe. Subjects were instructed to record their eating behavior without altering current eating habits.

Intervention Phases

Throughout the study treatment sessions were held approximately every week with the researcher. During these meetings, the subject's data were reviewed and the antecedents and consequences of the urges to binge and binges were discussed. The researcher inquired about any entries that were incomplete or unclear and participants were praised for continued data collection and decreases in any bulimic behaviors, especially the dependent
variables. Subject's questions about recording data or implementing the techniques were answered and changes in the interventions were made during the weekly meetings.

Alternative Behaviors

The subject received instructions to engage in an alternative behavior when the urge to binge arose and at times when binges had typically occurred in the past. These behaviors were primarily chosen from the Reinforcement Survey Schedule (Cautela & Kastenbaum, 1967) and were readily available, inexpensive, and incompatible with eating. Approximately ten behaviors were chosen for each subject and included activities such as visiting a friend or exercising. The participants received verbal and written instructions concerning the implementation and recording of these activities along with rationale for their use.

Covert Sensitization

The subjects were also instructed to listen to a covert sensitization tape (Cautela, 1967) when they had an urge to binge. A total of three tapes were constructed for each participant. Each tape was approximately five minutes in duration and contained two covert sensitization scenes and two relief scenarios. An
You are at home working on a drawing for your art class. You are very frustrated with your work as this project has taken several hours and it is not to your satisfaction. While working on the drawing, you begin to think about binge eating as an escape from your frustration. Next, you walk to the kitchen and start to prepare one of your favorite dishes, a tuna and broccoli casserole. While making the casserole, you begin to snack on some granola and eat half a box. You put the granola away, finish the casserole, and put it in the oven to bake. The smell of the casserole fills the air and increases your desire to eat. You open the refrigerator and get out a large piece of cheese and then you go to your cupboard and take out some crackers. You eat several crackers with cheese and then notice green and white fuzzy mold on the cheese that you were eating. The sight of the mold makes you feel ill and a sick feeling arises from the pit of your stomach and moves...
upward. You suddenly feel awful and know you are going to be sick as you feel the food particles coming up your throat. You quickly throw the cheese in the garbage, decide not to eat any more tonight, leave the kitchen to return to your work, and begin to feel better.

You are lying in bed and have been unable to fall asleep for the last two hours. You have been worrying about school assignments and are concerned about getting things done on time because you have already fallen behind in your studies. Next, you get out of bed and go toward the kitchen. When you reach the kitchen you recall how awful and uncomfortable you felt after your last binge. You decide to eat an apple, feel as if you can control your eating, return to bed, and no longer feel the need to binge.

Participants obtained verbal and written instructions for the implementation of the covert sensitization tapes. Subjects recorded the number of times they listened to the tapes and which scenes they rehearsed on the Binge Record. A verbal rationale for the procedure was also supplied. (Refer to Appendices page 36, for copies of instructions for the previous interventions).
Package

A package intervention was the final treatment for each participant. This package consisted of a combination of four to five of the following components: alternative behaviors, covert sensitization tapes, contingency contracting, relaxation tapes, disputing negative self-statements, writing a daily diary with focus on binges and purges, writing out problems and solutions, restricting binge foods, practicing binge eating without purging, thought stopping, seeking social support, applying competing responses, and suggestions from participants. The components of the package were explained to the participant and the interventions were chosen by the subject and researcher to comprise the package. Verbal instructions and rationale for each component were provided.

Experimental Design

The research utilized a multiple baseline across subjects design and an additive component (Bailey, 1977) to assess the effects of interventions on the frequency and duration of binge eating and purging episodes. The specific designs incorporated in the research for Subjects 1, 2, and 3 were ABCD, ACB, and ABD, respectively.
Subject 1

Baseline measures were taken for the first 15 days. An alternative behaviors intervention was in effect during days 16 - 40; the covert sensitization tapes were utilized during days 41 - 60; and a package intervention composed of covert sensitization tapes, alternative behaviors, a progressive muscle relaxation tape, and a contingency contract was in effect during days 61 - 90. The contract included the following agreements: not to binge for a certain number of days, not to purchase binge foods, to eat balanced meals two times per day, to record and mail data sheets daily, and to incorporate the interventions when the urge to binge arose. The subject obtained a reinforcer such as a small item for herself for maintaining the contract agreements. A response-cost procedure that consisted of not attaining a reinforcer and making a contribution to an organization she opposed was implemented when the contract was not fulfilled.

Subject 2

Baseline data were collected for the first 21 days. Covert sensitization tapes were utilized during days 22 - 46; the alternative behaviors procedure was applied during days 47 - 71. The subject was unable to remain in the research for the package intervention due to time constraints.
Subject 3

Baseline measures were taken for the first five days. No data was received from the subject days 6 - 12; an alternative behaviors intervention was incorporated during days 13 - 19; and a package intervention consisting of the following: covert sensitization tapes, alternative behaviors, a progressive muscle relaxation tape, and a contingency contract were in effect days 20 - 80. Representative contract agreements included the following: not to binge for a specified number of days, not to bake or eat certain foods in binge quantities (i.e., in amounts that would be purged), not to eat at any all-you-can-eat restaurants, to consume one balanced meal per day and not purge this, to use interventions consistently, and to turn in data daily. The subject earned money for complying with the contract components and paid into a general fund when contract agreements were broken.
CHAPTER III

RESULTS

Frequency of Binges

As can be seen of Figure 1, page 22, the number of binges per day decreased across phases for Subjects 1 and 3 and remained stable for Subject 2. The data for Subject 1 demonstrate a rate of .7 binges per day during baseline and a decrease in this measure to .3 during the alternative behaviors intervention. This dependent measure remained stable during the use of covert sensitization tapes and further decreased to a rate of .03 binges per day when the package intervention was in effect. The second subject's data indicate that the number of binges per day remained at .2 per day throughout the research. The data for Subject 3 demonstrate a rate of 1.4 binges per day during baseline and this measure increased to 1.7 during the alternative behaviors phase. When the package intervention was in effect the number of binges per day decreased to .4.

Total Duration of Binges

The total duration of binges decreased across phases for all participants with Subjects 2 and 3 demonstrating
Figure 1: The frequency of binges reported daily by each subject.
the largest decrements in this measure. (See Figure 2, page 24.) The first subject's data indicate that the mean duration of a binge was 51 minutes during baseline, decreased to 44 minutes in the alternative behaviors phase, and slightly increased to 48 minutes in the covert sensitization phase. The single binge that occurred during the package intervention lasted 45 minutes. The average duration of a binge eating episode for Subject 2 decreased substantially from 75 minutes in baseline, to 62 minutes in the covert sensitization phase, and this measure further decreased to 48 minutes during the alternative behaviors intervention. The data for Subject 3 indicate the mean duration of a binge was 70 minutes during baseline and this measure slightly increased to 75 minutes in the alternative behaviors phase. This dependent variable further decreased to 50 minutes when the components of the package intervention were applied.

Frequency of Purges

The frequency of purges remained relatively stable for all participants in the research with only Subject 1 ceasing to engage in the use of purgatives. (See Figure 3, page 25.) The following summary statistics were calculated by dividing the number of purges by the number of binges in each phase. The data for the first participant
Figure 2. The total duration of binges for each subject.
Figure 3. The frequency of purges reported daily by the participants.

**NUMBER OF VOMITS**

- SUBJECT 1
- SUBJECT 2
- SUBJECT 3

**NUMBER OF LAXATIVES**

- SUBJECT 1
- SUBJECT 2
- SUBJECT 3

**FREQUENCY OF PURGES**
indicate that the mean number of laxatives taken after a binge was .4 with this measure remaining stable in the alternative behaviors phase. Laxative use ceased in the covert sensitization phase and was not reported for the remainder of the study. The second subject's data demonstrate that the average number of vomits following a binge was 15 during baseline and this dependent variable increased to an average of 16 vomits per purge in the covert sensitization phase. This measure decreased to baseline levels during the alternative behaviors intervention. The third subject's data indicate that the mean number of vomits per purge was 6 during baseline and increased to an average of 9 vomits in the alternative behaviors phase. When the package intervention was in effect the mean number of purges after a binge returned to baseline levels.

Pre-post Measures

The Binge Eating Scale (Gormally et al., 1982) was administered during screening and at the end of the study in order to measure self-reported changes in eating habits. Each subject's score on this assessment improved across pre and post measurement. The pre and post scores for Subject 1, 2, and 3 were 54.5 and 41; 44 and 36; and 54 and 45, respectively, which suggests a lessened severity
of binge eating.

The comparison of pre and post Meal Records also indicated improvement in daily eating patterns. Data from all three subjects demonstrated that the participants were eating with increased regularity and consuming more meals at the end of the research. Subjects 1 and 2 also reported that they were being less restrictive with foods consumed during mealtime. Data collected from Subject 3 demonstrated that the intake of binge foods decreased during post measurement.

Data collected from the subjects daily Binge Record indicated that the estimated caloric content of a binge ranged from 1,000 to 4,000 calories, which is indicative of a milder form of bulimia. At the end of the study, each subject reported a decrease in the average intensity of a binge ranging from 200–600 calories when compared to baseline data.

The MMPI (Overall & Gomez-Mont, 1974) was administered during the screening protocol and upon termination of the research in order to attain a measure of self-reported psychological problems. Comparisons of the two profiles for Subject 1 indicated a diminished severity of psychological complaints. The pre MMPI contained elevations on scales 4 (Psychopathic deviate) 88T, 7 (Psychasthenia) 81T, and 2 (Depression) 78T; the post MMPI had
elevations on scales 2 (Depression) 74T and 3 (Hypochondriasis) 74T. A pre MMPI for Subject 2 indicated a normal profile with one minor elevation on clinical scale 2 (Depression) 71T. A post MMPI was not administered due to the subject's attrition. Data for Subject 3 did not demonstrate a substantial change across pre and post measures. The pre MMPI contained elevations on scales 6 (Paranoia) 83T and 4 (Psychopathic deviate) 79T; the post MMPI also contained elevations on scales 4 (Psychopathic deviate) 81T, 6 (Paranoia) 76T, and 9 (Hypomania) 75T.

Follow-up

Follow-up data for subjects 1 and 2 were collected four weeks after the termination of research. Subject 3 was unable to be reached until 7 weeks after the completion of the study due to a semester break. At this time subject 1 reported that no binge eating or purging had occurred since the end of the study. Subject 2 stated that she experienced a total of two binge-purge episodes the third and fourth week after the research. This participant estimated that the intensity and duration of binges and number of purges were similar to those in the last phase of the study. Subject 3 reported that three binges occurred within the first month after the study and one binge was reported six weeks following the research.
This individual estimated that the duration of each binge was one hour, the intensity of the binges was less than during treatment, and the mean number of purges following a binge was eight.
CHAPTER IV

DISCUSSION

This research has demonstrated that the application of single component procedures are less effective in reducing binge eating and purging than a package intervention. When subjects 1 and 2 complied with the single treatment procedures, their effectiveness increased but the gains were not as significant as those attained for Subjects 1 and 3 during the package intervention. The role of sequence effects must be considered as it is possible that the conditions of the first treatment phases produced effects on responding that interacted with variables in subsequent treatment phases.

The package intervention's effectiveness may be due to several factors. First, subjects were allowed to use a number of interventions to avert a binge rather than the single techniques available during the alternative behaviors and covert sensitization phases. Second, the procedures were individualized to address specific antecedent conditions that preceded binge eating episodes. Third, subjects were permitted to participate in the selection of the components and thus may have selected techniques which were more reliably applied. These three
factors may have also led subjects to have a greater expectation of treatment gains thus influencing the effects of this procedure. However, conclusions about the relative effectiveness of the package intervention must be drawn cautiously since this procedure always followed the single component interventions. Whether similar results would have been attained had the package treatment been introduced first is open for empirical investigation.

Both subjects commented favorably on the package intervention and reported liking the structure of a behavioral contract and the ability to use a combination of procedures. Data for Subject 3 are incomplete during this phase because she did not complete the daily Binge Record.

The results from the alternative behaviors phase demonstrated that this procedure either decreased or maintained gains in behavioral measures for Subjects 1 and 2 but all of the dependent variables increased for Subject 3 during this phase. This procedure was applied reliably the majority of the time by Subjects 1 and 2. The third participant used this intervention consistently only one day and incorporated alternative behaviors approximately one half the time that an urge to binge was present.

Three problems occurred with the administration of this procedure: (a) subjects did not engage in the
behaviors for a sufficient amount of time (as specified in the verbal instructions) to distract them from eating, (b) participants were inconsistent in applying this intervention as a preventative measure (i.e., at times when binges occurred in the past), (c) individuals frequently engaged in activities that did not remove them from the environment where binge eating was prevalent, and (d) they made a decision to binge and not to intervene.

Subjects generally offered positive feedback concerning this procedure with the exception of Subject 3 who found this intervention difficult to incorporate. Subject 1 reported that it was hard to take time to apply this procedure but also stated that it allowed her to seek alternatives to eating. Subject 2 stated that she preferred this intervention over the covert sensitization tapes because it helped her realize that she needed to engage in reinforcing activities more frequently. Data for Subject 3 are incomplete for the beginning of this intervention because she did not complete the Binge Record.

The use of covert sensitization either decreased or maintained the majority of behavioral measures for Subjects 1 and 2. This intervention was applied consistently by Subject 1 and Subject 2 utilized it approximately half of the time she experienced an urge to binge.
Additional problems were encountered with the administration of this technique. When the tapes were used but were ineffective in stopping a binge, subjects provided the following explanations: (a) they did not concentrate while listening to the tape, (b) they attempted to recall scenes by memory instead of listening to the tapes when they had access to a recorder, and (c) they made a decision to binge and not to intervene. The difficulties encountered with this procedure may be a result of its punishing effects. The use of relief scenes alone may be an effective intervention and could attain a higher level of compliance due to the emphasis on behavioral control.

Overall, subjects were more critical of this technique in comparison to the other procedures. Subjects 1 and 2 reported that they did not like the covert sensitization scenes because they were punishing while Subject 3 stated that she found the tapes helpful because they increased her awareness of the approaching binge. All subjects stated that they liked the relief scenes because they were positive, provided an incentive not to binge and demonstrated that eating urges could be controlled.

Three general difficulties were encountered across the administration of the research. First, three subjects were lost due to attrition. One participant moved from the community and another only completed the assessment.
interview and was unable to be contacted after this time. A third individual had sought assistance from a nurse and decided to remain under her care due to the gains she had made in her meal planning program. She was also on a contingency contract not to binge which interfered with the collection of baseline data and the interventions used in this research.

Secondly, individuals who completed the study were not always consistent in utilizing interventions, recording data, or attending weekly sessions. A relationship between the severity of binge eating and the reliability of subject participation in these areas was noted during the research. This finding may be indicative of the generalized disruption that bulimia can exert on an individual's daily routine.

Another difficulty in research with bulimics in an outpatient setting is that it is virtually impossible to perform reliability checks on the self-report data. Binges and purges rarely occur when others are present (Cullari & Redmon, 1982b; Johnson & Larson, 1982; Pyle, et al., 1981) and research has found that bulimics spend more time alone in comparison to controls matched for age (Johnson & Larson, 1982).

Bulimia has been described as a behavior that is difficult to treat (Boskind-Lodahl & White, 1978; Long
& Cordle, 1982; Loro & Orleans, 1981) and resistant to extinction (Loro & Orleans, 1981). Although the procedures in this study did not lead to the cessation of binge-purging in two subjects, positive changes in one or more variables related to binge eating did result from the use of the interventions.

In order to promote the development of increasingly effective treatments for bulimia, future research should address problem areas that were encountered in this study. First, subsequent research needs to address the issue of subject attrition and compliance with experimental protocol. Contingency systems could be implemented in an attempt to decrease these problems. Second, methods to validate self-report data need to be investigated due to the limitations that result from the interpretation of this information. The development of physiological measures to detect vomiting and purging would be a valuable contribution to this area of research. Finally, the need for additional well-designed research to identify effective treatment components and investigate the replication of treatment effects across a number of bulimic individuals and settings is necessary to refine developments in this growing area of research.
APPENDIX A

Instructions for alternative behaviors

The five behaviors that have been chosen as alternative behaviors have been agreed upon between you and the experimenter. These responses will be incorporated whenever you feel the urge to binge. You may engage in as many of these responses as necessary to prevent the occurrence of the binge. Each time you use an alternative activity remember to record the behavior(s) on the data card. Additional competing responses can be utilized if they are agreeable to you and the researcher.

****Please be accurate and record in detail information on the interventions that you implement. This is necessary in order to analyze the effectiveness of this procedure in the treatment of bulimia.
APPENDIX B

Instructions for covert sensitization

Whenever the urge to binge arises you should listen to the covert sensitization tape. When listening to the tape it will be beneficial to be in a setting where you are alone and able to concentrate. There should also be minimal distraction to facilitate the procedure. Closing your eyes while listening to the tape will further decrease the amount of interference that may be present. When you begin to listen to the tape, concentrate and imagine the scenes as realistically and vividly as possible in order to achieve the effects of this procedure. Do not only imagine that you are seeing yourself in these scenes but imagine that you are actually experiencing the situations. In addition to imagining yourself experiencing the scenes, try to feel objects, emotions, and other characteristics associated with each scene.

After you have listened to the tape once, if the urge to binge has not ceased repeat the tape again. Try to imagine the scenes as vividly and realistically as you can. Remember to focus on yourself experiencing the components of each scene. Repeat the tape until you no longer have the urge to binge. Remember to record when you used this intervention on the data sheet. You should also indicate how many times you listened to the tape and the number of
scenes you rehearsed until the urge to binge ceased.

If the urge to binge occurs in a situation where you do not have access to the tape, try to recall the scenes on this week's tape. Concentrate on them and imagine that you are experiencing the scenes. Again, remember to record the number of scenes you rehearsed on the daily data sheet.

****Please be accurate and record in detail information on the interventions you implement. This is necessary in order to analyze the effectiveness of this procedure in the treatment of bulimia.
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