

EVALUATION OF A PEER LEADER EATING DISORDERS
PREVENTION PROGRAM FOR COLLEGE SORORITIES

by

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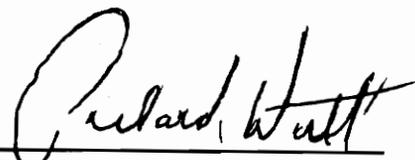
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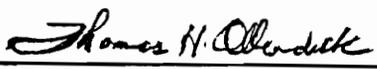
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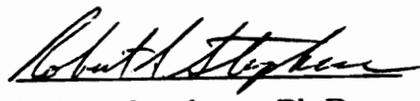
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(ABSTRACT)

The purpose of this study was to develop, implement, and evaluate a primary and secondary prevention program for eating disorders. The intervention program in this study was adapted from a peer leader intervention similar to Kelly *et al.*'s (1992) AIDs prevention program. Four sorority houses comprised the sites used to test the effectiveness of the prevention program using a quasi-experimental wait-list control design. Participants in each house completed assessments of dieting behavior, dietary restraint, body image esteem, and health behavior self-efficacy on two occasions. Two sororities received the peer leader preventive intervention between these testing times while the other two sororities served as controls.

The experimenter hypothesized the intervention would decrease dieting behavior and dietary restraint while increasing body image esteem and self-efficacy for health behavior. To improve upon a previous pilot study, sororities were selected over female dormitories. Several factors led to the selection of the sorority houses rather than the dormitories. First, the diffusion of innovations model from which the peer leader program was developed assumes a closed cohesive group of individuals so the intervention can diffuse throughout the community. Second, the experimenter hypothesized that members of sororities would report higher rates of dieting relative to females who live in dormitories. Thus, sororities were selected as intervention sites since their members are self-selected into a

cohesive group and they are potentially at a higher risk for developing eating disorders.

Peer leaders were selected from experimental sorority houses and trained to advocate no-dieting, healthy eating, and exercise for sorority members living in their house (i.e., primary prevention). These peer leaders were also trained to make effective treatment referrals for students with existing eating problems (i.e., secondary prevention). Manipulation checks suggested the training program for selected peer leaders was successful and that peer leaders effectively implemented the program via conversations in the experimental sorority houses.

Community posttest analyses were conducted to determine intervention effectiveness after the pretest analyses showed the groups did not differ. Community analyses at posttest suggested peer leaders benefited slightly from their training program. However, no significant differences were found between experimental participants and control participants. However, there was a minimal dose-response relationship for the intervention. Participants who knew the meaning of the Don't Diet symbol used in the intervention at posttest (i.e., implying they received a stronger dose of the intervention) were dieting less according to some variables than participants who did not know the meaning of the symbol. Participants who knew the meaning of the symbol also reported significantly greater body image esteem and self-efficacy for exercise.

In conclusion, although the effects of the intervention were not significant at the community level between experimental and control sororities for the hypothesized variables using the planned analyses, exploratory post-hoc analyses showed some positive effects for a subset of participants who were more knowledgeable about the intervention program.

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EVALUATION OF A PEER LEADER EATING DISORDERS PREVENTION PROGRAM FOR COLLEGE SORORITIES

Anorexia nervosa and bulimia nervosa have received increasing attention by medical and psychological researchers and health care providers over the past few decades. Although ample research has been devoted to the treatment of eating disorders, there is little empirical research concentrating on primary or secondary prevention. This manuscript outlines the first empirical field study designed for the primary and secondary prevention of eating disorders in a population of college females.

Eating Disorders

Anorexia nervosa is characterized by a body weight of at least 15% below that expected for one's height and age, absence of three consecutive menstrual periods, and psychological characteristics such as intense fear of gaining weight and body image disturbance. Bulimia nervosa is characterized by recurrent episodes of binge eating, perception of lack of control while binge eating, regular use of purgative behaviors including self-induced vomiting, and consistent overconcern with body shape and weight (American Psychiatric Association, 1987). The DSM-III-R diagnostic criteria for eating disorders are presented in Table 1. The proposed DSM-IV will likely include an additional disorder related to recurrent and uncontrollable binge-eating excluding purgative behaviors. Advocates of this new disorder suggest it will aid research and treatment of both normal weight and obese individuals who struggle with binge eating episodes, yet do not engage in purgative behaviors.

Insert Table 1 About Here

Morbidity and Mortality

Eating disorders are important psychological disorders because they are associated with serious physical health consequences. Sporadic or continuous starvation found in bulimics and anorexics creates changes in endo-crinological and neurological functioning which, in turn, exacerbate existing psychological or emotional conditions. For instance, Silverman (1983) reported self-induced vomiting and laxative abuse lead to electrolyte disturbances which Webb and Gehi (1981) concurred cause weakness, constipation, depression, and fatigue. Symptoms such as unexplained heart murmurs and aberrant electrocardiograms have been found in individuals with bulimia (Silverman, 1983). Likewise, some individuals with eating disorders have demonstrated kidney disturbance, neurological abnormalities (Russell, 1979), swollen salivary glands (Walsh, Katz, Levin, Kream, Fukushima, Weiner, Zumoff, 1981), edema and dehydration (Fairburn, 1982), gastrointestinal disturbances (Russell, 1979), and dental deterioration (Steger, Visco-Dangler, & Rye, 1982).

As a function of disrupted endocrine function, most women with eating disorders experience cessation of menses (i.e., amenorrhea) or sporadic menses (i.e., oligomenorrhea), lowered basal metabolic rates (Pirke, Schweiger, and Lennel, 1985), and hypothyroidism (Leibowitz, 1983). Eating disorders often show comorbidity with depression (Hatsukami, Eckert, Mitchell, & Pyle, 1984; Mitchell, Hatsukami, Eckert, & Pyle, 1985; Walsh, Roose, Glassman, Gladis, & Sadik, 1985). Hudson, Pope, and Jonas (1983) reported 49-73% of bulimics could be diagnosed with a

lifetime affective disorder. They proposed decreases in levels of serotonin in the brain from altered eating behavior were responsible for affective symptoms. Walsh *et al.* (1985) claimed the mood alterations seen in bulimics resulted from dieting, binge eating, and purging and indicated bulimia precedes the mood disorder in 75% of cases.

Perhaps the most interesting physical changes resulting from eating disorders are alterations in brain morphology. Using computed tomographic (CT) brain scans, Krieg, Lauer, and Pirke (1989) found anorexics and bulimics showed morphological brain alterations. These variations consisted of enlarged ventricles or sulcal widening and probably resulted from starvation and perhaps dehydration.

The most compelling health outcome of eating disorders is death. Laura Hill, Coordinator and Director of Education for the National Anorexic Aid Society (personal communication, April 10, 1991), reported 25% of untreated anorexics die, whereas 7% die within ten years even after receiving medical treatment and psychotherapy (Halmi, 1991). No longitudinal studies have been conducted to estimate mortality rates for bulimia. However, given electrolyte disturbances and comorbidity with depression, death from cardiovascular events or suicide are possible complications.

Prevalence

Anorexia and bulimia are relatively common in our society (Maloney & Klykylo, 1983; McSherry, 1983; Vandereycken & Meerman, 1984). Both disorders are normally more prevalent in upper and middle social classes and are eight times more prevalent in women than men (Jones, Fox, Babigian, & Hutton, 1980; Pyle, Halvorson, Neuman, & Mitchell, 1986). Depending on measurements and diagnostic criteria,

prevalence of bulimia in college students ranges between 5% (Hart & Ollendick, 1985) to 15% (Grey, & Ford, 1985), whereas prevalence ranges from 1% (American Psychiatric Association, 1987) to 6.9% (Raciti & Narcross, 1987) for anorexia.

The onset of symptoms normally occurs between ages 12 and 20 for anorexia and between ages 15 and 20 for bulimia (Pope, Hudson, Yorgulun-Todd, & Hudson, 1984). The median age of onset for both eating disorders is 18 years of age (Beaumont, 1992). Therefore, interventions conducted during the early college years (i.e., ages 17-19) could target some vulnerable individuals before the onset of symptoms (i.e., primary prevention) as well as other vulnerable individuals early in the development of the disorder (i.e., secondary prevention).

Influences in Colleges and Universities

There are certain facets of the college social environment which promote eating disorders. For instance, low body weight has become critical in determining what is attractive for females (Hesse-Biber, Downey, & Clayton-Matthews, 1987). Women's appearance seems more important for dating than men's, and schools that emphasize dating appear to have higher rates of eating disorders (Janda, O'Grady, & Barnhart, 1981; Rodin, Silberstein, & Striegel-Moore, 1985). The college years are normally a time when young women are allowed to date freely. Hence, this time of life may present pressures for young women to look their most attractive in order to appeal to friends and potential romantic partners. Many young females often report feeling too fat and attribute their weight to overeating. Some restrict their food intake and feel guilty when they do eat (Freedman, 1986; Wardle & Beales, 1986). Additionally, clinical and empirical evidence suggest females who are larger than their

peers are at greater risk for developing bulimia (Johnson, Stuckey, Lewis, & Schwartz, 1982; Boskind-White & White, 1987; Fairburn & Cooper, 1983; Yager, Landsverk, Lee-Benner, & Johnson, 1985).

Research by Crandall (1988) suggests females acquire bulimic-like behaviors based on social norms of groups such as cheerleading squads, dance companies, and sororities. Once a social group begins to develop norms, it becomes difficult for any individual to deviate from the norm (Asch, 1951; Sherif, 1935). Social groups may influence the development of eating disorders by encouraging or discouraging specific norms of attractiveness or dieting behavior.

It is customary in our culture for women to value attractiveness, and contemporary models of beauty are unnaturally slender. A group of females may adopt this cultural norm to a slight degree, a strong degree, or reject it altogether. It is hypothesized that without intervention, most sororities would moderately to strongly adhere to this "thinness is beautiful" social norm. This is because sororities are all-female groups that self-select their members. Although this selection process may involve variables such as academic success and personality, it is believed that attractiveness and similarity to current members are the primary selection criteria. Thus, to become selected into a sorority and remain accepted by its members, individuals may feel pressure to attend to their appearance. Therefore, it is believed that members of sororities adhere more strongly to the cultural norm of thinness than women who do not belong to sororities. The challenge for this eating disorders intervention is to promote a norm that decreases the value sorority members place on slenderness and promote a norm de-emphasizing dieting behavior.

Although multiple factors appear to interact to influence the development of eating disorders (for a review, see Striegel-Moore, Silberstein, & Rodin, 1986), calorie-restrictive dieting appears to be the critical behavior in their origin and progression (Martz & Sturgis, 1993). Chronic extreme dieting is the central feature of anorexia and research on dietary restraint suggests dieting behavior may also cause binge eating, the central component of bulimia (Ruderman, 1986). Dieting behavior, in itself, appears to place an individual's physical and psychological health at risk. Thus, dieting behavior was the proximal target behavior in this intervention program with the understanding that dieting behavior is considered necessary, but not sufficient, for the development of eating disorders (Martz & Sturgis, 1993). Suppression of dieting behavior, therefore, was hypothesized to have prevented or reduced the appearance of eating problems in college students.

Prevention of Eating Disorders

Several experts suggest prevention offers an attractive alternative to later treatment (i.e., tertiary prevention) for eating disorders. Psychological treatment is not always successful in rehabilitating physical complications caused by severe eating disorders and 7% of afflicted females with anorexia still die despite tertiary interventions (Halmi, 1991). Likewise, Dr. Joseph McVoy, Director of Eating Disorders Treatment at St. Albans Psychiatric Hospital, suggests treatment for a severe eating disorder can cost up to \$31,000 for medical and psychological intervention (personal communication, November 7, 1991). Thus, primary prevention and early detection are attractive alternatives to tertiary prevention for these disorders.

Shisslak, Crago, Neal, and Swain (1987) recommended conducting primary prevention efforts within school settings and advocated educational programs concerning eating disorders, stereotypes, media techniques, nutrition, and exercise. They also recommended peer advising groups as a method of delivering persuasive messages to students.

Other recommendations for prevention programs include minimizing prejudice against being overweight, decreasing idealization of thinness, and deterring use of stringent dietary restraint (Clark, Levine, & Kinney, 1989). Information concerning symptoms of eating disorders could be made available to individuals through popular media (Murray, Touyz, & Beaumont, 1990). Students could be taught behavior modification strategies to impede binge eating and assertiveness skills to curtail avoidance behaviors (Crisp, 1988). Special training for staff in the school system could be conducted to help them recognize and refer symptomatic students to treatment (Hotelling, 1989). In this project, these suggestions were combined to form a primary and secondary prevention program for eating disorders in a university setting.

OVERVIEW OF STUDY

This research project represents the first empirical study to evaluate a primary and secondary prevention program for eating disorders in university students. Several organizations, such as the National Anorexic Aid Society (NAAS) and the Bulimia and Anorexia Nervosa Association (BANA), have produced and promoted educational prevention programs for eating disorders in school settings. However, no research has evaluated the efficacy of such programs. Such research is important because discussions might tend to legitimize and promote eating

disorders. For instance, while these programs may be successful in preventing eating disorders, it is possible these programs could glamorize eating disorders, especially by advertising famous women and other "stars" who have fought eating disorders. In addition, anorexia and bulimia can be misunderstood as a lifetime cure for a weight problem. Discussions of eating disorders could actually foster the development of these disorders in student audiences. Therefore, it is important to systematically test these programs. To assess the effectiveness of the following preventive intervention program, a quasi-experimental design was used.

Sororities were chosen to serve as participants for several reasons: a) sororities are self-selected cohesive groups, b) women living in sorority houses are in close contact with one another and are subjected to modeling effects from respected members, and c) these women are believed to be greater dieters than women not in sororities and may therefore be at a higher risk for developing eating disorders. Four sororities that owned houses were recruited for participation in this study. The program included student pretesting for dieting behavior, body image esteem, dietary restraint, health behavior self-efficacy, and a 24-hour dietary recall. After a preventive intervention was conducted in two sororities, posttests involving the same inventories were collected in each of the sororities to evaluate the efficacy of the intervention. The intervention package included a primary prevention component designed to deter the onset of eating disorders in asymptomatic students and a secondary prevention component to locate symptomatic students and refer them for early treatment. Because the intervention targeted dieting behavior, exercise, and healthy eating, changes in each of these variables

were expected. Similarly, reductions in dieting behavior were expected to correspond with increases in body image esteem, especially weight related esteem. Additionally, these changes were expected to covary along with changes in female gender role stress related to physical attractiveness. The efficacy of this intervention was evaluated by comparing the two sororities which received the intervention to the two sororities which served as controls.

Method

Research Design

The research design was a quasi-experimental wait-list control design using four sorority houses (Cook & Campbell, 1979). For the two intervention sororities, the actual intervention occurred between pre and posttesting. The two control sororities completed only the pre and posttesting assessments. The control sororities received an educational version of the intervention, if so desired, after posttesting. Students in the different conditions (houses) who participated in the surveys were considered the unit of analyses, not the $n=4$ houses. Hence, given this unit of analysis, students were not randomly assigned to condition, making the design "quasi-experimental." All four sorority houses were compared on pretest measures to evaluate relevant equivalency on existing dieting behavior. Fairweather (1964, 1967) refers to this community approach to research as "experimental social innovation" since this new prevention program or innovation is being compared to that which already exists.

Participants

Female students in four sorority houses were asked to participate in the pre and posttesting assessments. The maximum number of potential

participants using this sampling method was about 140 for women living in their sorority houses with another 140 potential participants not living in their sorority houses.

Assessments were delivered and collected in their house or at weekly meetings. The consent form for students is in Appendix A. Sorority officers from the previous year were asked to nominate five of the new officers who currently lived in their house to participate as peer leaders. In the two experimental houses, 5 women from each were recruited to serve as peer leaders for a total of ten peer leaders. The consent form for these peer leaders is listed in Appendix B. This study was approved by the Human Subjects Committee (i.e., 1022-92) and the Institutional Review Board.

Inventories

Dieting behavior, dietary restraint, body image esteem, and health behavior self-efficacy were assessed with the Cognitive Behavioral Dieting Scale (CBDS; Martz, Sturgis, Gustafson, & Nicklas, 1993), the Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985), the Body Esteem Scale (BES; Franzoi & Shields, 1984), the Feminine Gender Role Stress scale (FGRS; Gillespie & Eisler, 1992), the health survey including a 24-hour dietary recall and self-reported exercise behavior, and the Health Behavior Self-efficacy Scales (Sallis, Pinski, Grossman, Patterson, & Nader, 1988).

Cognitive Behavioral Dieting Scale

The Cognitive Behavioral Dieting Scale (CBDS; Martz *et al.*, 1993; Appendix C) was used in this study to assess current calorie-restrictive dieting. This scale contains 14-items that are rated on a 5-point Likert continuum which assess thoughts and behaviors related to dieting within

the past two weeks. Common factor analysis demonstrated the scale contains only one factor--dieting. Cronbach's alpha was $r=.95$ and two day test-retest reliability was $r=.95$. The CBDS was able to predict calorie intake and a diet-related cognitive schema. A study of construct validity suggested the CBDS is similar to, but not the same construct as dietary restraint. Dieting was also shown to be related to body image esteem but was not related to healthy eating self-efficacy.

Three-Factor Eating Questionnaire

The Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985; Appendix D) is a multidimensional measure of eating behavior. The questionnaire has three factors: a) restraint, b) disinhibition, and c) hunger. This scale was used primarily for its first factor, the measure of dietary restraint, because restraint is often used synonymously with dieting behavior in the literature. Herman and Mack (1975) developed the original 10 item Restraint Scale, which was later found to be confounded by weight fluctuation items that produced different scores and factor structures for obese versus normal weight participants (Ruderman, 1986). The restraint scale of the TFEQ was developed to measure pure dietary restraint while eliminating weight fluctuations from the measure. The questionnaire includes 36 True/False items and 15 multiple choice items that are scored on a Likert continuum for a total of 51 items.

The final validation study sample consisted of 98 women and men who were divided into a "dieters" group because they were recruited from a weight loss program and a "free eater" group which was recruited from an adult education class and a community service organization. Factors 1 and 2 were able to significantly discriminate "dieters" from "free eaters" at the .001 level. The mean score for Factors 1, 2, and 3 are 10.5 ($SD=6.2$), 10.0

($SD=5.9$) and 7.1 ($SD=4.1$) respectively. Cronbach's coefficient alphas for internal consistency were high at $r=.93$, $r=.91$, and $r=.85$ respectively.

Body Esteem Scale

The Body Esteem Scale (BES; Franzoi & Shields, 1984; Appendix E) is a measure of body satisfaction that lists 35 aspects of physical appearance and bodily functioning. Factor analysis of the BES has indicated body esteem is a multidimensional construct that differs for males and females. Factors for men include physical attractiveness, upper body strength, and physical condition, whereas females produced sexual attractiveness, weight concerns, and physical condition factors. The weight concerns factor discriminated anorexic females from non-anorexic females. The BES factors demonstrated internal reliability with alpha coefficients ranging from $r=.78$ to $r=.86$ across the factors.

Feminine Gender Role Stress Scale

The Feminine Gender Role Stress Scale (FGRS; Gillespie & Eisler, 1992; Appendix F) measures the cognitive appraisal of stressors that are particularly salient for women. This 39 item inventory is rated on a Likert continuum from "0- Not at all Stressful" to "5- Extremely Stressful" and is summed for a total score. It has five factors: a) emotional detachment, b) physical unattractiveness, c) fear of victimization, d) unassertiveness, and e) failed nurturance.

In a recent inpatient psychiatric study, FGRS scale scores and its factors were compared using ANOVAs across the following diagnostic categories: eating disorders, depression and dysthymia, substance abuse, schizoaffective disorder, psychiatric inpatient (i.e., diagnosis not determinable), and college students (presumably without psychiatric diagnoses; Martz & McVoy, 1993). The FGRS scale significantly interacted

with diagnostic category $F(6, 338) = 2.27, p < .05$. More specifically, the full FGRS scale discriminated eating disordered diagnoses from depression $t(20) = 3.08, p < .01$, substance abuse $t(12) = 1.8, p < .05$, and college students without psychiatric diagnoses $t(320) = 2.9, p < .01$. Likewise, the physical unattractiveness factor of the FGRS scale significantly interacted with diagnostic category $F(6, 338) = 4.35, p < .001$. No other individual FGRS factor was able to discriminate eating disordered diagnoses from other diagnoses. The physical unattractiveness factor of the FGRS scale discriminated eating disorder diagnoses from depression $t(20) = 3.7, p < .001$, substance abuse $t(12) = 2.4, p < .05$, unknown psychiatric diagnoses $t(16) = 2.36, p < .05$, and college students without psychiatric diagnoses $t(320) = 4.3, p < .001$. These findings suggested the construct of female gender role stress, especially concerning physical appearance, is associated with a vulnerability for eating disorders.

Health Behavior Self-efficacy Scale

The Health Behavior Self-efficacy Scales (Sallis *et al.*, 1988; Appendix G) were developed to evaluate self-efficacy for eating and exercise behaviors. Self-efficacy is believed to mediate intentions and ability to initiate and maintain behaviors. The exercise scale contains two factors: resisting relapse and making time for exercise. These factors showed test-retest reliabilities of $r = .68$ for both and coefficient alphas of $r = .85$ for resisting relapse and $r = .83$ for making time for exercise. The eating scale had 5 factors: resisting relapse, reducing calories, reducing salt, reducing fat, and behavioral skills which had somewhat low test-retest reliabilities of $r = .52, r = .57, r = .57, r = .58, r = .43$, and $r = .64$ respectively. However, coefficient alphas for these factors ranged between $r = .85$ and $r = .93$. Self-efficacy related to these healthy behaviors was assessed with

this scale, whereas self-reported eating and exercise behaviors were evaluated from the dietary recalls in this study.

Health Survey

The health survey (Appendix H) was devised for this study to collect information on students' exercise habits, height, and weight. They were also asked to report a 24-hour dietary recall so a nutritional analysis could be calculated using each student's height, weight, and activity levels (Appendix I). Nutritional analyses were conducted with Nutrition Stacks by Big Byte for the Macintosh (Lasky, 1991). This program determines if each student's calorie intake is above, below, or suitable to her energy needs given her age, height, weight, and activity level. Total daily calorie needs were derived by taking the basal calorie needs and adding this to any extra daily calorie needs for regular exercise. Net calorie balance was the difference between the total calorie needs and that person's daily calorie intake. For example, a participant who engages in daily exercise worth 100 calories and has basal calorie needs of 1300 per day would have a total calorie need of 1400 per day. If she consumed only 1000 calories on that day, her net calorie balance would be negative 400. Likewise, Nutrition Stacks produced data on percentage of calories from protein, fat, carbohydrates, and alcohol, intake of fiber, sodium, and 14 vitamins and minerals.

This survey also included several manipulation check questions such as: a) Does the student know what the no-D symbol stands for and means,
b) Who did she talk with to gather that information, and c) Has she tried to make changes in her eating or dieting habits.

Hypotheses

Success of this program was evaluated by assessing post-intervention changes in dietary restraint, dieting behavior, body image esteem, and health behavior self-efficacy.

- It was hypothesized the sororities receiving the intervention would show significantly greater *decreases* (or a smaller increase) from pretest to posttest than control sororities on the Cognitive Behavioral Dieting Scale (CBDS).
- It was hypothesized the sororities receiving the intervention would show significantly greater *decreases* from pretest to posttest than control sororities on reported dieting behavior as measured by the 24-hour dietary recall.
- It was hypothesized the sororities receiving the intervention would show significantly greater *decreases* from pretest to posttest than control sororities on the physical unattractiveness factor of the Feminine Gender Role Stress (FGRS) scale, but not the other factors.
- It was hypothesized the sororities receiving the intervention would show significantly greater *increases* from pretest to posttest than control sororities on the overall body esteem scale, the sexual attractiveness factor, the weight concerns factor, and the physical condition factor of the Body Esteem Scale (BES).
- It was hypothesized the sororities receiving the intervention would show significantly greater *increases* from pretest to posttest than control sororities on the overall Health Behavior Self-efficacy scale, and its subscales, the Exercise self-efficacy scale, and the Eating self-efficacy scale.
- It was hypothesized the sororities receiving the intervention would show significantly greater *decreases* from pretest to posttest than

control sororities on the overall scale of the Three Factor Eating Questionnaire (TFEQ) as well as the restraint factor, the disinhibition factor, and the hunger factor within the TFEQ.

Procedure

Sororities were randomly selected (i.e., via name drawing) to serve as experimental houses or controls during part of one academic semester. Both the experimental and control sororities were administered the entire battery of assessments before the intervention for pretests and after the targeted houses received the intervention for posttests. The targeted houses received the following intervention.

Peer Leader Intervention

The peer leader intervention used in this study was adapted from a similar program used by Kelly *et al.* (1992) to prevent the spread of the AIDs virus. The Kelly *et al.* (1992) program selected respected members of the gay community to train as peer leaders and disseminate safe sex information in bars frequented by homosexual men. This program used in this project targeted healthy weight control rather than safe sex. The peer leader program was designed after the diffusion of innovations model first discussed by Rogers (1983) which suggested people were most influenced in attitudes and behavior by peers whom they respect and admire (i.e., peer leaders). Novel or innovative behaviors and attitudes were thought to be transferred from peer leaders to others as a result of this social influence. Thus, peer leaders in this study were trained to model and communicate attitudes that dieting is unhealthy and to discourage dieting behavior. Alternative methods of weight control such as regular exercise and healthy food choices were advocated by peer leaders.

The peer leader's role in this intervention was to serve as a model for the diffusion of the no-dieting innovation. Bandura (1986) suggested there were four necessary ingredients to a successful diffusion of an innovation program: a) an optimal setting must be selected for the introduction of the innovation, b) the necessary preconditions for change must be created, c) a demonstrably effective program must be implemented, and d) successful innovators must model the benefits of the innovation and, in turn, disperse the innovation further to other potential adopters. An attempt was made to address each of these ingredients in this peer leader study.

First, sorority houses were selected because they were thought to be an optimal setting to introduce the no-dieting innovation. Sorority houses contain members in a cohesive network. Sorority members are hypothesized to be at high risk for eating disorders by dieting more for weight control than nonsorority peers. Also, sorority members were believed to desire the benefit of the no-dieting innovation (i.e., healthy weight control).

Second, Bandura recommended creating the preconditions for change by increasing individuals' awareness and knowledge of the innovation. In this study, peer leaders who were respected officers of the sorority were selected and given information about how weight control could be made more healthy by eliminating dieting behavior and replacing it with healthy eating and regular exercise. The peer leaders were trained to model and advocate these behaviors. Thus, the sorority members who lived in their house frequently encountered respected role models who were engaging in and advocating the innovative behavior change. Similarly, curious Don't Diet symbol (see Figure 1) posters and

buttons were used to advertise the program and make house members aware of the program.

Insert Figure 1 About Here

Third, Bandura recommended implementing an effective behavior change program to convince individuals to adopt the innovation. While the purpose of this entire experimental study was to test this facet of the program, several components proven to facilitate behavior change were implemented in the peer leader program. Peer leaders served as opinion advocates and encouraged sorority house members to change their attitude that dieting was healthy to dieting was unhealthy. This innovative attitude has been discussed more and more in popular media today, even though most media continue to promote dieting for health. Hence, many sorority members may have already been remotely familiar with this innovation. To complement the attitude change component, peer leaders served as behavior change agents for sorority members by helping them assess their current behavior, helping them decide to change an unhealthy behavior if desired, helping them develop a strategy for this change, and providing feedback and follow-up assistance.

Finally, Bandura recommended dispersing the innovation further by demonstrating successful adoptions through examples. In this program, peer leaders served as the first adopters of the innovation. Ideally, these peer leaders would be selected as already having adopted the innovation. If not, then peer leaders would be trained and encouraged to adopt the innovation immediately. Similarly, peer leaders would be selected based on their leadership role in the sorority. If these peer leaders

were attractive and maintained healthy weight control, they would also serve as successful adopters of the innovation. Hypothetically, as peer leaders facilitated adoption of healthy behaviors in a few sorority members, these women could also serve as successful examples and become role models for future adopters.

Thus, peer leaders were trained to serve as behavior change agents to facilitate healthy change for participants who live in the house. These peer leaders were all nominated by the sororities' outgoing president and officers. Most peer leaders were sorority officers or the house resident manager and all lived in the house. All peer leaders were given financial compensation (i.e., \$15) for their time and effort in training and implementation of this program. Peer leaders were told they would be given an opportunity to learn about themselves, learn about eating disorders, receive assertiveness training, serve their school as a healthy role model, and receive a small financial incentive. Participation in this peer leader program was voluntary and their consent form can be found in Appendix B.

Once a student decided to become a peer leader, she participated in an eating disorder screening interview to insure she did not manifest signs of anorexia or bulimia. This interview was conducted over the telephone by trained research assistants. The script is listed in Appendix J. None of the potential peer leaders in these sororities had to be referred for psychotherapy and all were invited to participate in the study.

Each peer leader was asked to participate in two 3-hour group meetings for training. Peer leaders were trained in a) how to assess peers on dieting behavior, healthy eating, and exercise, b) how to determine if these students are interested in making any changes in these health

behaviors, c) how to get a commitment for these changes, d) how to plan a strategy for change, e) how to follow-up on her progress, f) how to effectively refer symptomatic peers to treatment, g) how to record the number of students who inquire about the buttons, and h) how to record the number of treatment referrals made. The training protocol is listed in Appendix K.

Session 1

Session 1 included information about the study, educational information about eating disorders, obesity, and dieting, the knowledge quiz and verbal skills test, and self-assessments of dieting and health behavior.

Study Background. First, trainers explained the purpose of the eating disorders prevention study and gave an educational review. Peer leaders were told how they were selected and how they could have an impact in changing attitudes and behaviors in their student peers. They were told the best prevention does not happen with educational brochures, it happens when real people (i.e., opinion leaders) advocate prevention. The research project was described and peer leaders were told how they were the intervention. Trainers emphasized the research project was evaluating the ability of the prevention program, not evaluating the peer leaders' personal abilities.

Each trainer introduced herself and explained her involvement in the project. All peer leaders were asked to introduce themselves and explain why they chose to participate in the study. Commitment to attend all sessions was solicited from the peer leaders. The importance of confidentiality concerning topics or disclosures made in group was emphasized. Peer leaders were assured they would be identified only by

the last five digits of their social security numbers, not their names. This was the same for all student participants in the sorority houses.

Skills and Knowledge Tests. Each peer leader participated in a verbal skills test designed to assess her ability to converse with three hypothetical women who were dieting stringently or who may have an eating disorder. During one of the scenarios with the dieter, the peer leader was asked to respond verbally to a prompt. During another scenario with the dieter, the dieter was allowed to respond with standard responses to the peer leader's questions and responses. Peer leaders were asked to respond to these three scenarios individually and privately while they were audio recorded. Peers also participated in a 15 item "fat facts" quiz to assess knowledge regarding dieting, obesity, and body weight during this session. This quiz is listed in Appendix L.

Self-assessment and Feedback. Peer leaders were asked to self-assess their dieting behavior, their eating in terms of health, and their exercise. They were then given written feedback from their dietary recall. As can be seen in the example in Appendix M, this feedback included each peer leader's basic energy needs, energy needs for exercise, and total energy needs in calories, her sample calorie intake, energy balance, percentage of calories from protein, carbohydrates, and fat, vitamin and mineral deficits, and foods that should be consumed to remedy these deficits. The purpose of this exercise was to demonstrate the comparability between self-assessment and a more objective assessment. During the intervention, peer leaders were encouraged to help targeted sorority members to assess their health and dieting behavior. This exercise was designed to aid them in doing these assessments with target individuals, since they had also been through the same process with objective feedback.

Educational Information. Educational information about dieting behavior, set point theory, weight cycling, eating disorders, healthy nutrition and exercise (Appendix N) was presented. Trainers spent considerable time discussing eating disorders and risk factors. Despite other noncontrollable risk factors like family of origin or personality characteristics, dieting behavior was emphasized as the foremost risk factor for developing an eating disorder. The biopsychosocial model, presented in Figure 2, outlined the public health consequences of dieting behavior. Peer leaders were informed of the short-term and long-term physical and psychological consequences of dieting behavior. Trainers generated certain myths about dieting, weight loss, and eating disorders and encouraged peer leaders to discuss these and generate some myths they had heard. For example, the myth that "one should not eat after 8:00 pm because all food consumed after that time turns directly into fat" was discussed and refuted.

Insert Figure 2 About Here

Practice Conversations. Peer leaders were told how conversations can help prevent eating disorders in other women. Peers were asked to think of two friends whom they knew well and would feel comfortable initiating a conversation about dieting during the next week. Peer leaders were asked to write down the first names of these individuals onto their contact sheet (Appendix O). Peer leaders were encouraged to practice their health related conversation skills with these friends during the next week, note on their contact sheet these conversations and their success, and bring these sheets to the next session.

Session 2

Communication Skills. Session 2 consisted of skills training.

Elements of good communication were presented. Peers were encouraged to use "I" messages (i.e., saying "I" am worried about you, rather than "you" scare me), convey the seriousness of dieting behavior, and stress that the norm for their sorority house is against dieting behavior while still advocating healthy eating and exercise. Peers were told to be specific and clear and stress how they have made changes in their eating or exercise behavior. Trainers explained that each person has her own style of communication and how she should incorporate these techniques and messages into her own style. Trainers then modeled a discussion with a friend who is a frequent dieter and another discussion with a sister who probably has an eating disorder. Peer leaders discussed the good and bad elements of these conversations.

Levels of Communication for Behavior Change. Peer leaders were instructed to take students through the four levels of behavior change: a) assessment, b) commitment, c) strategies, and d) follow-up. The assessment phase consisted of asking students where they stand on dieting, exercise, and healthy eating (i.e., low-fat diet). After determining any deficits in these health behaviors by asking students if they are currently dieting, eating healthy, and exercising on a regular basis, the peer leader was instructed to ask the student if she desired to change any of these behaviors. If so, the student was asked to make a commitment to change and to set a reasonable goal, ideally by writing down this goal. Next, the peer leader encouraged the student to develop a strategy for change by first brainstorming ideas and then settling on a strategy. For example, a student who wanted to begin a walking program could contact

a fellow sorority member who consistently walks four mornings a week and ask if she could begin walking with her. About one week later, the peer leader was encouraged to contact the student again to follow-up with her change. The peer leader was asked to help her overcome barriers by additional brainstorming and revising her strategy for change or praise her for positive change.

Recognizing Students with Eating Problems. Trainers instructed peer leaders how to recognize students who have symptoms of eating disorders. A handout from The 5 Day Lesson Plan for Eating Disorders Prevention was used in this exercise (Levine & Hill, 1991). This handout is listed in Appendix P. Peers were instructed how to make a sensitive and effective treatment referral for a friend who they believe has an eating disorder while still using the assessment, commitment, strategies, and follow-up model. The trainers and peer leaders broke into groups of three or four to begin practicing these social skills first by writing responses in private, then by practicing them verbally. Peer leaders were asked to respond with concern for the woman in the situation while expressing empathy for her feelings. Peer leaders were instructed to state the specific observations that had caused her concern (e.g., weight loss, vomiting) while assessing for other problem behaviors. The peer leader was instructed to make a psychotherapy referral, give the student the name and phone number of a potential therapist, and ask her to commit to keeping an appointment. Each peer leader was given several chances to practice these types of conversations.

Don't Diet Symbol. The "Don't Diet" symbol was created for this study to serve as both a behavioral prompt and a manipulation check. As a behavioral prompt, it was meant to encourage potential target sorority

members to ask peer leaders, who were wearing the symbol on a button, about its meaning. In this way peer leaders did not have to appear "preachy" since sorority members were approaching them about the program. Familiarity with the symbol served as a manipulation check. Participants were asked on pretest and posttest surveys if they knew the meaning of the symbol, what the meaning stood for, and who informed them of this meaning. This provided information about how many participants had inquired and presumably participated in the intervention program.

The "Don't Diet" symbol posters and buttons were introduced and their purpose described. This symbol is depicted in Figure 1. Peer leaders were asked to wear these buttons for the next month and document inquiries and responses on new contact sheets, unless the inquirer lived in the sorority house. If she lived in the house, she was targeted with the behavior change program and her progress was documented on the communication log. Not all targeted house members asked the peer leaders about the program. Thus, some of the target members were solicited directly by peer leaders. The Don't Diet symbol posters were placed in the experimental sorority houses on the evening of the second training session.

Skills and Knowledge Posttraining Tests. Peer leaders repeated the fat facts quiz to determine gains in knowledge from the training program. They also took the verbal skills test using the same three hypothetical scenarios to determine gains in communication skills specific for this intervention.

Hypotheses for Peer Leaders

As manipulation checks, it was hypothesized peer leader scores on the fat facts quiz and the verbal skill ratings would significantly increase from pretraining to posttraining. It was hypothesized peer leaders would report daily conversations about dieting with students not living in the house who inquired about the buttons. It was hypothesized each peer leader would target 3-6 sorority sisters living in the house with the health behavior change program. It was hypothesized student participants in the experimental houses would report significantly greater understanding of the meaning of the Don't Diet symbol at posttest than at pretest.

Results

Manipulation Checks

Many manipulation checks were performed to assess proper implementation of the intervention. The peer leader training program was evaluated in several ways. First, peer leaders were evaluated for gains in knowledge by pretraining versus posttraining testing with the fat facts quiz. Second, peer leaders were tested at the beginning of the first training session and at the end of the second training session on their ability to respond verbally to three hypothetical scenarios. This hypothetical interaction was audio-taped and rated by trained research assistants for important behaviors. This rating sheet is listed in Appendix Q. Third, peer leaders were asked to keep track of how many students inquired about the buttons and with whom they held conversations. This contact sheet is listed in Appendix O. Fourth, peer leaders served as behavior change agents for students who lived in the experimental houses. They were asked to record these conversations and students' progress on a communication log found in Appendix R. Fifth, to assess peer leaders'

role in secondary prevention, peer leaders were asked to keep track of how many psychotherapy referrals were made for symptomatic sorority members. Finally, to verify if participants were reporting knowledge of the program simultaneously with peer leaders reporting having conversations with participants, posttest participants were asked if they knew the meaning of the Don't Diet symbol and how they found out about its meaning.

Knowledge

Peer leaders participated in pretraining and posttraining assessments for knowledge and skills. Evaluations of these suggest they were adequately trained for their role. Pretraining scores on the fat facts quiz (Appendix L) averaged 78.5 ($SD=9.9$), whereas they averaged 82.1 ($SD=8.3$) at post-training. However, this was not statistically significant $t(9) = -3.6, p<.431$, two tailed. This null effect may have resulted from the 30% of questions emphasizing obesity, rather than questions relevant to dieting or eating disorders which better reflected training content. Whereas enough information was conveyed in training so that peer leaders could have answered each question correctly, an emphasis was placed on dieting and eating disorders during training, not obesity. Therefore, peer leaders may have captured relevant information while not learning the nonrelevant information.

Skills

Skill acquisition was assessed by analyzing verbal responses to three hypothetical scenarios at pretraining versus posttraining. Five trained research assistants coded verbal responses based on the 10 criteria over the three scenarios (Appendix Q). One point was awarded for each criteria met; hence, a perfect score would have equaled 30 points. Total scores

were obtained by summation of all criteria met across the three scenarios. Ratings of verbal responses to three hypothetical scenarios, including a hypothetical woman who was dieting and another woman believed to have an eating problem, improved significantly after training. One peer leader failed to participate in pre-training testing, whereas another peer failed to participate in post-training testing. Hence, $n=9$ scores were available for pretraining and $n=9$ scores were available for post-training. Pretraining scores averaged 11.5 ($SD=3.7$) and the mean at posttraining was 16.6 ($SD=3.3$) $t(7) = -3.8, p<.007$, two tailed. Thus, it can be concluded that the peer leaders significantly improved their ability to conduct the intervention when verbal skills were rated over the training period.

Inter-rater reliability was calculated by first obtaining scores for $n=10$ peer leaders across 3 scenarios across two testing times for a total of $n=60$ data points. Six raters' scores were missing in these $n=60$ data points for an actual $n=54$ data points. These scores were converted into a reliability estimate by calculating the average scores of raters 1, 2, and 3 and the average of raters 4 and 5 across these $n=54$ data points. These two averages were then correlated. The resulting correlation was $r=.91$ $t(53)=15.4, p<.001$ which suggests adequate inter-rater reliability.

Contact Sheets

Peer leaders were asked to document inquiries about the no-dieting buttons and conversations about dieting or eating disorders from non-house members on their weekly contact sheets (Appendix O). These contact sheets suggested the 10 peer leaders had conversations with 84 individuals who did not live in their houses during the one month intervention.

Communication Logs: Peer Leaders As Behavior Change Agents

Approximately 75 students lived in the two experimental houses. Peer leaders conversed with and served as healthy behavior change agents for 41 (i.e., over 50%) students in these houses. Peer leaders recorded this qualitative data on their communication logs which are listed in Appendix S. This study adapted the peer leader's role from that of mere opinion advocate to a behavior change agent. Similar to the process of psychotherapy, peer leaders were encouraged to assess sisters living in the house on three target behaviors: dieting, healthy eating, and exercise.

After this one-on-one assessment, peer leaders were encouraged to solicit a commitment for behavior change in one of these behaviors if the target participant so desired. Approximately 14 participants wanted to eat in a more healthy manner, 15 wanted to stop dieting, obsessing about weight, or stop bingeing/vomiting, and 16 wanted to exercise more. Some of these desired behavior changes, although important, did not fit clearly into one of these three target categories. For instance in Appendix S under peer leader K.J., note the student J.B. who confided in her peer leader that she would drink alcohol excessively to force vomiting. Although clearly unhealthy, even this behavior may not meet criteria for bulimia nervosa. Although the behavior change strategy was unclear, J.B. reported one week later that she had not consumed any alcohol.

Similarly, although peer leaders were advocating a low-fat diet, they encountered some participants who reported obsessing about fat in their diet and trying not to eat any. This extreme may be as unhealthy as consuming over 30% of one's calories from fat (U.S. Department of Agriculture, 1992). This example also highlights the sometimes blurred message that peer leaders were trying to convey. Healthy eating and

exercise are certainly healthy alternate behaviors to dieting or eating disorders. However, sometimes it is difficult to advocate a low-fat diet without making dietary fat sound like a "bad" nutrient that should be completely avoided. Likewise, while calorie-restrictive dieting is unhealthy and can be a precursor to an eating disorder, some women switch to healthier food choices when they are dieting for weight loss. Clearly future research is necessary to determine what is the best way to clarify this problem and advocate healthy eating without dieting.

Secondary Prevention

One peer leader reported making one psychotherapy referral for a sister not living in the house. Another peer leader reported making two psychotherapy referrals for women who did live in her house.

Posttest Participants Who Knew About The Intervention

Twenty-one out of 27 (i.e., 78%) students in the experimental houses reported knowing the correct meaning of the no-diet symbol at posttesting compared with 1 out 36 (i.e., 3%) at pretesting. Similarly, 2 out of 42 (i.e., 5%) of the students in the control houses reported knowing the meaning of the symbol at pretesting, whereas 2 out of 13 (i.e., 15%) reported knowing the meaning at posttesting. This suggests the intervention increased students' understanding of the purpose of the program, especially in the experimental houses.

Evaluation of Intervention Effectiveness

Changes in dieting behavior, dietary restraint, body image esteem, exercise, nutrition, and health behavior self-efficacy were assessed by posttesting members of the sororities one month following pretests. Although repeated measures analyses of variance (RM-ANOVAs) would have been ideal to evaluate statistical differences between each

participant's baseline and posttest scores (Lipsey, 1990), small sample sizes of matched participants (i.e., data available from both pre and posttest; n=8 peers, n=7 experimentals, & n=7 controls) necessitated that different analyses would be more appropriate. Therefore, experimental sorority houses were compared to control houses at pretest to assure there were no significant differences. Posttest analyses were then used to compare differences between experimental and control participants as a result of the intervention.

Evaluation of Sororities' Risk Status

Sororities were selected to serve as participants in this study for several reasons. It was hypothesized women in sororities would diet more than other women and this would place them at high risk for developing eating disorders. This was evaluated by comparing the net calorie balance (i.e., total calorie needs per day minus the absolute value of the daily calorie intake) of women from this study who participated in pretest surveys to women not belonging to sororities from the same university who participated in the Martz *et al.*, 1993 study. Figure 3 illustrates these differences. The histogram of calorie balance for sorority participants is skewed with the majority of women in a calorie deficit. They need more calories than they were consuming. This implies they were dieting stringently at pretest. On the other hand, the histogram of calorie balance for dormitory participants not in sororities is more of a normal curve with the median slightly below zero. This illustration shows how women in sororities, indeed, seem to be dieting more than women not in sororities and this makes them an excellent high risk target for an eating disorders prevention intervention.

Insert Figure 3 About Here

Pretest Comparisons Between Experimental vs. Control Sororities

As Table 2 suggests, there were no significant differences between participants in the experimental versus control sororities on the survey data or nutritional data. This implies the randomly assigned groups were relatively equivalent at pretest. This also suggests any changes that occurred between pretest and posttest should be evident within posttest comparisons.

Insert Table 2 About Here

Pretest Comparisons Between Peer Leaders, Experimental Participants & Control Participants

A one way ANOVA with three levels was run to compare peer leaders to experimental house participants and control house participants at pretest for all survey data and nutritional data. Fisher's probable least significant difference (i.e., PLSD) was used to determine significance between groups once the ANOVA proved significant for any particular variable. The survey data are listed in Table 3. There were several differences on the survey data. First, peer leaders scored significantly lower than participants in experimental houses and significantly lower than participants in control houses on the CBDS item #5 related to planning out what one's allowed to eat for the day $F(2,77) = 3.93, p < .024$. Peer leaders scored significantly higher on several of the health behavior self-efficacy variables at pretest $F(2,55) = 3.62, p < .033$. Peer leaders were

significantly higher than both experimental participants and control participants on the overall health self-efficacy scale. As Table 3 illustrates, these differences corresponded mostly to advantages in exercise self-efficacy. These results suggest the nomination process and screening process for peer leaders, indeed, selected women in the sorority who were slightly healthier and could serve as positive role models.

Insert Table 3 About Here

Posttest Comparisons Between Peer Leaders, Experimental Participants, & Control Participants

The final peer leader evaluation included analyzing posttest differences on each of the dependent variables using one way ANOVAs with three groups. Although changes in these scores were hypothesized for all residents, stronger changes should have occurred in the peer leader group since they received a more intensive intervention.

Analyses between peer leaders, experimental sisters, and control participants on posttest nutrition and survey data suggested the peer leader training program was able to improve the healthy eating behavior and maintain more positive scores on survey data for the peer leaders relative to the other groups. Nutrition data is listed in Table 4. Peer leaders exceeded experimental participants in protein intake $F(2,48) = 4.03$, $p < .024$. Peer leaders exceeded both experimental participants and control participants in carbohydrate intake $F(2,48) = 3.62$, $p < .034$. Peer leaders consumed significantly more potassium than experimental participants $F(2,48) = 3.74$, $p < .031$. They leaders consumed more zinc than experimental participants $F(2,48) = 5.27$, $p < .009$. Similarly, peer leaders

exceeded both experimental participants and control participants in consumption of copper $F(2,48) = 5.78, p < .006$, Vitamin B2 $F(2,48) = 3.96, p < .026$, and Vitamin B12 $F(2,48) = 3.72, p < .031$. Each of these results suggest peer leaders were somewhat healthier in their consumption of nutrients after the peer leader training program. This was accomplished by more closely fulfilling their energy needs with food. Although it was not a significant difference, calorie balance was only -197 for peers leaders, but was -890 and -526 for the other groups.

Insert Table 4 About Here

As Table 5 illustrates, peer leaders also scored significantly better on certain survey variables at posttest. Peer leaders reported significantly less dieting within the past two weeks than either experimental participants or control participants $F(2,50) = 3.4, p < .042$. Peer leaders also reported significantly fewer food choices based on how they felt about their weight than did experimental participants or control participants $F(2,50) = 3.8, p < .047$. Peer leaders reported making significantly less effort to reduce calories for weight control than experimental participants or control participants $F(2,50) = 3.3, p < .047$. They also reported less agreement that dieting is good for their health than experimental participants or control participants $F(2,50) = 5.0, p < .012$. Hence, peer leaders dieted for weight control at a lower rate than participants who lived in either the experimental or control houses. Overall, these effects for peer leaders suggest the training program helped them to focus less on dieting for weight control.

Insert Table 5 About Here

Posttest Comparisons Between Experimental vs. Control Sororities

While it was hypothesized that participants in the experimental houses would diet less, eat healthier, and exercise more at posttest than participants in the control houses, none of these effects were found. This is true even considering the number of variables which were analyzed providing for the opportunity to get significant results merely by chance. The means and standard deviations for these analyses are shown in Tables 4 and 5. Therefore, null hypotheses must be accepted, stating the intervention failed to have any effect on health behaviors in the experimental houses. One possible reason for the lack of any effect is that these community analyses looked at any individual who returned a posttest survey, regardless of whether or not she participated in the intervention program. Thus, to determine if there was a dose-response relationship between participants who received the intervention versus sisters who did not receive the intervention, separate analyses were run.

Dose-Response Effects of Intervention

One of the manipulation check questions on the posttest health survey asked participants if they knew the meaning of the Don't Diet symbol. Students who checked "yes" that it meant no-dieting versus students who checked some other explanation for the symbol are assumed to have understood the purpose of the intervention program. Likewise, it is assumed they received a greater dose of the intervention due to this knowledge. To determine if knowers benefited more from the intervention than nonknowers, a series of t-tests were run on each of the

posttest nutrition and survey dependent variables. These results are listed in Tables 6 and 7.

Insert Tables 6 & 7 About Here

Dose-Response on Nutrition. There were negligible significant findings for knowers versus nonknowers on nutrition variables.

Knowers had significantly higher protein intake $t(38) = 1.79, p < .041$.

However, none of the hypothesized effects for dieting were supported.

Dose-Response on Survey Data. Participants who received a larger dose of the intervention fared better than non-knowers on the survey data. Knowers reported less calorie restriction in the past two weeks to help them lose weight $t(38) = -2.16, p < .019$ and fewer meals skipped $t(37) = -3.25, p < .001$. Conversely, nonknowers reported eating foods they don't prefer just because they are low in calories $t(38) = 1.84, p < .037$ and that they would have eaten much differently during the past two weeks if they had not been concerned about their weight $t(38) = 2.20, p < .017$. Thus, the survey data suggests the larger dose of the intervention was more effective at reducing some aspects of calorie-restrictive dieting than a smaller dose of the intervention.

Additionally, this effect also seemed to have altered body image and health behavior self-efficacy. Participants who received a higher dose of the intervention reported higher body esteem related to physical condition $t(34) = 2.74, p < .005$. The knowers higher body image esteem for physical condition may be related to slightly greater reported exercise (i.e., 272 calories per day compared to 223 in nonknowers), greater self-efficacy related to exercise $t(38) = 2.01, p < .026$, greater self-efficacy for resisting

relapse with an exercise program $t(38) = 1.71, p < .048$, and greater self-efficacy for making time for exercise $t(38) = 1.81, p < .039$.

Overall, it appears knowing about the Don't Diet symbol and knowing about the intervention was a useful indicator of dose of the intervention received. Participants who received a high dose of the intervention reported dieting less on some variables, greater body image esteem, and greater self-efficacy for exercise. This is consistent with the primary target of the intervention: to reduce dieting and replace this behavior with healthier eating and exercise.

Discussion

The purpose of this study was to adapt a peer leader intervention modeled after Kelly *et al.*'s research (1992) for the prevention of eating disorders. This intervention idea was borrowed from Roger's (1983) diffusion of innovations model and Bandura's (1986) ideas about implementing such a program. As applied to this study, this model suggested that if respected members of a group (i.e., peer leaders) began to advocate a novel idea (i.e., no dieting when this behavior is advocated by many in the media), this attitude would diffuse throughout the group and members would adopt the new behavior. A previous pilot study in female dormitories suggested mere peer advocacy of no-dieting was not strong enough to produce significant reductions in student dieting. This study used sorority houses instead of female dormitories with the hypothesis that sororities were more cohesive groups and would be subject to more intragroup peer influence than women living in a heterogeneous dormitory.

Peer Leaders as Behavior Change Agents

This study also adapted the peer leaders' role from a mere opinion advocate to a behavior change agent. Consistent with the process of behavior modification, peer leaders were encouraged to assess sisters living in the house on three target behaviors: dieting, healthy eating, and exercise. After this one-on-one assessment, peer leaders were encouraged to solicit a commitment for behavior change in one of these behaviors if the target participant so desired. Although most target participants desired to increase their exercise, many also wanted to stop dieting, begin eating healthier, and some wanted unique help in terminating vomiting or obsessing about dietary fat. Assessment of peer leaders' verbal skills related to assisting target participants through behavior modification suggested they benefited from the peer leader training program. However, data from the fat facts quiz taken by peer leaders pre and posttraining suggests they may not have acquired sufficient knowledge to promote a successful no-dieting campaign. Qualitative data collected by peer leaders suggested they targeted approximately 50% of the sisters living in their sorority houses and numerous other sisters who did not live in their house. Likewise, three psychotherapy referrals were made for sisters who appeared to have significant eating problems. Thus overall, it appears peer leaders were moderately successful at communicating to target participants the message that dieting is unhealthy and should be replaced with healthier eating or exercise.

As the tables in Appendix S suggest, these peer leader communication logs were quite variable. Besides different numbers of target participants per peer leader, some peer leaders appeared more effective than others at guiding participants through the levels of behavior

change. One of the problems in this study--time--likely limited the adequacy of these peer leaders as behavior change agents. Because this study began rather late in the semester and it had to be completed prior to sorority participants leaving campus for summer term, peer leaders were allowed only slightly less than one month to conduct the intervention. Additionally, this was a busy month for peer leaders and other participants. It directly followed spring break and ended just prior to final exams. This is the time during which most of the sororities have their formal parties, most class papers and projects are due, seniors are looking for permanent jobs, other students are looking for summer jobs, and students are preparing for final exams. The limited time factor may explain why there were no posttest community results for the experimental sororities. Because peer leaders did not collect partial social security numbers for their target participants, there is no way of knowing how these participants, specifically, fared following the intervention. In addition, a recent study by Beglin and Fairburn (1992) suggested women who had an eating disorder or a substantial eating problem were significantly less likely to participate in voluntary surveys concerning eating compared to women who did not have an eating problem. This implies some of the students who were targeted by peer leaders or some of the students who were not targeted, but had a history of eating problems, may not have participated in the study.

Discomfort with some aspects of the peer leader role may explain why only 50% of experimental house members were targeted during the intervention. Some peer leaders appeared more comfortable giving an opinion but not soliciting students for the behavior change program. Although peer leaders showed they had the verbal skills necessary to

assess, get a commitment, develop a behavior change strategy, and follow-up with target participants, some reported during their mid-intervention meeting that it was difficult to ask participants about these personal behaviors.

Another reason why the effects of the intervention may have showed only in participants who reported knowing the meaning of the Don't Diet symbol, but not for all participants living in the experimental houses may be lack of power from a lack of design sensitivity. Because only a few participants could be matched from pretest to posttest, repeated measures ANOVAs could not be used in this study. Instead, community analyses which included all participants who participated in both pretests and posttests were used. Since the groups appeared to be relatively equivalent at pretest, only analyses on posttests were used to determine the intervention efficacy. This process included participants who knew about the intervention program and ideally were targeted by peer leaders as well as students who did not report knowing about the intervention. Hence, some participants who went into the experimental community analyses had not been reached by the program. Their null findings would limit the overall experimental community findings compared to those who actually participated in the program.

However in a post-hoc exploratory analysis, participants were divided into those who knew about the program and those who did not. The results produced some of the hypothesized effects. Those who knew about the intervention program reported less dieting according to some items of the CBDS. These minimal results are similar to the only other study which has attempted to prevent eating disorders. Killen *et al.* (1993) conducted a preventive experimental study using 967 sixth and seventh

graders. They tried to promote healthy weight regulation through healthy eating and exercise, gave information about the harmful effects of unhealthy weight regulation, and helped the students develop coping skills for resisting the cultural ideal of thinness. Although this intervention also had no impact on behavior, females who received the intervention reported more knowledge than females who had not received the intervention. No changes were found on the eating disorders inventory (EDI; Garner, Olmstead, & Policy, 1983), the revised restraint scale (Herman, Polivy, Pliner, & Threlkeld, 1978), or body mass indices.

There are several important differences between this study and the Killen *et al.* (1993) Stanford study: a) age of the participants, b) setting, c) type of intervention, and e) measurement. These participants were university females who regularly chose their own dining hall foods and occasionally cooked for themselves. Similarly, because these females lived on their own in sorority houses, all of their health behaviors were autonomous and therefore subject to change. Participants in the Stanford study, on the other hand, included sixth and seventh grade females. Because most of their females probably selected foods and engaged in health behaviors under supervision of parents or school personnel, they may not have had as much freedom of choice in their behaviors. The setting was much different. The Stanford study was delivered to participants at school, but this study was delivered in participants' sorority houses where they lived.

The type of intervention was also much different. The Stanford study included primarily education and some experiential exercises for students. This may be why the effects of the Stanford study encompassed knowledge but not behavior. This study, on the other hand, included a

behavior change program which was delivered via the assistance of an influential role model (i.e., peer leader). This intervention included information as well as strategies to help participants change desired health behaviors.

Finally, there were different measures used in these studies. While the Stanford study appeared to be targeting dieting, they measured only restraint. This study also failed to find significant effects for dietary restraint, perhaps because this construct is more stable and unlikely to change over a one month period. However, this study found some differences in individuals who participated versus did not participate in the program on the Cognitive Behavioral Dieting Scale. This measure may be more appropriate for experimental intervention studies looking at dieting and eating disorders because the scale was developed to measure cognitions and behavior within the last two weeks. This may explain why the dose-response effects in this study found some effects for the CBDS but not the restraint scale of the TFEQ.

Implications for Future Research

While this study did not find consistent intervention effects for the experimental sororities versus the control sororities, it is the first eating disorders prevention study to find any effects for behavior. Unfortunately, these limited findings were only evident in post-hoc exploratory analyses, whereby participants were subdivided by dose-response effects from the intervention, and were not evident for the predicted community analyses. Future research needs to increase power and design sensitivity in several ways. First, a larger sample of participants would directly increase power. The dose-response effect size for the CBDS was .478. To have gained power of .95, to enable alpha to be set at a conservative .05, would have

required a sample of at least 83 participants in each group or 166 in both groups. This study had only 41 participants in both of the dose-response groups.

Four sorority houses of approximately 38 members each (i.e., for potential total of $n=150$) were given the opportunity to participate, but only approximately 70 participated in pretesting and a mere 53 participated in posttesting. This suggests many potential participants failed to volunteer. Although incentives such as 2 points extra credit for a psychology course or a coupon for a free frozen yogurt were given to females who participated, obviously these incentives were not powerful enough to encourage women to complete the 90 minute survey battery, especially twice for both pretesting and posttesting. Furthermore, Beglin and Fairburn (1992) found that women with an eating problem are less likely to volunteer for these type of surveys. Hence, many women may not have participated for fear of privacy invasion even though the surveys were anonymous. However, another probable reason was lack of time to complete the survey battery especially when compared to rather weak incentives. Perhaps if participants were each given money (e.g. \$10-20) for completed survey batteries, participation may have been greatly enhanced. Likewise, shorter surveys may have encouraged more participation. Many surveys were returned with incomplete data. Some participants failed to complete the dietary recall, whereas others discontinued surveys before total completion. All data sections were checked for form to insure each participant was not responding randomly; however, many participants left out one or more sections.

The peer leader to student (i.e., living in experimental houses) ratio of 1:6 appeared to be adequate. Peer leaders reported during their mid-

intervention meeting that this target number was reasonable. However, the duration of the intervention was inadequate and many complained that more time for the intervention would have been helpful. The 3.5 to 4 weeks of intervention that was allotted should be increased to approximately 2-3 months in future research. Peer leaders need more time to disseminate and discuss the program with participants while participants need more time to change their health behaviors. It is unknown if some participants would choose to change one behavior over a certain time period then go on to attempt more behavior changes later on in the program. Most participants in this study chose to target only one behavior. Increased time for intervention, theoretically, is necessary for the diffusion of an innovation (i.e., no dieting). During the one month intervention in this study, only 78% of experimental house members reported even a rudimentary knowledge of the goals of the program. With more time for this information to spread, more house members should understand the purpose of the program.

It is recommended that future research include similar, if not more, manipulation checks. It would have been helpful to look at data of target participants relative to other participants. However, peer leaders in this study did not record any identifying information such as last five digits of social security numbers for target participants. Similarly, only two levels of dose response were identified in this study (i.e., knowers vs. nonknowers). Given larger samples, additional levels of dose-response would add more design sensitivity to future intervention research. Sorority members, because of their group cohesiveness and higher level of dieting behavior, should continue to make appropriate experimental groups in the future. Figure 3 examines women in sororities compared to

women who lived in dormitories on their calorie balance from the dietary recalls. This illustrates how sorority members are at higher risk for eating disorders because of their greater dieting. Other high risk groups could include collegiate athletes or cheerleading and dance squads. Although future research needs to address the previously mentioned problems with this study, it appears that this research offers heuristic potential. This study was able to capture a limited dose-response effect. With increased design sensitivity and increased power, future research should be able to find more substantial effects.

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Table 1

DSM III-R Diagnostic Criteria for Eating Disorders

Anorexia Nervosa (307.10)	Bulimia Nervosa (307.51)
<p>A. Refusal to maintain body weight over a minimal normal weight for age and height, e.g., weight loss leading to maintenance of body weight at 15% below that expected; or a failure to make expected weight gain during a period of growth, leading to body weight 15% below that expected.</p> <p>B. Intense fear of gaining weight or becoming fat, even though underweight.</p> <p>C. Disturbance in the way in which one's body weight, size, or shape is experienced, e.g., the person claims to "feel fat" even when emaciated, believes that one area of the body is "too fat" even when obviously underweight.</p> <p>D. In females, absence of at least three consecutive menstrual cycles when otherwise expected to occur (primary or secondary amenorrhea). (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen administration).</p>	<p>A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time).</p> <p>B. A feeling of lack of control over eating behavior during the eating binges.</p> <p>C. The person regularly engages in either self-induced vomiting, use of laxatives, strict dieting or fasting, or vigorous exercise in order to prevent weight gain.</p> <p>D. A minimum average of two binge eating episodes a week for at least three months.</p> <p>E. Persistent overconcern with body shape and weight.</p>

Note. Diagnostic and Statistical Manual of Mental Disorders. (3rd edition-revised). 1987 Washington, DC: American Psychiatric Association. pp. 67-69.

Table 2

Community Pretest Analyses for Nutrition Data Between Peer Leaders, Participants in the Experimental Sorority Houses, and Participants in the Control Houses

Variable	Peer Leaders n=8	Exp. Ps n=26	Control Ps n=43	ANOVA F Score	Interpretation of Results Fisher's PLSD
Weight	131 (18)*	126 (15)	331 (16)	N.S.**	
Calorie Needs	2272 (320)	2205 (260)	2256 (276)	N.S.	
Exercise Calories	248 (277)	236 (266)	138 (175)	N.S.	
Total Calorie Needs	2520 (502)	2293 (610)	2394 (333)	N.S.	
Calorie Intake	2000 (625)	1873 (1214)	2039 (1289)	N.S.	
Calorie Balance	-519 (771)	-618 (1299)	-360 (1270)	N.S.	
Protein (gm)	60 (26)	61 (31)	69 (38)	N.S.	
Carbs (gm)	312 (107)	296 (271)	284 (178)	N.S.	
Fat (gm)	62 (37)	54 (32)	67 (55)	N.S.	
Cholesterol (gm)	127 (95)	168 (172)	205 (208)	N.S.	
Fiber (gm)	6.5 (6.2)	4.5 (9.7)	1.8 (3.2)	N.S.	
Sodium (mg)	2530 (1542)	2581 (1244)	2840 (1598)	N.S.	
Protein % Cals	12 (5)	17 (8)	17 (12)	N.S.	
Carbs % Calories	61 (14)	47 (22)	52 (19)	N.S.	
Fat % Calories	28 (12)	36 (20)	30 (13)	N.S.	
Alcohol % Cals	0 (0)	.5 (.2)	1.4 (5)	N.S.	
Calcium (mg)	599 (247)	660 (416)	780 (710)	N.S.	
Iron (mg)	17 (9)	18 (17)	35 (122)	N.S.	
Magnesium (mg)	191 (91)	250 (352)	272 (503)	N.S.	
Phosphorus (mg)	978 (268)	1030 (708)	1019 (712)	N.S.	
Potassium (mg)	1927 (977)	2756 (4836)	2044 (1231)	N.S.	

Sodium NA (mg)	2855 (1247)	2529 (1245)	3388 (2624)	N.S.
Zinc (mg)	6 (3)	7 (7)	7 (6)	N.S.
Copper (mg)	.9 (.6)	.9 (1)	.6 (.6)	N.S.
Manganese (mg)	2.8 (2)	11.6 (51)	1.9 (2.8)	N.S.
Vitamin A (IU)	6959 (5431)	6426 (8303)	5851 (5004)	N.S.
Vitamin C (mg)	106 (77)	120 (155)	102 (128)	N.S.
Vitamin B1 (mg)	1.9 (.8)	1.8 (2.3)	1.7 (1.3)	N.S.
Vitamin B2 (mg)	1.9 (.6)	2.5 (3)	2.2 (1.4)	N.S.
Niacin (mg)	21 (11)	25 (32)	23 (17)	N.S.
Vitamin B6 (mg)	4 (9)	2 (3)	2 (2)	N.S.
Folic Acid (microgram)	265 (180)	367 (600)	258 (270)	N.S.
Vitamin B12 (microgram)	3.1 (2)	2.6 (4)	3.6 (4)	N.S.

* Indicates standard deviations in parentheses

** Indicates Not Significant

Table 3

Community Pretest Means, Standard deviations, and Analyses on Survey Data Between Peer Leaders, Participants in the Experimental Sorority Houses, and Participants in the Control Houses

Variable	Peer Leaders n=8	Exp. Ps n=22	Control Ps n=31	ANOVA F Score & p-value	Interpretation of Results Fisher's PLSD
Diet Scale	30 (8)*	39 (15)	43 (16)	N.S. **	
Diet #1	2.9 (1)	3.4 (1)	3.5 (1)	N.S.	
Diet #2	3.5 (1.1)	3.0 (1.4)	3.0 (1.4)	N.S.	
Diet #3	2.4 (1.1)	2.0 (1.2)	2.3 (1.4)	N.S.	
Diet #4	2.3 (1.2)	2.2 (1.2)	2.3 (1.2)	N.S.	
Diet #5	1.1 (.4)	2.3 (1.3)	2.0 (1)	$F(2,77)=3.93$ $p<.024$	Peers < Exp. PLSD=.712 Peers < Con. PLSD=.67
Diet #6	1.9 (1.5)	3.0 (1.5)	2.9 (1.5)	N.S.	
Diet #7	2.6 (1.6)	3.4 (1.6)	3.3 (1.4)	N.S.	
Diet #8	2.8 (1.4)	3.3 (1.7)	3.7 (1.3)	N.S.	
Diet #9	2.0 (1.1)	2.6 (1.3)	2.7 (1.4)	N.S.	
Diet #10	1.6 (.5)	2.1 (1.2)	1.9 (1)	N.S.	
Diet #11	2.4 (1.3)	2.5 (1.6)	2.9 (1.6)	N.S.	
Diet #12	2.3 (1.4)	3.3 (1.3)	3.1 (1.3)	N.S.	
Diet #13	2.3 (1.4)	2.8 (1.5)	2.8 (1.6)	N.S.	

Diet #14	30 (.8)	3.3 (1.3)	3.4 (1.1)	N.S.	
FGRS Scale	115 (48)	131 (29)	139 (20)	N.S.	
Emotional Detachment Factor 1	32 (13)	35 (9)	38 (6)	N.S.	
Physical Unattractiveness Factor 2	20 (10)	26 (8)	47 (109)	N.S.	
Fear of Victimization Factor 3	19 (8)	19 (5)	22 (9)	N.S.	
Unassertiveness Factor 4	17 (7)	22 (7)	22 (4)	N.S.	
Failed Nurturance Factor 5	27 (11)	31 (6)	30 (6)	N.S.	
BES	120 (16)	111 (18)	104 (27)	N.S.	
SA Factor 1	47 (2)	45 (5)	42 (11)	N.S.	
WC Factor 2	40 (9)	36 (11)	32 (11)	N.S.	
PC Factor 3	29 (8)	29 (6)	26 (7)	N.S.	
Health Self- efficacy	297 (31)	266 (29)	260 (36)	$F(2,55)=3.62$ $p<.033$	Peers > Exp. PLSD=23.8 Peers > Con. Plsd=23.1
Exercise Self-efficacy scale	41 (8)	35 (8)	32 (9)	$F(2,55)=3.72$ $p<.031$	Peers > Exp. PLSD=6.04 Peers > Con. Plsd=5.87
Exercise Resisting Relapse Factor 1	14 (4)	12 (4)	11 (4)	N.S.	
Exercise Making Time Factor 2	27 (5)	23 (5)	21 (6)	$F(2,55)=3.64$ $p<.033$	Peers > Exp. PLSD=3.90 Peers > Con. PLSD=3.78

Eating	256 (26)	231 (29)	228 (31)	N.S.
Self-efficacy scale				
Eating Resisting Relapse Factor 1	67 (10)	59 (11)	58 (11)	N.S.
Eating Reducing Calories Factor 2	64 (8)	57 (10)	56 (10)	N.S.
Eating Reducing Salt Factor 3	41 (5)	36 (9)	37 (7)	N.S.
Eating Reducing Fat Factor 4	45 (6)	44 (6)	52 (55)	N.S.
Eating Behavioral Skills Factor 5	40 (3)	34 (6)	36 (7)	N.S.
TFEQ	23 (6)	25 (10)	25 (9)	N.S.
Restraint Factor 1	13 (5)	11 (5)	11 (5)	N.S.
Disinhibition Factor 2	6 (1)	9 (4)	7 (4)	N.S.
Hunger Factor 3	5 (2)	7 (3)	8 (7)	N.S.

*Indicates standard deviations in parentheses

** Indicates Not Significant

Table 4
Community Posttest Means, Standard deviations, and Analyses on
Nutrition Data Between Peer Leaders, Participants in the Experimental
Sorority Houses, and Participants in the Control Houses

Variable	Peer Leaders n=9	Exp. Ps n=27	Control Ps n=17	ANOVA F Score	Interpretation of Results Fisher's PLSD Test
Weight	125 (17)*	124 (32)	124 (20)	N.S.**	
Calorie Needs	2462 (693)	2241 (282)	2153 (327)	N.S.	
Exercise Calories	205 (187)	272 (308)	191 (224)	N.S.	
Total Calorie Needs	2425 (435)	2496 (394)	2311 (400)	N.S.	
Calorie Intake	2337 (827)	1592 (944)	1763 (907)	N.S.	
Calorie Balance	-197 (1218)	-890 (1069)	-526 (782)	N.S.	
Protein Intake (gm)	94 (35)	54 (30)	65 (45)	F(2,48)=4.03 p<.024	Peers > Exp. Fisher's PLSD=28.0
Carbs (gm)	356 (127)	213 (150)	234 (125)	F(2,48)=3.62 p<.034	Peers > Exp. PLSD=107.8 Peers > Con. PLSD=116.2
Fat (gm)	63 (40)	57 (47)	64 (46)	N.S.	
Cholesterol (gm)	230 (150)	189 (173)	169 (157)	N.S.	
Fiber (gm)	3.8 (3.2)	1.4 (2.2)	2.1 (3.1)	N.S.	
Sodium (mg)	339 (164)	391 (420)	783 (1349)	N.S.	
Protein % Cals	16 (5)	19 (14)	14 (4)	N.S.	
Carbs % Calories	61 (8)	54 (12)	52 (14)	N.S.	
Fat % Calories	23 (9)	30 (10)	33 (12)	N.S.	
Alcohol % Cals	0 (0)	1.2 (3.6)	1.1 (2.4)	N.S.	
Calcium (mg)	1280 (1084)	547 (415)	943 (1299)	N.S.	
Iron (mg)	17 (11)	11 (9)	16 (21)	N.S.	
Magnesium (mg)	1694 (815)	870 (546)	1040 (1204)	N.S.	
Phosphorus (mg)	249 (102)	159 (175)	278 (430)	N.S.	

Potassium (mg)	3296 (1545)	1603 (1195)	2139 (2144)	$F(2,48)=3.74$ $p<.031$	Peers > Exp. PLSD=1249
Sodium NA (mg)	3393 (1639)	2363 (1436)	2912 (1458)	N.S.	
Zinc (mg)	10.3 (4.2)	4.5 (2.9)	7.4 (7.3)	$F(2,48)=5.27$ $p<.009$	Peers > Exp. PLSD=3.79
Copper (mg)	1.1 (.6)	.39 (.5)	.63 (.6)	$F(2,48)=5.78$ $p<.006$	Peers > Exp. PLSD=.432 Peers > Con. PLSD=.465
Manganese (mg)	1.6 (1.0)	1.4 (1.1)	1.1 (1.5)	N.S.	
Vitamin A (IU)	7555 (6847)	5841 (9340)	7832 (11632)	N.S.	
Vitamin C (mg)	136 (102)	93 (164)	109 (102)	N.S.	
Vitamin B1 (mg)	1.9 (.9)	.92 (.5)	1.6 (1.9)	N.S.	
Vitamin B2 (mg)	2.8 (1.6)	1.2 (.82)	2.4 (2.5)	$F(2,48)=3.96$ $p<.026$	Peers > Exp. PLSD=1.29 Exp. > Com. PLSD=1.07
Niacin (mg)	23 (12)	14 (7.5)	20 (24)	N.S.	
Vitamin B6 (mg)	2.1 (1.3)	.77 (.71)	1.5 (2.5)	N.S.	
Folic Acid (microgram)	310 (169)	111 (68)	296 (475)	N.S.	
Vitamin B12 (microgram)	6.9 (5.8)	2.1 (1.7)	5.8 (8.4)	$F(2,48)=3.72$ $p<.031$	Peers > Exp. PLSD=4.23 Exp. > Con. PLSD=3.47

* Indicates standard deviations in parentheses

** Indicates Not Significant

Table 5

Community Posttest Means, Standard deviations, and Analyses on Survey Data Between Peer Leaders, Participants in the Experimental Sorority Houses, and Participants in the Control Houses

Variable	Peer Leaders n=9	Exp. Ps n=25	Control Ps n=15	ANOVA F Score & p-value	Interpretation of Results Fisher's PLSD
Diet Scale	25 (8)*	37 (13)	36 (13)	N.S. **	
Diet #1	2.6 (1.0)	3.3 (1.2)	2.9 (1.1)	N.S.	
Diet #2	3.3 (1.2)	2.9 (1.4)	3.3 (1.5)	N.S.	
Diet #3	2.2 (1.4)	2.3 (1.3)	2.1 (1.2)	N.S.	
Diet #4	1.3 (.71)	2.1 (1.2)	2.2 (1.2)	N.S.	
Diet #5	1.1 (.33)	1.6 (1.1)	2.0 (1.2)	N.S.	
Diet #6	1.1 (.33)	2.4 (1.6)	2.6 (1.6)	F(2,50)=3.4 p<.042	Peers < Exp. PLSD=1.1 Peers < Con. PLSD=1.2
Diet #7	2.0 (1.3)	3.0 (1.6)	2.9 (1.6)	N.S.	
Diet #8	2.2 (.97)	3.4 (1.5)	3.8 (1.3)	F(2,50)=3.8 p<.028	Peers < Exp. PLSD=1.1 Peers < Con. PLSD=1.1
Diet #9	1.6 (1.0)	2.7 (1.4)	2.7 (1.2)	F(2,50)=3.3 p<.047	Peers < Exp. PLSD=.97 Peers < Con. PLSD=1.0
Diet #10	1.4 (.53)	1.9 (1.1)	2.2 (1.3)	N.S.	
Diet #11	1.8 (.97)	2.6 (1.6)	3.2 (1.6)	N.S.	
Diet #12	1.0 (0)	2.5 (1.3)	2.5 (1.6)	F(2,50)=5.0 p<.012	Peers < Exp. PLSD=1.0 Peers < Con. PLSD=1.1
Diet #13	1.3 (1)	2.8 (1.5)	2.2 (1.4)	F(2,50)=3.9 p<.027	Peers < Exp. PLSD=1.1

Diet #14	2.3 (1)	3.0 (1.2)	3.0 (1)	N.S.
FGRS Scale	135 (12)	139 (23)	137 (20)	N.S.
Emotional Detachment Factor 1	40 (3)	39 (5)	38 (7)	N.S.
Physical Unattractiveness Factor 2	24 (4.6)	26 (7.8)	25 (5.7)	N.S.
Fear of Victimization Factor 3	22 (3.3)	21 (4.4)	21 (4.2)	N.S.
Unassertiveness Factor 4	20 (2.8)	22 (6)	22 (5.2)	N.S.
Failed Nurturance Factor 5	30 (2.3)	31 (6.4)	31 (6.4)	N.S.
BES	124 (22)	109 (22)	108 (21)	N.S.
SA Factor 1	48 (7.5)	43 (7.5)	43 (8)	N.S.
WC Factor 2	40 (12)	35 (10)	35 (10)	N.S.
PC Factor 3	32 (4)	28 (8)	26 (6)	N.S.
Health Self-efficacy	290 (47)	264 (38)	264 (30)	N.S.
Exercise Self-efficacy scale	41 (9)	37 (8)	34 (7)	N.S.
Exercise Resisting Relapse Factor 1	15 (8)	13 (3)	12 (3)	N.S.
Exercise Making Time Factor 2	27 (5)	24 (6)	22 (5)	N.S.
Eating Self-efficacy scale	226 (61)	221 (48)	230 (28)	N.S.

Eating Resisting Relapse Factor 1	66 (14)	60 (16)	61 (13)	N.S.
Eating Reducing Calories Factor 2	59 (11)	57 (11)	55 (6)	N.S.
Eating Reducing Salt Factor 3	39 (7)	35 (10)	38 (7)	N.S.
Eating Reducing Fat Factor 4	44 (5)	40 (6)	42 (8)	N.S.
Eating Behavioral Skills Factor 5	32 (10)	56 (117)	35 (5)	N.S.
TFEQ	20 (7)	25 (9)	25 (10)	N.S.
Restraint Factor 1	9 (6)	10 (5)	10 (5)	N.S.
Disinhibition Factor 2	5 (2)	8 (3)	7 (3)	N.S.
Hunger Factor 3	6 (4)	8 (3)	7 (3)	N.S.

* Indicates standard deviations in parentheses

** Indicates Not Significant

Table 6

Nutrition Analyses for Participants Reporting Knowing Meaning of Don't Diet Symbol vs. Sisters Reporting Not Knowing Meaning

Variable	Knowers n=23	Non- Knowers n=18	One-tailed t-score & p value	Interpretation of Results
Weight	127 (16)*	120 (35)	N.S.**	
Calorie Needs	2273 (477)	2195 (313)	N.S.	
Exercise Calories	272 (292)	223 (250)	N.S.	
Total Calorie Needs	2438 (401)	2396 (393)	N.S.	
Calorie Intake	2048 (1018)	1641 (903)	N.S.	
Calorie Balance	-390 (1119)	-739 (901)	N.S.	
Protein (gm)	77 (38)	55 (40)	t(38)=1.79 p<.041	Knows > NonKnowers
Carbs (gm)	281 (168)	237 (137)	N.S.	
Fat (gm)	67 (48)	55 (44)	N.S.	
Cholesterol (gm)	235 (177)	149 (174)	N.S.	
Fiber (gm)	2.4 (3.3)	2.3 (2.1)	N.S.	
Sodium (mg)	639 (1071)	449 (671)	N.S.	
Protein % Cals	16 (6)	15 (11)	N.S.	
Carbs % Calories	55 (11)	56 (13)	N.S.	
Fat % Calories	28 (10)	29 (10)	N.S.	
Alcohol % Cals	1.2 (4)	1.0 (2.3)	N.S.	
Calcium (mg)	838 (798)	812 (1253)	N.S.	
Iron (mg)	15 (11)	15 (21)	N.S.	
Magnesium (mg)	1181 (810)	1003 (1140)	N.S.	
Phosphorus (mg)	269 (338)	200 (253)	N.S.	
Potassium (mg)	2485 (1686)	2024 (1917)	N.S.	
Sodium NA (mg)	2939 (1763)	2583 (1201)	N.S.	

Zinc (mg)	7 (4)	7 (7)	N.S.
Copper (mg)	.7 (.7)	.5 (.5)	N.S.
Manganese (mg)	1.6 (1.2)	1.1 (1.3)	N.S.
Vitamin A (IU)	5408 (6808)	10486 (13596)	N.S.
Vitamin C (mg)	116 (176)	124 (95)	N.S.
Vitamin B1 (mg)	1.4 (.8)	1.5 (1.9)	N.S.
Vitamin B2 (mg)	1.9 (1.4)	2.2 (2.5)	N.S.
Niacin (mg)	19 (10)	18 (24)	N.S.
Vitamin B6 (mg)	1.3 (1.2)	1.6 (2.3)	N.S.
Folic Acid (microgram)	184 (154)	291 (456)	N.S.
Vitamin B12 (microgram)	4.6 (5.2)	4.6 (7.8)	N.S.

* Indicates standard deviations in parentheses

** Indicates Not Significant

Table 7

Survey Analyses for Participants Reporting Knowing Meaning of Don't Diet Symbol vs. Participants Reporting Not Knowing Meaning

Variable	Knowers n=23	Non- Knowers n=18	One-Tailed t-score & p value	Interpretation of Results
Diet Scale	31.5 (9.9)*	37.3 (15)	N.S.**	
Diet #1	3.0 (.93)	3.1 (1.3)	N.S.	
Diet #2	2.9 (1.4)	3.2 (1.4)	N.S.	
Diet #3	2.0 (1.2)	2.2 (1.3)	N.S.	
Diet #4	1.7 (.94)	2.4 (1.1)	t(38)=-2.16 p<.019	Knows < NonKnowers
Diet #5	1.1 (.34)	1.9 (1)	t(37)=-3.25 p<.001	Knows < NonKnowers
Diet #6	1.9 (1.4)	2.5 (1.6)	N.S.	
Diet #7	2.7 (1.4)	3.1 (1.6)	N.S.	
Diet #8	3.0 (1.4)	3.7 (1.4)	N.S.	
Diet #9	2.3 (1.3)	2.9 (1.4)	N.S.	
Diet #10	1.5 (.73)	2.1 (1.3)	t(38)=-1.84 p<.037	Knows < NonKnowers
Diet #11	2.1 (1.3)	3.1 (1.5)	t(38)=-2.20 p<.017	Knows < NonKnowers
Diet #12	2.0 (1.2)	2.5 (1.6)	N.S.	
Diet #13	2.2 (1.5)	2.9 (1.5)	N.S.	
Diet #14	2.8 (1.1)	3.0 (1.1)	N.S.	
FGRS Scale	138 (23)	142 (15)	N.S.	
Emotional Detachment Factor 1	39 (6)	40 (5)	N.S.	
Physical Unattractiveness Factor 2	25 (7)	26 (7)	N.S.	

Fear of Victimization Factor 3	21 (5)	22 (4)	N.S.	
Unassertiveness Factor 4	22 (6)	22 (4)	N.S.	
Failed Nurturance Factor 5	32 (6)	32 (6)	N.S.	
BES	113 (19)	102 (22)	N.S.	
SA Factor 1	44 (7)	41 (8)	N.S.	
WC Factor 2	37 (9)	34 (11)	N.S.	
PC Factor 3	30 (6)	24 (7)	$t(34)=2.74$ $p<.005$	Knows > NonKnowers
Health Self-efficacy	268 (44)	264 (34)	N.S.	
Exercise Self-efficacy scale	38 (8)	33 (7)	$t(38)=2.01$ $p<.026$	Knows > NonKnowers
Exercise Resisting Relapse Factor 1	14 (4)	12 (3)	$t(38)=1.71$ $p<.048$	Knows > NonKnowers
Exercise Making Time Factor 2	25 (6)	22 (5)	$t(38)=1.81$ $p<.039$	Knows > NonKnowers
Eating Self-efficacy scale	230 (39)	230 (31)	N.S.	
Eating Resisting Relapse Factor 1	60 (16)	61 (16)	N.S.	
Eating Reducing Calories Factor 2	56 (11)	56 (8)	N.S.	
Eating Reducing Salt Factor 3	36 (8)	38 (7)	N.S.	

Eating Reducing Fat Factor 4	42 (6)	41 (7)	N.S.
Eating Behavioral Skills Factor 5	35 (6)	34 (4)	N.S.
TFEQ	23 (6)	25 (11)	N.S.
Restraint Factor 1	9 (5)	10 (5)	N.S.
Disinhibition Factor 2	7 (3)	8(4)	N.S.
Hunger Factor 3	7 (4)	8 (3)	N.S.

* Indicates standard deviations in parentheses

**Indicates Not Significant

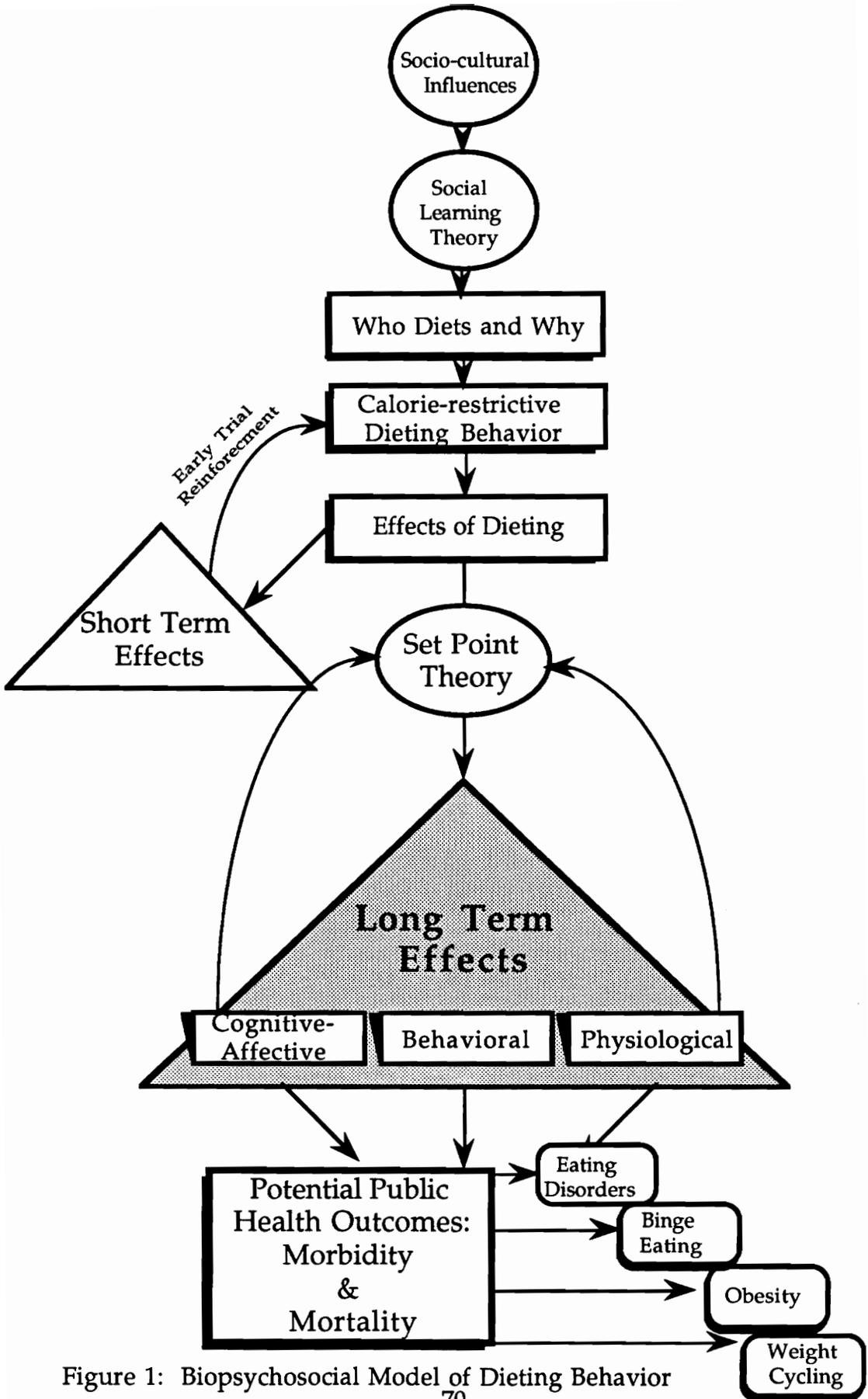


Figure 1: Biopsychosocial Model of Dieting Behavior

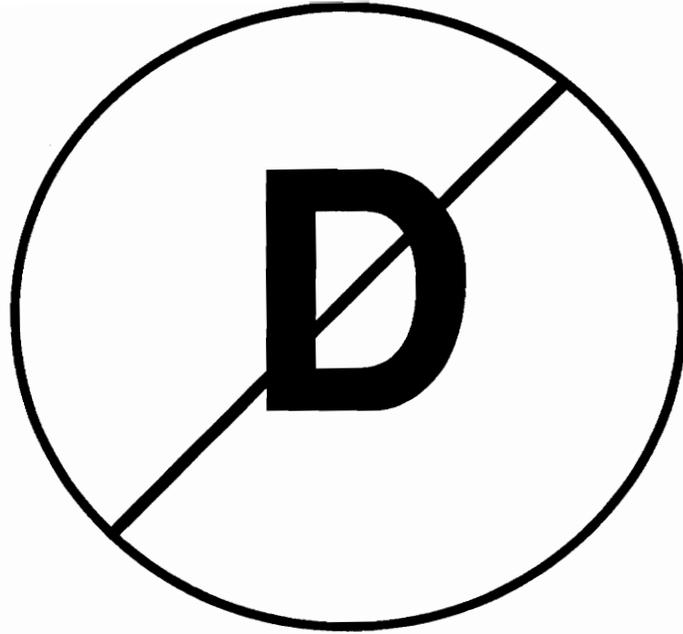


Figure 2. Don't Diet Symbol Behavioral Prompt

Note: This curious looking Don't Diet prompt was colored on red and white posters and placed on peer leaders' room doors and in the sorority house kitchen. Its purpose was to ignite curiosity in sorority house residents and to prompt them to ask peer leaders about the intervention program. At this time, peer leaders were trained to discuss the hazards of dieting and advocate healthy eating and exercise for weight control. They were also encouraged to invite sorority members into the behavior change program.

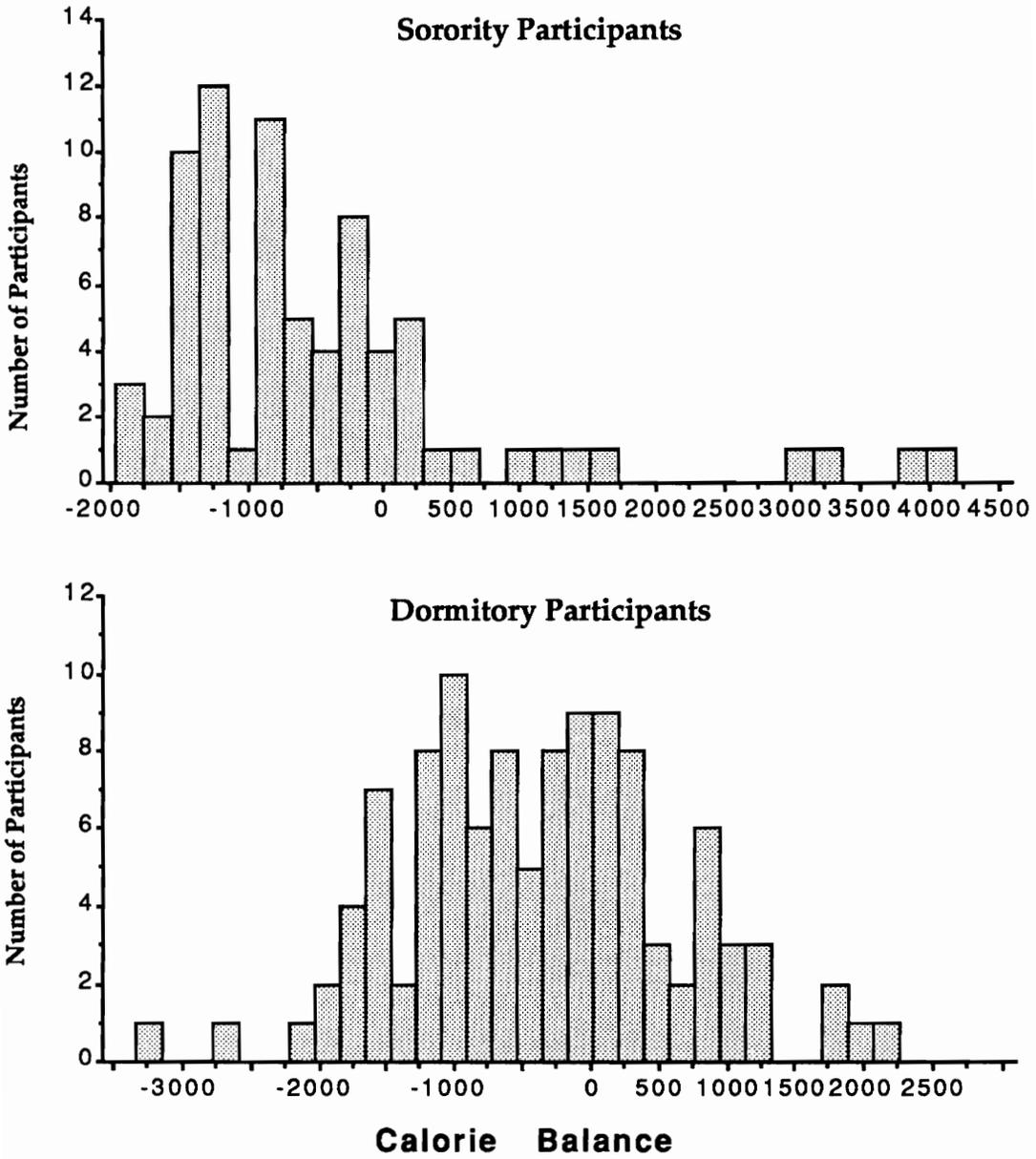


Figure 3: Comparison of Sorority Participants to Dormitory Participants on Calorie Balance From Dietary Recalls

Appendix A

Sorority Student Consent Form

Appendix A
Sorority Student Consent Form

I, _____, freely and voluntarily consent to participate in this Health Habits study in my Sorority which will begin this February and will conclude in May. I have read, understand, and consent to the following instructions:

- I will be asked to fill out a survey booklet which will ask me questions about my exercise and eating habits. I will also be asked to rate specific stressors.
- I understand that these surveys will take approximately one hour to complete and will be filled out in my sorority meeting or at home.
- I understand that my name will not be used in this survey so that my answers will remain strictly confidential. I know that my RA, peers, or school administrators will not be allowed to read my survey. Only researchers at Va Tech will code these surveys as a group and interpret the information obtained from this study as a group. I will put my name on this consent form, but it will not be paired with my survey. I will use the last five digits of my social security number for my survey.
- I understand that I may keep a copy of this consent form.
- I understand that I may withdraw from this research without being penalized.
- I understand that my participation in this study involves minimal physical or psychological risk. I understand that I may find out some information about myself from participating in this research.
- I understand that I may contact any of the researchers or supervisors below if I have questions about this research or my responses to this survey.
- I understand that I will be awarded an incentive, a coupon for one free ICBIY frozen yogurt, by a research assistant on the day that I return my surveys... **OR...** If I am currently taking Intro Psychology 2004 or another Psychology course that offers extra credit, I understand that I will receive 2 extra credit points in a course for participation in this research. **Please indicate your choice of incentive on the yellow post-it note that was provided with this survey.**

Signature: _____

Denise Martz-Ludwig, M.S., Principal Investigator 953-1384
Ellie Sturgis, Ph.D., Supervisor of Research 231-4005
Joseph Franchina, Ph.D., Human Subjects Committee Chair 231-5664
Ernest Stout, Ph.D., Chair of Institutional Research 231-5281

Appendix B
Peer Leader Consent Form

Appendix B
Peer Leader Consent Form

I, _____, freely and voluntarily consent to participate in the Peer Leader/Eating Disorders Prevention Study in my sorority house. I have read, understand, and consent to the following instructions:

- I understand that I must participate in a confidential screening interview before gaining approval to participate in this program. I acknowledge that this interview is designed to evaluate my psychological fitness for this role and protect me from an unsuitable role. I know that I will be given feedback about this interview and can ask questions about the topic.

- I understand that I have been chosen for my leadership qualities to participate in this program.

- I understand that my participation is purely voluntary and that I may choose, without penalty, to not participate in this program at this time.

- If selected as a peer leader, I understand that I will be participating in an eating disorders prevention program in my sorority.

- I understand that I will participate in or 2 3-hour group training sessions with other selected students, plus up to 4 15 minute follow-up meetings. The goal of these training sessions is to learn information about the dieting behavior, eating disorders, & health behavior. I will learn the skills to help women in my sorority make healthy behavior changes.

- I understand that my ideas about the implementation of this eating disorders prevention & health promotion program can be freely discussed in this group and will be used by the researchers.

- I understand that I will be asked to wear a curious button for one month throughout the school year. This button will be designed to encourage my peers to ask me questions about this program.

- I agree to keep track of how many students ask me about the program and record this information

- I agree to attempt to engage 5-6 women who live in my house in the behavior change program and record their progress.

- I understand that I may voluntarily leave this program if I do not feel comfortable with its goals or my responsibilities.

- I understand that I will be given \$15 for my time while participating in this study.

- I understand that I may benefit by this research by learning about eating disorders, receiving assertiveness and empathy training, and by serving as a positive role model in my sorority.

Signature: _____

Denise Martz, M.S., Principal Investigator 953-1384
Ellie Sturgis, Ph.D. , Supervisor of Research 231-4005
Joseph Franchina, Ph.D., Human Subjects Committee Chair 231-5664
Ernest Stout, Ph.D., Chair of Institutional Research 231-5281

Appendix C

Development and Preliminary Validation of the Cognitive Behavioral Dieting Scale (CBDS)

Development and Preliminary Validation of the
Cognitive Behavioral Dieting Scale

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Running Head: COGNITIVE BEHAVIORAL DIETING SCALE (CBDS)

Abstract

The Cognitive Behavioral Dieting Scale (CBDS) was developed to measure current calorie-restrictive dieting for weight loss. Study 1 involved item generation. Study 2 included common factor analysis and reliability estimates. Study 3 showed the CBDS could accurately predict food consumption behavior. Study 4 demonstrated the CBDS could predict a dieting-related cognitive schema. Study 5 examined construct validity. The resulting CBDS is a 14-item scale which measures reported dieting behavior and related thoughts within the past two weeks. This scale provides a method for operationalizing dieting, provides a construct that is different from restraint, and provides an instrument that conceptualizes dieting behavior on a continuum rather than a dichotomy.

Key Words: dieting, measurement, restraint, health behavior

Development and Preliminary Validation of the Cognitive Behavioral Dieting Scale

Increased attention has recently been devoted to dieting.

Epidemiological data suggest as many as 50% of American women and 25% of American men diet at any given time (National Center for Health Statistics, 1985), whereas approximately 75% of women and 47% of men report dieting sometime during their lives (Jeffery, Adlis, & Forster, 1991). This dieting phenomena is especially prevalent in college women. Hernon, Skinner, Andrews, and Penfield (1986) found 28% of college women consumed fewer than 1200 kcalories per day and their diets failed to meet RDA requirements for calcium, iron, thiamin, riboflavin, and niacin. Likewise, college dieters tended to skip meals as a weight loss strategy. Skinner, Salvetti, Fielle, Penfield, and Costello (1985) found that meal-skippers tend to choose low nutrient, high calorie foods when they do eat. Hence, many college dieters alternate between no food and poor food choices. The average age of the first diet in females is 16.2 years (Grunewald, 1985); consequently many women have begun dieting by the time they enter college.

There is relatively little empirical research on dieting behavior. In fact, there are several problems with how the concept of dieting has been treated in the literature. First, dieting lacks a generally accepted operational definition. Dieting behavior needs to be operationalized using an empirically developed psychometrically sound scale. In order to advance experimental research on this topic, such a scale should assess cognitive intentions to diet and lose weight, as well as specific dieting behaviors (e.g., meal skipping, consumption of less food, selecting low calorie foods for high calorie ones) that result in a daily calorie deficiency.

Furthermore since some dieters will lose weight, whereas other dieters may not when using the same behaviors, dieting behavior should not be confused with weight loss. Thus, dieting behavior needs to be better operationalized in order to advance research on this topic.

Secondly, a measure of dieting should be conceptually different from the traditional construct of dietary restraint. Dieting is defined as a set of current behaviors, whereas dietary restraint is a more enduring style of eating behavior which includes excessive food restriction, dieting, and sometimes binge eating and weight-cycling. Michael Lowe (1993) recently proposed a three factor model of eating behavior including the following constructs:

a) frequency of dieting/overeating, b) current dieting, and c) weight suppression. Lowe's model suggested the behavior of restrained eaters (i.e., counterregulation and binge eating) results from frequent dieting and overeating in the past rather than from current dieting behavior.

Likewise, Lowe, Whitlow, and Bellwoar (1991) have found that only 37% of normal weight restrained eaters reported current dieting. Similarly, the behavior of restrained eaters differed significantly from current dieters in experimental studies (Hetherington & Rolls, 1991; Lowe, 1992; Lowe *et al.*, 1991). For instance, in a "taste test" study current dieters ate significantly more ice cream than did restrained or unrestrained nondieters (Lowe *et al.*, 1991). Thus, recent theory and empirical research have begun treating restraint and current dieting as separate constructs that have different effects on behavior.

While the separation of restraint and dieting is a clear advance in this field, one critical problem remains with respect to the measurement of current dieting. Until now researchers have simply asked participants if

they are currently dieting to lose weight (Lowe *et al.*, 1991); then participants are divided by response into a "yes" or "no" dichotomy based on this question. While this method creates a convenient independent variable, it limits variance by forcing what is theoretically a continuous variable into a dichotomy. This method also has questionable reliability and validity. A dieter may indeed be either "on" or "off" a diet at any given time. But within these categories there is clearly more variation to be assessed. One participant may respond "yes" to the question of current dieting. However, she may be engaging in healthy behaviors such as eliminating extra fat or cholesterol from her diet. Another "yes" responder may be engaging in unhealthy behaviors such as skipping meals, eliminating fat completely from her food choices, and maintaining a calorie consumption under 800 calories per day. Likewise, because the single item measurement of dieting is dichotomous and not a continuous variable, it often proves inadequate as a dependent variable, especially in intervention studies attempting to assess changes in dieting behavior. Much experimental power can be gained in this research by measuring changes using a continuous dieting variable, rather than looking at participants' changes in dieting categories.

In summary, three problems exist with how dieting behavior has been used in the literature: a) dieting lacks a generally accepted operational definition, b) dieting has been used interchangeably with dietary restraint, and c) when dieting has been defined, it has been considered a dichotomous rather than a continuous variable. To address these issues, the present research outlines the empirical development of a scale which measures dieting on a continuum. The Cognitive Behavioral Dieting Scale (CBDS) was designed to a) measure current dieting for weight loss

rather than healthy eating or dietary restraint, b) predict cognitions related to dieting, and c) predict behavior leading to a calorie deficiency. The CBDS development has included item generation, factor analysis, studies of criterion-related validity, and a study of construct validity.

Study 1: CBDS Item Generation and Initial Scale Reduction

Subjects

Items thought to measure dieting behavior were generated by 15 undergraduate and graduate psychology students at a large southeastern university. The resulting 31 items concerning dieting were phrased to assess a person's thoughts and behavior within the past two weeks and were scaled on a 5-point Likert continuum. The original items are listed in Table 1.

Insert Table 1 About Here

The initial scale was then administered to undergraduate females ($N=176$) from the same large southeastern university. Subjects completed the inventory for extra credit or for a small incentive.

Results

Cronbach's alpha of internal consistency was $\alpha=.89$ for the 31 items. An item-by-item procedure was then used to calculate the highest value of Coefficient alpha for the least possible number of items. Each item in turn was removed from the scale to assess the coefficient alpha obtained without it. If alpha increased, the item was dropped. A total of 17 items were deleted.

Each item deleted from the scale correlated $r \leq .6$ with the overall scale. These deleted items were interpreted as being more related to extreme behavior (i.e., purging) or healthy behaviors (i.e., watching dietary fat content). The final scale of 14 items derived from this first sample had a coefficient alpha of $r = .92$. The final scale items are indicated by an asterisk in Table 1.

Study 2: CBDS Factor Analysis and Final-Scale Reliability

Factor Analysis

Method

The 14 item scale was then subjected to a common factor analysis. Common factor analysis was chosen over principal components for several reasons (Gorsuch, 1990). First, principal components analysis assumes variables are reproduced without error. In contrast, common factor analysis uses a multivariate model with an error term, an approach that places it into the same broadbased statistical family as ANOVA, MANOVA, canonical analysis, multiple regression, and confirmatory factor analysis (Gorsuch, 1983). Second, common factor analysis assumes variable items are sampled from the population, rather than comprising the population itself, and is therefore better able to reproduce the original population values (Snook & Gorsuch, 1989). Snook and Gorsuch, using a Monte Carlo study, found common factor analysis to be significantly more accurate than components analysis in reproducing the population pattern in the constructed data; although, as the number of variables increased and the size of the population pattern loadings increased, the results of

common factor and principal components analyses began to converge. Finally, common factor analysis does not systematically inflate bias which is estimated as the raw difference between observed and population loadings. Since Snook and Gorsuch (1989) tested three levels of variables (i.e., 9, 18, & 36) and because our study used a relatively low number of variables (i.e., 14), common factor analysis was more likely to produce the most accurate representation of factors.

Subjects

Males ($n=103$) and females ($n=233$) from the same southeastern university completed the 14 item CBDS for the factor analysis. Each received extra credit in a psychology course for participation. Because 10 subjects are recommended for each scale item in factor analysis, this sample of $N=336$ exceeds the recommended minimum number of 140 participants (Comrey, 1973; Comrey 1978; Gorsuch, 1983; Guilford, 1954).

Results

Table 2 illustrates the initial factor loadings which were calculated as communality estimates using the squared multiple correlations (SMC) method. These estimated correlations formed the diagonal in the initial correlation matrix from which factors were derived. Table 2 suggests each of the items loaded on only one factor. Cliff (1988) showed the eigenvalues-greater-than-one-rule results from the misapplication of the formula for internal consistency and overestimates the number of factors. Therefore, the scree method for determining the number of factors was chosen over the eigenvalues-greater-than-one-rule. Eigenvalues are listed in Table 3 and the scree plot is shown in Figure 1.

The scree plot clearly suggests the scale is composed of only one factor. To verify that only one factor existed in this scale, the two factor

model produced by SAS was examined. Factor One was able to explain 8.6% of the variance common to all the items; yet Factor Two only accounted for an additional .82% of the common variance. Similarly, using oblique rotation (i.e., rotation that allows factors to correlate with one another, as it was expected that multiple factors on this scale would), the two factors correlated $r=.82$. This high correlation suggested that the two factors are measuring the same construct and would be redundant. In conclusion because the one factor solution was judged superior, it was recommended a total CBDS score be obtained by summing the 14 items.

Insert Table 2-3 About Here

Insert Figure 1 About Here

CBDS Reliability Assessments

Internal Consistency

The Cronbach's alpha of the 14-item scale was once again high ($r=.95$) suggesting a high degree of internal consistency among the subjects' item responses (Crano & Brewer, 1973; Green, Lissitz, & Mulaik, 1977).

Test-retest Reliability

Of the original 336 males and females, 161 participants returned two days later to complete the scale again. Their surveys were paired by matching the last five digits of their social security number which was listed on both surveys. The high (i.e., $r=.95$) test-retest reliability obtained suggested the scale was reliable over at least a short period of time.

Studies 3 and 4: CBDS Criterion-Related Validity

Criterion-related validity of the CBDS was empirically supported by two studies. Study 3 involved comparing the CBDS with calorie intake from dietary recalls, whereas Study 4 verified the ability of the CBDS to predict which individuals have a dieting-related cognitive schema.

Study 3 Method

Subjects

Using a sample of 228 males and females from the same southeastern university, subjects were divided into high versus low dieters based on a mean split (i.e., 33 points out of 70 possible) of the CBDS total score. Subjects received extra credit in their psychology course for participation.

Measures

Each subject completed the CBDS and a 24-hour diet recall with questions about height, weight, and typical exercise. Dietary recall analyses were conducted using Nutrition Stacks, a software program by Big Byte for the Macintosh. This program calculates daily energy and nutrient needs based on a person's sex, age, height, weight, and regular exercise level. Each portion of food and beverage consumed during one day is entered into the program to determine the nutrient and energy balance for each participant. It was, therefore, possible to produce measures of daily calorie needs, calorie intake, and resulting calorie balance, as well as information for 27 nutrients. Total daily calorie needs were calculated by taking the basal calorie needs and adding this figure to any extra daily calorie needs required for regular exercise. Net calorie balance was the difference between the total calorie needs and the person's daily calorie intake. For instance, a subject who does not exercise but has basal calorie needs of 1300

per day would have a total calorie need of 1300 per day. If she consumed only 1000 calories on that day, her net calorie balance would be negative 300. On the other hand, a subject with basal calorie needs of 1300 per day who runs 20 miles per week would have an additional daily calorie requirement of 350 calories (i.e., depending on sex, age, body weight, and running speed). Thus, her total calorie need would be 1650 per day. If she consumed 2000 calories on her dietary recall, her net calorie balance would be positive 350.

Study 3 Results

It was hypothesized that high dieters would demonstrate a lower daily average calorie intake and a higher deficit calorie balance relative to their energy needs than low dieters. Table 4 summarizes these results. A mean split on the CBDS significantly predicted daily overall calorie intake $t(226)=23$, $p<.001$ and net calorie balance $t(226)=2.43$, $p<.01$ between high and low dieters. Subjects scoring high on the CBDS reported significantly lower calorie intake and a greater negative calorie balance than did those scoring below the CBDS mean.

Not only did high dieters, as identified by the CBDS, consume significantly fewer calories than their low dieter counterparts, they also consumed significantly less protein $t(226)=3.02$, $p<.01$, less carbohydrate $t(226)=2.03$, $p<.05$, less fat $t(226)=4.2$, $p<.001$, less cholesterol $t(226)=2.26$, $p<.05$, less sodium $t(226)=2.3$, $p<.05$, less calcium $t(226)=1.92$ $p<.05$, less iron $t(226)=1.88$ $p<.05$, less phosphorous $t(226)=2.5$, $p<.05$, and less potassium $t(226)=2.83$, $p<.01$. On the other hand, they consumed more fiber $t(226)=3.1$, $p<.01$, related to the fact that these individuals consumed fewer overall calories and fiber is a low-dense calorie nutrient. Although high dieters showed a lower consumption of dietary fat, the proportion of

calories derived from fat in their diet was not different than that for low dieters. Hence, there is no evidence that the high dieters were eating in a healthier manner. They simply consumed less food.

Insert Table 4 About Here

Results by Gender

To determine if the predictive ability of the CBDS varied by gender, separate analyses were run for males and females. Table 5 lists the results for females and Table 6 for males. Interestingly, female high dieters tended to weigh significantly more (i.e., \underline{M} = 129 pounds) than did female low dieters (i.e., \underline{M} = 123 pounds) $\underline{t}(158)=2.03$, $p<.05$. This same result was found for males $\underline{t}(63)=4.51$, $p<.0001$. The weight discrepancy, however, was much smaller for females (i.e., 6 pounds) than for males (i.e., 28 pounds). These data suggest that women who are only slightly heavier than their peers are more likely to report dieting, whereas the weight difference between male dieters and nondieters is much greater.

Insert Tables 5 & 6 About Here

Because male high dieters weighed more, their basal calorie needs, which are calculated using sex, height, and weight, were significantly greater than those for male low dieters $\underline{t}(63)=3.52$, $p<.001$. Female high dieters reported more exercise than did low female dieters and therefore showed a greater calorie expenditure per day from exercise $\underline{t}(159)=2.52$, $p<.01$. This difference was not found for males.

Consistent with the co-ed results, a mean split of the CBDS was able to predict daily calorie balance significantly among females. High-dieting females needed an additional 599 calories per day to be balanced, whereas low dieters showed only a 186 calories per day deficit $t(159)=2.38, p<.05$. This deficit effect was not significant among males.

Study 4: CBDS Cognitive Study

The CBDS proved capable of predicting eating behavior. However, dieting is thought to be more than just a behavior. For instance, Polivy and Herman (1983) suggested dieting creates heightened emotionality, preoccupation with food, and elevated distractibility. Similarly, in a two-month longitudinal study in which women were placed on a 1200 calorie-per-day diet and men were given 1500 calories per day, participants reported preoccupation with food, feeling strong urges to eat, and feeling out of control while eating (Warren & Cooper, 1988). Perhaps dieters have a cognitive schema specifically sensitive to weight and dieting behavior. Their cognitive schema could trigger this preoccupation with food and weight. If this cognitive schema exists in dieters, information from it should be readily available in memory.

To determine if the CBDS could predict a dieting schema, a traditional cognitive recall study was conducted. A 2(gender) X 2(CBDS \geq 30 or "high" vs. CBDS < 30 or "low" dieters) research design was used to determine if high dieters have a more salient cognitive schema for dieting and if females have a more salient dieting schema than males. It was hypothesized high dieters would recall significantly more diet-relevant words (e.g., candy & slim) than low dieters. It was also hypothesized that females would recall more diet-relevant words than males since females tend to diet more than males.

Study 4 Method

Subjects

Males ($n=37$) and females ($n=61$) were recruited from undergraduate psychology courses at the same southeastern university to participate in this study. They each received extra credit for participation.

Procedure

Four lists of 12 words were created. Each list included four diet-related or relevant words (e.g., cake, thin, cookies). These words were randomized in each of these lists using a random number table. Randomization was intended to control for primacy and recency effects for relevant words. The four lists are shown in Table 7. Relevant words are indicated by an asterisk. Words were verbally presented to subjects at a rate of one word per second. One list was presented at a time. Between lists, distractor tasks, intended to prevent subjects from rehearsing the words in memory, were administered for one minute immediately following the last word in each list. These distractor tasks are presented in Table 8. Following each distractor task, subjects were asked to recall and write each of the words from the previous list that they could remember. After all of the lists and distractor tasks had been completed, subjects were given the CBDS and a demographic information sheet to complete. The total number of relevant words recalled served as the dependent variable.

Insert Tables 7 & 8 About Here

Study 4 Results

The relevant word effect was analyzed using a 2 (diet category) X

2(gender) ANOVA for the total recalled relevant words. Gender and diet category showed no interaction effects. Separate t -tests evaluated main effect hypotheses. There were two significant main effects. Subjects in the high diet category recalled a mean of 8.2 ($SD=2.3$) relevant words, whereas low dieters averaged 6.2 ($SD=2.2$) relevant words. Thus, high dieters recalled significantly more relevant words than did low dieters $t(96)=4.32$, $p<.001$. Secondly, the average for females was 7.9 ($SD=2.4$) and for males was 5.9 ($SD=2$). Females recalled significantly more relevant words than did males $t(94)=4.2$, $p<.001$.

Study 4 Discussion

Since high dieters recalled significantly more diet-related words than low dieters, this cognitive recall study suggests the CBDS can determine who shows a dieting schema thereby supporting additional criterion-related validity. This study also supports previous findings illustrating dieters obsess about food and weight while engaging in the behavior (Polivy & Herman, 1983; Warren & Cooper, 1988). Most treatments for chronic dieters, whether for obesity or eating disorders, attempt to reduce the dieting behavior and replace it with healthy eating and exercise behavior. Little attention is given to cognitive schemas. However, this demonstration of a dieting schema suggests the potential utility for adding a cognitive restructuring procedure to the treatment of chronic dieters. Such an addition to psychotherapy would allow the therapist to assist the client in replacing a deeply ingrained dieting schema with a less stringent schema for healthy eating while substituting new healthy behaviors in place of older unhealthy behaviors.

Study 5: Construct Validity for the CBDS

Finally, to assess construct validity of the CBDS, a separate correlational study was conducted. The CBDS was compared to other inventories related to dietary restraint, body image, healthy eating, and exercise self-efficacy. One of the purposes for developing the CBDS was to show that dieting behavior is similar to, but different from restraint. Dieting behavior, as measured by the CBDS, should vary over time since most of the items assess behavior and thought occurring within the past two weeks. Yet the method by which restraint is measured suggests it is a more enduring style of eating. A person who is high in restraint may or may not be dieting at any given time, and not all dieters are restrained eaters. Thus, dieting behavior, as measured by the CBDS, should be only moderately related to restraint.

Similarly, dieting behavior is often linked with poor body image. Women with low body image may resort to dieting behavior as a coping strategy, especially women who believe that physical attractiveness is an important personal goal. This belief has been operationalized in a construct called feminine gender role stress (Gillespie & Eisler, 1992). Thus, the CBDS should be moderately related to a measure of body image esteem and to the feminine gender role stress scale, especially its physical unattractiveness factor. In contrast, because dieting behavior has been conceptualized as "unhealthy" eating for weight control (Martz & Sturgis, 1993), dieting behavior should not be related to healthy eating behavior.

Method

Subjects

Female students ($N=61$) from the same southeastern university who lived in sorority houses were recruited to participate in this study. Their average weight was 129 pounds ($SD=16$) and they averaged 65 inches

in height ($SD=3$). Dietary recalls were administered and information about their weight and typical activity level was assessed. It was determined that their total calorie needs per day averaged 2373 ($SD=460$) and that they consumed an average of 1978 ($SD=1201$) calories per day. Hence, this negative calorie balance suggests that many of the women were currently dieting. Indeed, their average on the CBDS (i.e., 40) was slightly, but not significantly higher, than comparable females in the previous samples (i.e., 38). They received either extra credit or a small incentive for participating.

Inventories

Health Survey. A health survey was devised for this study to collect information on subjects' exercise habits, height, and weight. Subjects were also asked to report a 24-hour dietary recall so a nutritional analysis could be calculated using each student's height, weight, and activity level. Nutritional analyses were conducted with Nutrition Stacks by Big Byte for the Macintosh. This program determined if each subject's calorie intake was above, below, or suitable to her energy needs, given her age, height, weight, and activity level. Likewise, this program produced data on percentage of calories from protein, fat, carbohydrates, and alcohol, intake of fiber, sodium, and 14 vitamins and minerals.

Three-Factor Eating Questionnaire. The Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985) is a multidimensional measure of eating behavior. The questionnaire has three factors: a) restraint, b) disinhibition, and c) hunger. This scale was used primarily for its first factor, the measure of dietary restraint, because restraint is often used synonymously with dieting behavior in the literature. Herman and Mack (1975) developed the original 10 item Restraint Scale, which was

later found to be confounded by weight fluctuation items that produced different scores and factor structures for obese versus normal weight participants (Ruderman, 1983). The restraint scale of the TFEQ was developed to measure pure dietary restraint, while eliminating weight fluctuations from the measure. The questionnaire includes 36 True/False items and 15 multiple choice items that are scored on a Likert continuum for a total of 51 items.

The final validation study sample consisted of 98 women and men who were divided into a "dieters" group because they were recruited from a weight loss program and a "free eater" group which was recruited from an adult education class and a community service organization. Factors 1 and 2 were able to significantly discriminate "dieters" from "free eaters" at the .001 level. The mean score for Factors 1, 2, and 3 are 10.5, 10.0 and 7.1 respectively. The standard deviations are 6.2, 5.9, and 4.1 respectively and the Cronbach's coefficient alphas for internal consistency were high at $\alpha=.93$, $\alpha=.91$, and $\alpha=.85$ respectively.

Body Esteem Scale. The Body Esteem Scale (BES; Franzoi & Shields, 1984) is a measure of body satisfaction that lists 35 aspects of physical appearance and bodily functioning. Factor analysis of the BES has indicated body esteem is a multidimensional construct that differs for males and females. Factors for men include physical attractiveness, upper body strength, and physical condition, whereas females produced sexual attractiveness, weight concerns, and physical condition factors. The weight concerns factor discriminated anorexic females from non-anorexic females. The BES factors demonstrated internal reliability with alpha coefficients ranging from $\alpha=.78$ to $\alpha=.86$ across the factors.

Feminine Gender Role Stress Scale. The Feminine Gender Role Stress Scale (FGRS; Gillespie & Eisler, 1992) measures the cognitive appraisal of stressors that are particularly salient for women. This 39 item inventory is rated on a Likert continuum from "0- Not at all Stressful" to "5- Extremely Stressful" and is summed for a total score. It has five factors: a) emotional detachment, b) physical unattractiveness, c) fear of victimization, d) unassertiveness, and e) failed nurturance.

In a recent inpatient psychiatric study, FGRS scale scores and its factors were compared using ANOVAs across the following diagnostic categories: eating disorders, depression and dysthymia, substance abuse, schizoaffective disorder, psychiatric inpatient (i.e., diagnosis not determinable), and college students (presumably without psychiatric diagnoses; Martz & McVoy, 1993). The FGRS scale significantly interacted with diagnostic category $F(6, 338) = 2.27, p < .05$. More specifically, the full FGRS scale discriminated eating disorder diagnoses from depression $t(20) = 3.08, p < .01$, substance abuse $t(12) = 1.8, p < .05$, and college students without psychiatric diagnoses $t(320) = 2.9, p < .01$. Likewise, the physical unattractiveness factor of the FGRS scale significantly interacted with diagnostic category $F(6, 338) = 4.35, p < .001$. No other individual FGRS factor yielded these results. The physical unattractiveness factor of the FGRS scale discriminated eating disorder diagnoses from depression $t(20) = 3.7, p < .001$, substance abuse $t(12) = 2.4, p < .05$, unknown psychiatric diagnoses $t(16) = 2.36, p < .05$, and college students without psychiatric diagnoses $t(320) = 4.3, p < .001$. These findings suggested the construct of female gender role stress, especially concerning physical appearance, is associated with a vulnerability for eating disorders.

Health Behavior Self-efficacy Scale. The Health Behavior Self-efficacy Scales (Sallis, Pinski, Grossman, Patterson, & Nader, 1988) were developed to evaluate self-efficacy for eating and exercise behaviors. Self-efficacy is believed to mediate between intentions and ability to initiate and maintain behaviors. The exercise scale contains two factors: resisting relapse and making time for exercise. These factors showed test-retest reliabilities of $r=.68$ for both and coefficient alphas of $r=.85$ for resisting relapse and $r=.83$ for making time for exercise. The eating scale had 5 factors: resisting relapse, reducing calories, reducing salt, reducing fat, and behavioral skills which had somewhat low test-retest reliabilities of $r=.52$, $r=.57$, $r=.57$, $r=.58$, $r=.43$, and $r=.64$ respectively. However, coefficient alphas for these factors ranged between $r=.85$ and $r=.93$. Self-efficacy related to these healthy behaviors was assessed with this scale, whereas self-reported eating and exercise behaviors were evaluated from the dietary recalls in this study.

Study 6 Results

Construct validity consists of two types of relationships between variables: a) convergent validity which demonstrates one variable is like or highly correlated with the other variable, and b) divergent validity which demonstrates one variable is not similar or is minimally correlated with the other variable. Typically, construct validity is supported if the correlation coefficients for convergent validity are higher than the coefficients for divergent validity. Correlations between the CBDS and each of the scales described above are listed in Table 9. It was hypothesized correlations between the CBDS and restraint as measured by the TFEQ would be the highest, followed by coefficients for body image esteem and female gender role stress. The smallest coefficients were expected between

the CBDS and the health behavior self-efficacy scales. Table 10 illustrates significant correlation coefficients between the CBDS and other scales in order from strongest to weakest.

Insert Tables 9 & 10 About Here

The strongest relationships were between the CBDS and the restraint scale of the TFEQ $r=.60$, $t(59)=5.58$, $p<.001$ and the weight concerns factor of the BES $r=-.60$, $t(59)=5.50$, $p<.001$. This suggests dieting is moderately related to dietary restraint and weight-related body image esteem. The CBDS was moderately, but less, related to body esteem concerning sexual attractiveness $r=-.44$, $t(59)=3.82$, $p<.001$, eating behavior as measured by the TFEQ $r=.40$, $t(59)=3.3$, $p<.01$, and female gender role stress $r=.38$, $t(59)=3.04$, $p<.01$. The CBDS was less related to health self-efficacy for reducing calories $r=.24$, $t(59)=2.09$, $p<.05$. The CBDS was not significantly related to the overall eating or exercise health behaviors self-efficacy scales. Thus, convergent validity was clearly demonstrated between the CBDS and dietary restraint, as well as between the CBDS and weight-related body esteem. On the other hand, divergent validity was demonstrated by substantially weaker relationships between health behavior self-efficacy and the CBDS.

General Discussion

There are three problems with how the construct of dieting has been used in the literature: a) dieting lacks an operational definition, b) dieting has incorrectly been used interchangeably with restraint, and c)

diETING has previously been defined as a dichotomy rather than treated as a continuous variable. The series of empirical studies used to develop the Cognitive Behavioral Dieting Scale (CBDS) were designed to devise a more useful measure of dieting and address these problems. Table 11 lists the final Cognitive Behavioral Dieting Scale.

Insert Table 11 About Here

The original 31 item scale was reduced to 14 items using a procedure to boost internal consistency. Common factor analysis showed the scale is composed of only one factor--dieting. The final estimate of coefficient alpha was $\alpha = .95$. Two day test-retest reliability was also $\alpha = .95$. It is recommended that a cutoff score of 37 be used to classify females into high versus low dieters, while a lower cutoff score of 22 is recommended for males. This recommendation is made because females scored significantly higher on the CBDS than males $t(334) = 10.2, p < .001$. Such a differential response pattern corresponds well to previous research which suggests females diet more than males (Jeffery *et al.*, 1991; National Center for Health Statistics, 1985). These recommended cut-off scores, however, are preliminary. More normative data need to be collected on the CBDS for males and females to determine whether this level represents the most sensitive cut-off points.

Because the CBDS was able to significantly predict overall calorie intake and net calorie balance, it is believed to be an accurate predictor of dieting related food consumption. Similarly, another study suggested the CBDS is an accurate predictor of a dieting cognitive schema. Hence, the CBDS appears to have reasonable criterion-related validity.

The construct validity study addressed another problem with how dieting has been used in the literature. These data showed dieting and restraint are similar, but dieting is not the same construct as restraint. Correlations showed the CBDS shares only 36% variance with dietary restraint as measured by the TFEQ. Although there is some overlap, dieting and restraint clearly have distinct variance. This uniqueness is believed to be accounted for mostly by temporal variables. The CBDS measures current dieting for weight loss. Because its items are based on behavior within the past two weeks, it allows for this construct to change over time. Restraint, on the other hand, is a more enduring style of eating, perhaps a style that is a function of a lifetime history of food restriction.

Additionally, divergent validity was demonstrated between the CBDS and healthy eating self-efficacy. Their shared variance was a mere 5%. Clearly dieting and self-efficacy for eating a healthy low-fat, low-salt, high-fiber diet are separate constructs. This distinction is important since many Americans incorrectly believe dieting is a healthy behavior.

The final problem with dieting in contemporary literature involves its common use as only a dichotomous variable. The use of the CBDS in this study provides both a method for dichotomizing an independent variable through mean cutoff scores while not sacrificing the ability to operationalize dieting as a continuous variable. Thus, this scale should be especially advantageous for studies in which dieting is a dependent variable and the purpose of the research is to detect changes over time.

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Table 1
Original 31 Item Diet Scale

Item to Scale	Item				
1. $r=.50$	Within the past 2 weeks, I have calculated my daily calorie intake				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
2. $*r=.67$	Within the past 2 weeks, I have felt fat				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
3. $r=.51$	Within the past 2 weeks, I have calculated my daily intake of fat grams				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
4. $*r=.61$	Within the past 2 weeks, I have used the nutritional labels on foods to determine if I eat a certain food or not				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
5. $*r=.68$	Within the past 2 weeks, I have planned out what I am allowed to eat for the day.				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
6. $r=.32$	Within the past 2 weeks, I have been satisfied with my eating patterns				
	1. Always	2. Often	3. Sometimes	4. Hardly Ever	5. Never
7. $*r=.73$	Within the past 2 weeks, I have restricted my calorie intake to help me lose weight				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
8. $*r=.62$	I am skipping meals to help me lose weight				
	1. Never	2. Hardly Ever	3. Sometimes	4. Often	5. Always
9. $r=.40$	Within the past week, I have fasted or gone for a day without eating in order to lose weight				
	1. Disagree	2. Somewhat Disagree	3. Neutral	4. Agree Somewhat	5. Strongly Agree

10. Within the past 2 weeks, I have been dieting to help control my weight
* $r=.80$ 1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
11. Within the past 2 weeks, the main reason I have exercised is to burn off calories
* $r=.71$ 1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
12. Within the past 2 weeks, I have exercised primarily for fitness or health
 $r=.20$ 1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
- 13.*
 $r=.72$ Within the past 2 weeks, I have made food choices based on how I feel about my weight
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
14.
 $r=.19$ Within the past 2 weeks, I have made food choices that I consider to be healthy
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
15. Within the past 2 weeks, I have gone to weight loss clinics or programs to help me lose weight
 $r=.29$ 1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
16. Within the past 2 weeks, I have followed a diet that I read in a magazine or saw on TV
 $r=.21$ 1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
17. Within the past 2 weeks, I have tried to reduce my calorie consumption for weight control
* $r=.78$ 1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always
18. Within the past 2 weeks, I have eaten foods that I don't prefer, just because they are low in calories
* $r=.63$ 1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always
19. Within the past 2 weeks, I have consumed 1200 calories a day or less per day
 $r=.47$ 1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always

20. Within the past 2 weeks, I would have eaten much differently if I had not been concerned about my weight
* $r=.65$
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
21. Within the past 2 weeks, I have skipped meals
 $r=.29$
1. Never 2. Seldom 3. Sometimes 4. Frequently 5. Very frequently
22. Within the past 2 weeks, I have believed that dieting is good for my health
* $r=.63$
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
23. Within the past 2 weeks, I have believed that a low fat, high fiber diet is healthy
 $r=-.14$
1. Strongly Agree 2. Agree Somewhat 3. Neutral 4. Somewhat Disagree 5. Disagree
24. Within the past 2 weeks, my closest friends have been dieting
 $r=.35$
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
25. Within the past 2 weeks, I have used diuretics (water pills) or laxatives to help control my weight
 $r=.12$
1. Never 2. Seldom 3. Sometimes 4. Frequently 5. Very frequently
26. Within the past 2 weeks, I have weighed myself
 $r=.37$
1. Never 2. Seldom 3. Sometimes 4. Once a day 5. More than once a day
27. Within the past two weeks, I have increased my exercise in order to lose weight
* $r=.65$
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
28. Within the past 2 weeks, my hunger has caused me to binge eat
 $r=.44$
1. Never 2. Seldom 3. Sometimes 4. Frequently 5. Very frequently
29. Within the past 2 weeks, I have vomited to control my weight
 $r=.12$
1. Never 2. Seldom 3. Sometimes 4. Frequently 5. Very frequently

30. Within the past 2 weeks, I have felt guilty about something I ate
* $r=.68$ 1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always

31. Within the past 2 weeks, I have used laxatives to help control my weight
 $r=.28$ 1. Never 2. Seldom 3. Sometimes 4. Frequently 5. Very frequently

* Indicates item to total scale correlation exceeded $r>.6$ and remained on final 14-item scale.

Table 2

Initial Factor Loadings Using Common Factor Analysis With SMC Criteria

Item	Factor Number						
	1	2	3	4	5	6	7
Within the past 2 weeks, I have felt fat	.78	.16	.22	-.11	.11	-.04	-.02
Within the past 2 weeks, I have used nutritional labels on foods to determine if I eat a certain food or not	.71	-.10	-.11	.19	.12	-.01	-.03
Within the past 2 weeks, I have planned out what I am allowed to eat for the day	.68	-.25	-.04	.09	.10	.08	-.01
Within the past 2 weeks, I have restricted my calorie intake to help me lose weight	.78	-.34	-.06	.19	.05	.03	-.01
I am skipping meals to help me lose weight	.63	.05	.24	-.12	-.09	.08	.00
Within the past 2 weeks, I have been dieting to help control my weight	.86	-.05	-.03	.01	-.08	-.03	-.08
Within the past 2 weeks, the main reason I have exercised is to burn off calories	.79	.21	.26	-.02	.05	-.01	.05

Within the past 2 weeks, I have made food choices based on how I feel about my weight	.86	-.04	-.05	.01	-.08	-.11	-.01
Within the past 2 weeks, I have tried to reduce my calorie consumption for weight control	.87	-.19	-.01	-.14	-.07	-.04	.06
Within the past 2 weeks, I have eaten foods that I don't prefer, just because they are low in calories	.72	-.07	.09	.17	-.01	.00	.08
Within the past 2 weeks, I'd have eaten much differently if I had not been concerned about my weight	.76	.03	.08	.20	-.16	.03	-.01
Within the past 2 weeks, I have believed that dieting is good for my health	.75	.21	-.01	-.01	-.01	.08	-.00
Within the past two weeks, I have increased my exercise in order to lose weight	.75	.25	-.27	-.07	-.02	.03	-.01
Within the past 2 weeks, I have felt guilty about something I ate	.77	.15	.25	.04	.12	-.04	-.00

Table 3

Eigenvalues From A Common Factor Analysis For The 14 Item CBDS

Factor Number	Eigenvalue
1	8.2
2	.43
3	.34
4	.20
5	.11
6	.04
7	.02
8	-.02
9	-.06
10	-.08
11	-.09
12	-.12
13	-.14
14	-.15

Table 4

Means, Standard Deviations, and t-tests Illustrating Criterion-Related Validity of the CBDS for Energy and Nutrients in Males and Females

Variable	Low Dieters Score <33 <u>n</u> =104	High Dieters Score ≥33 <u>n</u> =124	Differences Between Groups One-Tailed <u>t</u> -tests
Weight	138 (27)*	138 (31)	N.S. **
Calorie Needs	2539 (592)	2419 (572)	N.S.
Exercise Calories	200 (320)	242 (323)	N.S.
Total Calorie Needs	2738 (767)	2633 (710)	N.S.
Calorie Intake	2593 (1594)	2002 (1163)	<u>t</u> (226)=3.23, <u>p</u> <.001
Net Calorie Balance	-141 (1646)	-624 (1354)	<u>t</u> (226)=2.43, <u>p</u> <.01
Protein Intake (gm)	90 (65)	69 (40)	<u>t</u> (226)=3.02, <u>p</u> <.01
Carbohydrates (gm)	343 (203)	288 (211)	<u>t</u> (226)=2.03, <u>p</u> <.05
Fat Intake (gm)	96 (71)	64 (44)	<u>t</u> (226)=4.2, <u>p</u> <.001
Cholesterol (gm)	289 (294)	213 (213)	<u>t</u> (226)=2.26, <u>p</u> <.05
Fiber Intake (gm)	1.1 (2.1)	2.5 (3.8)	<u>t</u> (226)=3.1, <u>p</u> <.01
Sodium Intake (mg)	3236 (2124)	2667 (1599)	<u>t</u> (226)=2.3, <u>p</u> <.05
Protein %Cal.	14 (6)	15 (9)	N.S.
Carb. %Calories	52 (14)	54 (16)	N.S.
Fat % Calories	32 (10)	30 (13)	N.S.
Alcohol % Cal.	2 (6)	1 (3)	N.S.
Calcium (mg)	932 (713)	778 (497)	<u>t</u> (226)=1.92, <u>p</u> <.05
Iron (mg)	17 (13)	14 (12)	<u>t</u> (226)=1.88, <u>p</u> <.05
Magnesium (mg)	285 (337)	247 (321)	N.S.
Phosphorous (mg)	1383 (1145)	1079 (664)	<u>t</u> (226)=2.50, <u>p</u> <.01

Potassium (mg)	2540 (1530)	2048 (1082)	t(226)=2.83, p<.01
Sodium (Na) (mg)	3722 (2843)	2968 (1746)	t(226)=2.45, p<.01
Zinc (mg)	16 (79)	7 (5)	N.S.
Copper (mg)	.9 (1)	.8 (.6)	N.S.
Manganese (mg)	3 (14)	2 (2)	N.S.
Vitamin A (I.U.)	5009 (5214)	5747 (6638)	N.S.
Vitamin C (mg)	121 (128)	138 (297)	N.S.
Vitamin B1 (mg)	1.7 (1.2)	1.6 (1.5)	N.S.
Vitamin B2 (mg)	2.4 (2.1)	2.1 (1.7)	N.S.
Niacin (mg)	24 (17)	23 (21)	N.S.
Vitamin B6 (mg)	2.1 (6.2)	3.2 (15)	N.S.
Folic Acid (microgm)	226 (196)	244 (350)	N.S.
Vitamin B12 (microgm)	4.2 (4.7)	3.3 (3.8)	N.S.

* Indicates standard deviation in parentheses

**N.S. indicates Not Significant

Table 5

Means, Standard Deviations, and t-tests Illustrating Criterion-Related Validity of the CBDS for Energy and Nutrients in Females

Variable	Low Dieters Score <37 n=70	High Dieters Score ≥37 n=91	Differences Between Groups One-Tailed t-tests
Weight	123 (20)*	129 (20)	t(158)=2.03, p<.05
Calorie Needs	2159 (371)	2252 (335)	t(159)=1.66, p<.05
Exercise Calories	123 (184)	220 (278)	t(159)=2.52, p<.01
Total Calorie Needs	2282 (421)	2433 (457)	t(159)=2.16, p<.05
Calorie Intake	2136 (977)	1878 (1032)	N.S. **
Net Calorie Balance	-186 (1045)	-599 (1116)	t(159)=2.38, p<.05
Protein Intake (gm)	71 (36)	65 (38)	N.S.
Carbohydrates (gm)	291 (130)	272 (187)	N.S.
Fat Intake (gm)	75 (45)	58 (40)	t(158)=2.57, p<.01
Cholesterol (gm)	227 (172)	202 (212)	N.S.
Fiber Intake (gm)	1.4 (2.5)	2.5 (3.7)	t(158)=2.14, p<.05
Sodium Intake (mg)	2918 (1772)	2440 (1563)	t(158)=1.81, p<.05
Protein %Cal.	15 (8)	16 (9)	N.S.
Carb. %Calories	53 (16)	55 (17)	N.S.
Fat % Calories	32 (11)	30 (14)	N.S.
Alcohol % Cal.	.8 (4)	.6 (2.4)	N.S.
Calcium (mg)	818 (585)	748 (473)	N.S.
Iron (mg)	16 (11)	13 (12)	N.S.
Magnesium (mg)	215 (191)	266 (368)	N.S.

Phosphorous (mg)	1208 (795)	1009 (656)	t(158)=1.73, p<.05
Potassium (mg)	2222 (1246)	2012 (1073)	N.S.
Sodium (Na) (mg)	2997 (1693)	2871 (1804)	N.S.
Zinc (mg)	6.5 (3.5)	6.5 (5.1)	N.S.
Copper (mg)	.7 (.4)	.7 (.5)	N.S.
Manganese (mg)	3.5 (16)	1.7 (2.2)	N.S.
Vitamin A (I.U.)	4748 (4269)	5462 (6592)	N.S.
Vitamin C (mg)	104 (107)	115 (135)	N.S.
Vitamin B1 (mg)	1.5 (.97)	1.5 (1.5)	N.S.
Vitamin B2 (mg)	2.1 (1.5)	2.0 (1.8)	N.S.
Niacin (mg)	20 (14)	22 (21)	N.S.
Vitamin B6 (mg)	2.5 (7.8)	3.5 (17)	N.S.
Folic Acid (microgm)	209 (184)	242 (369)	N.S.
Vitamin B12 (microgm)	3.2 (2.6)	2.9 (2.9)	N.S.

* Indicates standard deviation in parentheses

**N.S. indicates Not Significant

Table 6

Means, Standard Deviations, and t-tests Illustrating Criterion-Related Validity of the CBDS for Energy and Nutrients in Males

Variable	Low Dieters Score <22 n=41	High Dieters Score ≥22 n=24	Differences Between Groups One-Tailed t-tests
Weight	156 (20)*	184 (31)	t(63)=4.51, p<.0001
Calorie Needs	2973 (442)	3414 (559)	t(63)=3.52, p<.001
Exercise Calories	295 (377)	379 (553)	N.S. **
Total Calorie Needs	3268 (665)	3792 (794)	N.S.
Calorie Intake	3090 (2156)	2687 (1625)	N.S.
Net Calorie Balance	-67 (2263)	-902 (2172)	N.S.
Protein Intake (gm)	112 (89)	94 (51)	N.S.
Carbohydrates (gm)	400 (263)	386 (311)	N.S.
Fat Intake (gm)	121 (93)	90 (53)	N.S.
Cholesterol (gm)	355 (385)	293 (302)	N.S.
Fiber Intake (gm)	.96 (1.9)	2.2 (4.6)	N.S.
Sodium Intake (mg)	3422 (2246)	3686 (2126)	N.S.
Protein %Cal.	13 (5)	15 (6)	N.S.
Carb. %Calories	52 (12)	53 (13)	N.S.
Fat % Calories	32 (10)	31 (10)	N.S.
Alcohol % Cal.	3.4 (9)	0.0	N.S.
Calcium (mg)	1029 (812)	922 (644)	N.S.
Iron (mg)	17 (10)	21 (22)	N.S.
Magnesium (mg)	368 (463)	226 (175)	N.S.
Phosphorous (mg)	1509 (1473)	1501 (825)	N.S.

Potassium (mg)	2852 (1784)	2470 (1320)	N.S.
Sodium (Na) (mg)	4398 (3779)	3835 (2007)	N.S.
Zinc (mg)	30 (125)	9 (5)	N.S.
Copper (mg)	1.0 (1.3)	1.2 (1.0)	N.S.
Manganese (mg)	1.9 (2.1)	1.5 (.9)	N.S.
Vitamin A (I.U.)	5418 (5752)	6026 (6917)	N.S.
Vitamin C (mg)	133 (146)	251 (618)	N.S.
Vitamin B1 (mg)	1.9 (1.1)	2.2 (2.0)	N.S.
Vitamin B2 (mg)	2.6 (2.4)	2.7 (2.2)	N.S.
Niacin (mg)	26 (16)	34 (25)	N.S.
Vitamin B6 (mg)	1.6 (1.5)	2.3 (2.6)	N.S.
Folic Acid (microgm)	260 (243)	277 (308)	N.S.
Vitamin B12 (microgm)	4.6 (5)	6.3 (8)	N.S.

* Indicates standard deviation in parentheses

**N.S. indicates Not Significant

Table 7

Word Lists Used in Cognitive Recall Study

List 1	List 2	List 3	List 4
crate	cake*	bug	letter
car	cat	city	paper
jacket	bracelet	skinny*	cookies*
grape*	computer	ear	stereo
thin*	pillow	formula	box
chair	pickle*	slim*	fat*
candy*	circle	desk	necklace
blue	boot	box	train
picture	book	potato chips*	chocolate*
party	heavy*	dog	paint
ice cream*	frame	orange*	yellow
truth	salami*	justice	restaurant*

* Indicates this Word is Relevant for Dieting/Weight

Table 8

Distractor Tasks Used in Between Word Lists

Type of One Minute Distractor Task

1. Create as many words as you can out of "EXPERIMENTS"
 2. Unscramble the following words: ctasle, flie, rindef, nriab, rban, tird, rhits, aguhl, logf, oesh
 3. Create as many words as you can from "SPRING BREAK"
 4. Unscramble the following words: ebra, lopit, lnepa, otelm, ranmai, borhar, kale, rpsay, ublb, rpnit
-

Table 9

CBDS Correlations to Selected Scales

Scale	Correlation to Diet Scale	
FGRS	$r=.38$	$t(59)=3.04, p<.05$
Emotional Detachment Factor	$r=.29$	$t(59)=2.34, p<.05$
Physical Unattractiveness Factor	$r=.10$	N.S. *
Fear of Victimization Factor	$r=.21$	N.S.
Unassertiveness Factor	$r=.28$	$t(59)=2.42, p<.05$
Failed Nurturance Factor	$r=.25$	N.S.
Body Esteem Scale	$r=-.53$	$t(59)=4.87, p<.001$
Sexual Attractiveness Factor	$r=-.44$	$t(59)=3.82, p<.001$
Weight Concerns Factor	$r=-.60$	$t(59)=5.50, p<.001$
Physical Condition Factor	$r=-.26$	$t(59)=2.15, p<.05$
Health Self-efficacy Scale	$r=.18$	N.S.
Exercise SE scale	$r=.004$	N.S.
Exercise Factor 1	$r=.03$	N.S.
Resisting Relapse		
Exercise Factor 2	$r=-.03$	N.S.
Making Time		
Eating Self-efficacy scale	$r=.23$	N.S.
Eating Factor 1	$r=.03$	N.S.
Resisting Relapse		
Eating Factor 2	$r=.24$	$t(59)=2.09, p<.05$
Reducing Calories		

Eating Factor 3	$r=.13$	N.S.
Reducing Salt		
Eating Factor 4	$r=-.07$	N.S.
Reducing Fat		
Eating Factor 5	$r=.19$	N.S.
Behavioral Skills		
TFEQ	$r=.40$	$t(59)=3.3, p<.01$
Restraint Factor	$r=.60$	$t(59)=5.6, p<.001$
Disinhibition Factor	$r=.12$	N.S.
Hunger Factor	$r=-.11$	N.S.

*N.S. indicates Not Significant

Table 10

Significant Correlation Coefficients Between CBDS and Selected Scales by Strength of Correlation

Scale	Correlation Coefficient
Restraint Factor 1 of TFEQ	.60
Weight Concerns Factor 2 of BES	-.60
Sexual Attractiveness Factor 1 of BES	-.44
TFEQ	.40
FGRS	.38
Emotional Detachment Factor 1 of FGRS	.29
Unassertiveness Factor 4 of FGRS	.28
Failed Nurturance Factor 5 of FGRS	.25
Reducing Calories Eating Self-efficacy Factor 2	.24

Table 11

Final Cognitive Behavioral Dieting Scale

#	Item
1	<p>Within the past 2 weeks, I have felt fat</p> <p>1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always</p>
2	<p>Within the past 2 weeks, I have used the nutritional labels on foods to determine if I eat a certain food or not</p> <p>1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always</p>
3	<p>Within the past 2 weeks, I have planned out what I am allowed to eat for the day.</p> <p>1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always</p>
4	<p>Within the past 2 weeks, I have restricted my calorie intake to help me lose weight</p> <p>1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always</p>
5	<p>I am skipping meals to help me lose weight</p> <p>1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always</p>
6	<p>Within the past 2 weeks, I have been dieting to help control my weight</p> <p>1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree</p>
7	<p>Within the past 2 weeks, the main reason I have exercised is to burn off calories</p> <p>1 Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree</p>
8	<p>Within the past 2 weeks, I have made food choices based on how I feel about my weight</p> <p>1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree</p>
9	<p>Within the past 2 weeks, I have tried to reduce my calorie consumption for weight control</p> <p>1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always</p>

- 10 Within the past 2 weeks, I have eaten foods that I don't prefer, just because they are low in calories
1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always
- 11 Within the past 2 weeks, I would have eaten much differently if I had not been concerned about my weight
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
- 12 Within the past 2 weeks, I have believed that dieting is good for my health
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
- 13 Within the past two weeks, I have increased my exercise in order to lose weight
1. Disagree 2. Somewhat Disagree 3. Neutral 4. Agree Somewhat 5. Strongly Agree
- 14 Within the past 2 weeks, I have felt guilty about something I ate
1. Never 2. Hardly Ever 3. Sometimes 4. Often 5. Always
-

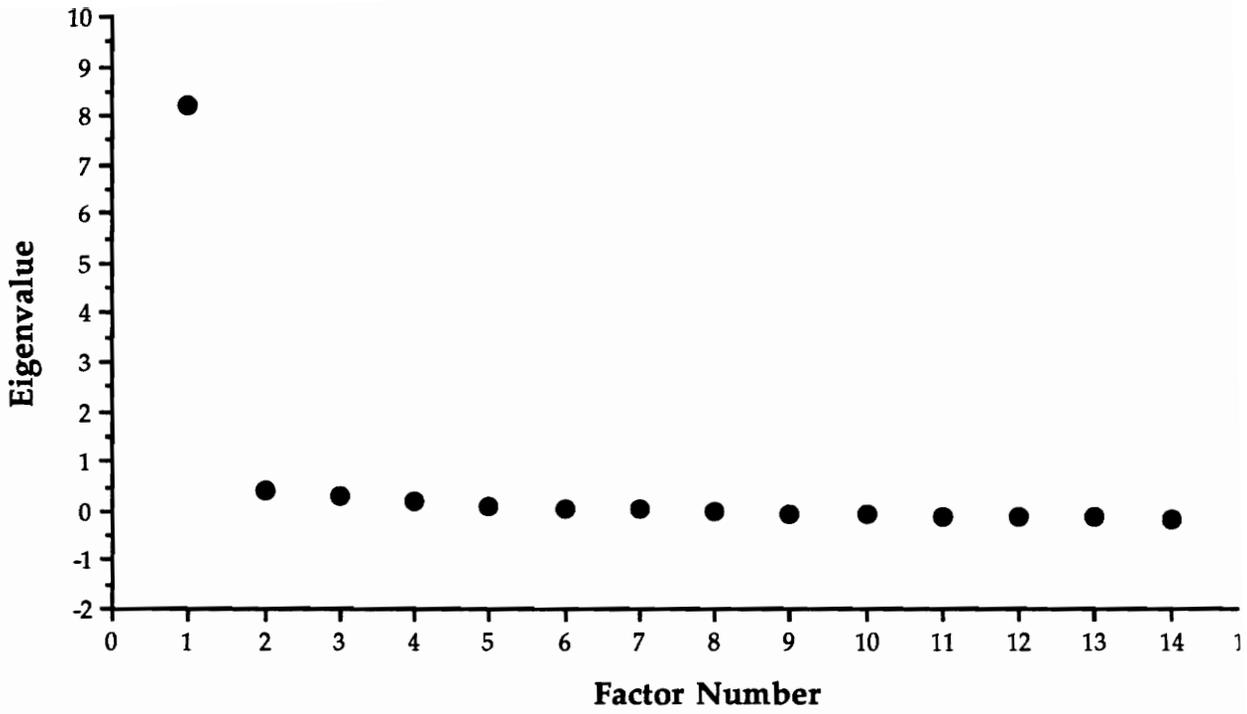


Figure Caption

Figure 1. Scree Plot for Eigenvalues Derived from Common Factor Analysis

Appendix D

Three Factor Eating Questionnaire (Stunkard & Messick, 1985)

Appendix D
(Stunkard & Messick, 1985)
Three Factor Eating Questionnaire

Directions: Please Answer True or False to the following statements. True= "1" False= "2"
(R)=Restraint (D)=Disinhibition (H)=Hunger

1. When I smell a sizzling steak or see a juicy piece of meat, I find it very difficult to keep from eating, even if I have just finished a meal. T (D)
2. I usually eat too much at social occasions, like parties and picnics. T (D)
3. I am usually so hungry that I eat more than three times a day. T (H)
4. When I have eaten my quota of calories, I am usually good about not eating any more. T (R)
5. Dieting is just so hard for me because I get too hungry. T (H)
6. I deliberately take small helpings as a means of controlling my weight. T (R)
7. Sometimes things just taste so good that I keep on eating when I am no longer hungry. T (D)
8. Since I am often hungry, I sometimes wish that while I am eating, an expert would tell me that I have had enough or that I can have some more to eat. T (H)
9. When I feel anxious, I find myself eating. T (D)
10. Life is too short to worry about dieting. F (R)
11. Since my weight goes up and down, I have gone on reducing diets more than once. T (D)
12. I often feel so hungry that I just have to eat something. T (H)
13. When I am with someone who is overeating, I usually overeat too. T (D)
14. I have a pretty good idea of the number of calories in common food. T (R)
15. Sometimes when I start eating, I just can't seem to stop. T (D)
16. It is not difficult for me to leave something on my plate. F (D)
17. At certain times of the day, I get hungry because I have gotten used to eating then. T (H)
18. While on a diet, if I eat food that is not allowed, I consciously eat less for a period of time to make up for it. T (R)
19. Being with someone who is eating often makes me hungry enough to eat also. T (H)
20. When I feel blue, I often overeat. T (D)
21. I enjoy eating too much to spoil it by counting calories or watching my weight. F (R)

22. When I see a real delicacy, I often get so hungry that I have to eat right away. T (H)
Appendix D (Cont.)

23. I often stop eating when I am not really full as a conscious means of limiting the amount I eat. T (R)

24. I get so hungry that my stomach often seems like a bottomless pit. T (H)

25. My weight has hardly changed at all in the last ten years. F (D)

26. I am always hungry so it is hard for me to stop eating before I finish the food on my plate.
T (H)

27. When I feel lonely, I console myself by eating. T (D)

28. I consciously hold back at meals in order not to gain weight. T (R)

29. I sometimes get very hungry late in the evening or at night. T (H)

30. I eat anything I want, any time I want. F (R)

31. Without even thinking about it, I take a long time to eat. F (D)

32. I count calories as a conscious means of controlling my weight. T (R)

33. I do not eat some food because they make me fat. T (R)

34. I am always hungry enough to eat at any time. T (H)

35. I pay a great deal of attention to changes in my figure. T (R)

36. While on a diet, if I eat a food that is not allowed, I often then splurge and eat other high calorie foods. T (D)

Directions: Please answer the following questions by choosing the response that is appropriate to you and marking the number on your blue opscan.

37. How often are you dieting in a conscious effort to control your weight? + (R)
1. Rarely 2. Sometimes 3. Usually 4. Always

38. Would a weight fluctuation of 5 lbs affect the way you live your life? + (R)
1. Not at all 2. Slightly 3. Moderately 4. Very Much

39. How often do you feel hungry? + (H)
1. Only at Mealtimes 2. Sometimes Between Meals 3. Often Between Meals 4. Almost Always

40. Do your feelings of guilt about overeating help you control your food intake? + (R)
1. Never 2. Rarely 3. Often 4. Always

41. How difficult would it be for you to stop eating halfway through dinner and not eat for the next four hours? + (H)
1. Easy 2. Slightly Difficult 3. Moderately Difficult 4. Very Difficult

Appendix D (Cont.)

42. How conscious are you of what you are eating? + (R)
1. Not at all 2. Slightly 3. Moderately 4. Extremely
43. How frequently do you avoid "stocking up" on tempting foods? + (R)
1. Almost Never 2. Seldom 3. Usually 4. Almost Always
44. How likely are you to shop for low calorie foods? +(R)
1. Unlikely 2. Slightly Likely 3. Moderately Likely 4. Very Likely
45. Do you eat sensibly in front of others and splurge alone? + (D)
1. Never 2. Rarely 3. Often 4. Always
46. How likely are you to consciously eat slowly in order to cut down on how much you eat?+(R)
1. Unlikely 2. Slightly Likely 3. Moderately Likely 4. Very Likely
47. How frequently do you skip dessert because you are no longer hungry? -(H)
1. Almost Never 2. Seldom 3. At least once a week 4. Almost Every Day
48. How likely are you to consciously eat less than you want? + (R)
1. Unlikely 2. Slightly Likely 3. Moderately Likely 4. Very Likely
49. Do you go on binges though you are not hungry? + (D)
1. Never 2. Rarely 3. Sometimes 4. At least once a week
50. On a scale of 0 to 5, where 0 means no restraint in eating (eating whatever you want, whenever you want it) and 5 means total restraint (constantly limiting food intake and never "giving in"), what number would you give yourself? +(R)
0=eat whatever you want, whenever you want it
1= usually eat whatever you want, whenever you want it
2=often eat whatever you want, whenever you want it
3=often limit food intake, but often "give in"
4=usually limit food intake, rarely "give in"
5=constantly limiting food intake, never "giving in"

51. To what extent does this statement describe your eating behavior? 'I start dieting in the morning, but because of any number of things that happen during the day, by evening I have given up and eat what I want, promising myself to start dieting again tomorrow.' + (D)
1. Not like me 2. Little like me 3. Pretty Good Description of me 4. Describes me Perfectly

Appendix E

Body Esteem Scale (BES)
(Franzoi & Shields, 1984)

Appendix E
(Franzoi & Shields, 1984)
Body Esteem Scale (BES)

Please rate the following items according to your personal feelings about your body based on the following scale from 1 "Have strong negative feelings" to 5 "Have strong positive feelings."

1-----2-----3-----4-----5
Have Have Have Have Have
Strong Moderate No Feeling Moderate Strong
Negative Negative One Way Or Positive Positive
Feelings Feelings The Other Feelings Feelings

- | | |
|---------------------------|---------------------------|
| 1. Body scent | 19. Arms |
| 2. Appetite | 20. Chest or breasts |
| 3. Nose | 21. Appearance of eyes |
| 4. Physical stamina | 22. Cheeks/ cheekbones |
| 5. Reflexes | 23. Hips |
| 6. Lips | 24. Legs |
| 7. Muscular strength | 25. Figure or physique |
| 8. Waist | 26. Sex drive |
| 9. Energy Level | 27. Feet |
| 10. Thighs | 28. Sex organs |
| 11. Ears | 29. Appearance of stomach |
| 12. Biceps | 30. Health |
| 13. Chin | 31. Sex activities |
| 14. Body build | 32. Body hair |
| 15. Physical coordination | 33. Physical condition |
| 16. Buttocks | 34. Face |
| 17. Agility | 35. Weight |
| 18. Width of shoulders | |

Appendix F

Feminine Gender Role Stress Scale (Gillespie & Eisler, 1992)

Appendix F (Cont.)

23. Having to deal with unwanted sexual advances _____
24. Losing custody of your children after divorce _____
25. Your mate is unemployed and cannot find a job _____
26. Feeling pressured to engage in sexual activity _____
27. Talking with someone who is angry with you _____
28. Turning middle-aged and being single _____
29. Having your car breakdown on the road _____
30. Having multiple sex partners _____
31. Having to "sell" yourself at a job interview _____
32. Hearing that a dangerous criminal has escaped nearby _____
33. Receiving an obscene phone call _____
34. Having someone else raise your children _____
35. Trying to get your spouse to take responsibility for childcare _____
36. Returning to work soon after your child is born _____
37. A very close friend stops speaking to you _____
38. Your mate will not discuss your relationship problems _____
39. Finding that you gained 10 pounds _____

Appendix G

Health Behavior Self-Efficacy Scales
(Sallis, Pinski, Grossman, Patterson, & Nader,
1988)

20. Stick to low-fat, low-salt foods when someone eats a high-fat, high-salt food right in front of you.

Appendix G (Cont.)

21. Stick to low-fat, low-salt foods when you must eat in a hurry.
22. Eat fruits instead of cookies, candy, cake, and ice cream for dessert.
23. Eat fruits instead of cookies, candy, cake, and ice cream for snacks.
24. Stick to low-fat, low-salt foods when traveling.
25. Stick to low-fat, low-salt foods while you are drinking alcohol.
26. Avoid junk food that other family members have brought into your home.
27. Eat carrots, celery and raw vegetables instead of dips, crackers and potato chips for snacks.
28. Drink fewer diet drinks with sodium.
29. Avoid eating fast food for lunch.
30. Eat smaller portions at dinner.
31. Cook smaller portions so there are no leftovers.
32. Eat lunch as your main meal of the day rather than dinner.
33. Stay away from the buffet meal at a party.
34. Plan snacking times in advance.
35. Eat smaller portions of food at a party.
36. Eat salads for lunch.
37. Share a party food plate with a partner.
38. Plan a dinner menu ahead of time.
39. Eat a light dinner such as salad or fish.
40. Avoid eating chips, dip and sweets at a party.
41. Eat less food during the day if you are attending a party at night.
42. Bring lunch from home instead of eating out.
43. Involve your entire family in meal planning.
44. Limit snacking to designated places in the home.
45. Add less salt than the recipe calls for.
46. Eat unsalted peanuts, chips, crackers, and pretzels.
47. Avoid adding salt at the table.
48. Eat unsalted, unbuttered popcorn.
49. Use less meat in casseroles than the recipe calls for.
50. Keep the salt shaker off the kitchen table.
51. Buy fewer high salt snack items (e.g. chips and pretzels).
52. Decrease salt intake by substituting other spices in cooking.

53. Eat low salt cereals.
54. Eat meatless (Vegetarian) entrees for dinner.
55. Substitute low- or non-fat milk for whole milk at breakfast.

Appendix G (Cont.)

56. Cut down on gravies or cream sauces.
57. Eat poultry and fish instead of red meats for dinner.
58. Avoid ordering red meat at a restaurant.
59. Eat at restaurants that offer a variety of low-fat dishes.
60. Eat cooked cereals.
61. Substitute foods like beans, peas, lentils, potatoes, corn, rice, bread for some of the meat in your diet.
62. Eat poultry without the skin.
63. Bake, broil, barbecue or steam food instead of frying.
64. Read labels for fat content.
65. Read labels for salt content.
66. Go to the grocery store on a full stomach.
67. Serve low-salt, low-fat foods to dinner or party guests in your home.
68. Post a weekly menu plan on your kitchen bulletin board.
69. Keep a food diary for one week if you begin to slip in your food program.
70. Say encouraging things to yourself if you begin to slip in your food program.
71. Keep problematic high-salt, high-fat foods out of sight, if purchased.
72. Ask your waiter not to add MSG to Chinese food.

Appendix H

Sorority Health Survey

Appendix H Sorority Health Survey

The purpose of this survey booklet is to find out information about your health habits. This research is being conducted for a project at Va Tech. All information that you record will be kept **strictly confidential**. Your peers, RAs, or professors will not look at your surveys. Only the researcher will see these surveys and the researcher will not know your name.

Demographics

- 1). Please list the last five digits of your social security number here: _____
- 2). Your age is: 16 _____ 17 _____ 18 _____ 19 _____ 20 _____ 21 _____ 22+ _____
- 3). You live : Off Campus _____ On Campus _____ Chi Omega house _____
Kappa Alpha Theta House _____ Zeta Tau Alpha House _____ Delta Gamma House _____
- 4) Please check your race or ethnic background
White _____ African American _____ Asian American _____
American Indian or Eskimo _____ Hispanic _____ Other _____
- 5) Please check your year in college
First year _____ Sophomore _____ Junior _____ Senior _____

Health

- 6) List your Weight _____
- 7) List your Height _____
- 8) List any Chronic Health Problems _____

- 9) Are you exercising regularly now?
Yes _____ If so, please list below No _____

Exercise # 1

Please list form of exercise _____

how long you do it each time _____

how many times a week: _____

Exercise # 2

Please list form of exercise _____

how long you do it each time _____

how many times a week: _____

- 10) Do you know what this symbol means : (D)
Yes _____ (Please check below) No _____

10.b. If so, why was it placed in your house ?

To prevent students from taking drugs _____ To encourage students to diet _____

_____ To prevent students from dieting _____

It Was Not Displayed in my house _____

10.a. If so, how did you find out about the meaning of this symbol?

Talked to a friend who was wearing the button _____ Other _____

Talked to a friend who knew _____

Figured it out for by myself _____

11) Have you made any changes in your health habits this past semester?

No _____ Yes _____ (If so, Please List)

Exercised More _____

Exercised Less _____

Dieted More _____

Dieted Less _____

Ate healthier foods _____

Ate more junk or fast foods _____

Appendix I
Sorority 24-Hour Dietary Recall

Appendix I Sorority 24-Hour Dietary Recall

Please list what you have eaten during the last 24-hours; that is what you have eaten since the time you get up until the time you go to bed. Try to be as accurate as possible, include all beverages (even alcohol or diet sodas), and please list portions. Use the examples to help you list amounts or portions. **Remember, nobody will read this diet recall other than the researchers.**

Example Menu:

1. 8:30 am	Wheaties	1 & 1/2 cup	Cafeteria
	Low Fat Milk 1%	1/2 cup with cereal	" "
		8 oz. or 1 cup glass	" "
2. 10:00 am	Orange Juice	4 oz. or 1/2 cup glass	" "
	Small Apple	1	Dorm Room
	Coffee	1 cup	" "
	sugar	1 Tablespoon	" "
3. 1:00 pm	Chicken Sandwich		Cafeteria
	whole wheat bread	2 pieces	" "
	fried chicken patty	4 oz.	" "
	tomato	2 slices	
	lettuce	3 pieces	
	Mayonnaise	1 Tablespoon	
	Potato chips-Ruffles barbecue	20 chips	" "
	unsweetened tea	10 oz	
4. 6:00 pm	Broiled Halibut	5 oz.	" "
	Green Beans	1 cup	
	margarine	1 pat or 1 teaspoon	
	Cooked carrots	2 cups	" "
	Dinner roll- wheat	1 medium	" "
	Chocolate frozen yogurt	1 cup soft-serve	" "
	Sugar cone	1	
	Diet coke	12 oz.	
	Snickers candy bar	1 bar	Dorm Room
5. 9:00 pm	Dominos mushroom pizza	2 slices of 16" Large	Friend's Dorm
	Miller lite beer	2 12 ounce bottles	Room

Eating Occasions(Time) Food or Beverage Amount or Portion Place of Consumption

1.

2.

3.

4.

5.

6.

7.

8.

Please write on the back if necessary

Appendix J

Eating Problems Screening Interview for Potential Peer Leaders

Appendix J Eating Problems Screening Interview

Directions and Intro

Hello, this is _____ from the Women's Health survey. I understand that you have been nominated to potentially become a peer leader in this project. Denise should have given you your informed consent form by now. Right? I am calling to give you the confidential screening interview. We are doing these interviews to make sure that the peer leader role would be appropriate for you at this time. This interview is ethically required for this research. Are you ready now, or would you like to set up a phone call appointment for this within the next few days.

First Name:

Last 5 Digits of SS#:

1. Have you ever had problems with your eating behavior?

If yes, was this a problem in the past or present?

Have you ever been diagnosed with an eating disorder, or been in treatment for an eating problem?

If yes, do you feel that you have recovered from this problem?

Have you learned about eating disorders from this experience?

2. What has been your highest and lowest adult weights? When?

3. Have you ever been "overweight"? When?

If yes, has your weight fluctuated greater than 10 pounds?

What caused these weight fluctuations?

4. Do you avoid certain foods?

If yes, please describe and list.

5. Do you currently go for periods of time without eating (fasting) to control your weight?

If yes, please describe.

When did you first begin to restrict your eating or lose weight?

6. Do you feel that your weight is normal?

7. What emotional reaction would you have if you lost 5 pounds?

8. What emotional reaction would you have if you gained 5 pounds?

9. Do you wish to be thinner than you are now?

If yes, what is your goal weight?

Do you worry about your body weight or size?

10. Do you ever go on diets ?

If yes, how frequently?

If yes, do you feel that this is normal for women your age?

Appendix J (Cont.)

Do you think that you could give up dieting and feel good about this during this study?

11. Do you ever binge eat (rapid consumption of large amounts of food in a discrete period of time)?

If yes, do you feel that you have control over these binges?

What emotions surround these binge episodes?

12. Have you ever purged by vomiting or using laxatives after you have eaten too much?

If yes, have you had treatment for this purging?

Are you still purging?

13. Do you ever go on exercise "binges" in which you feel that you have to exercise a lot to burn up excess calories that you've eaten?

If yes, please describe these exercise episodes?

14. In general, how healthy do you believe your attitudes about eating and exercise are?

No Referral Necessary:

Okay, I want to thank you for participating in this interview. Remember that this information will remain strictly confidential. I will let Denise and the other investigators know that you are set to be a great peer leader in the Women's Health Study if you still wish to be one. Denise will be contacting you very soon about scheduling the first training meeting. Do you have any questions? Thanks, Bye

For Immediate Referral:

Have you ever considered seeking some help for these eating problems? I would like to leave you with the number for the counseling center. I know several wonderful counselors at the Va Tech center who have helped other women like you cope with these types of problems.

231-6557 Dr. Pam Tessnear, Dr. Jane Keppel-Benson & Dr. Marshall Tessnear

I promise to keep this interview strictly confidential. You have the names and numbers if you wish to seek some help, especially if your eating problems begins to get out of control. Due to the strain of the peer leader role, it is probably best that you not participate and go through peer leader training at this time. Do you have any questions?

Best wishes to you and thank you for participating in the interview. Thanks, Bye.

Appendix K
Peer Leader Training

Appendix K Peer Leader Training

1. Introduction of Trainers
2. Explain goal of Women's Health Project
 - A. Prevention of Eating Disorders by
 1. discouraging dieting for weight loss
 2. convey norm that dieting is unhealthy
 3. dieting discouraged by this sorority
 4. stop skipping meals
 5. don't restrict calories
 - do eat when hungry
 - B. Health Promotion
 1. Eating healthy by
 - a. not skipping meals
 - b. eating less fat in diet
 - eat less red meat, less fried foods
 - eat more breads, fruits, vegetables
 2. Healthy Exercise
 - a. encourage aerobic exercise 30 min 3 times week
 - C. Refer students with eating problems to treatment
3. Welcome peer leaders
 - A. You have been specially selected because you are popular,
 1. you're respected by your peers, and you model healthy behaviors
 - B. We have brought you here because we have found that health education doesn't work well when we give people pure information (i.e., brochures)
 - C. Health education does work and change peoples' behavior when peers advocate healthy behavior.
 1. This type of program is very successful.
 2. So you, as peer leaders, have the ability to really impact on the women in your hall.
 3. You can help to prevent eating disorders
 4. You can help to get women with eating problems into tx
 5. You can help change the behaviors of others to make them healthier.
 6. We are here to train and help you do this.
4. Eating Disorder Prevention & Better Health
 - A. Is possible
 - B. Requires behavior change for most women
5. Peer Leader Introductions

Appendix K (Cont.)

6. Explain Rationale for Project

- A. Prevention is novel idea for these disorders
 - 1. Most research on treatment
- B. In psychology or medicine
 - 2. Never been prevention study done or evaluated
- C. Our goal, develop, implement, & test prevention program
EDOs
 - 3. Research component
 - Pretest inventories vs. posttests
 - Did each of you participate in Surveys,
If not, ask complete now-give incentive
 - Will do again mid April
 - To be a peer leader, your will have to fill those out
again & strongly encourage females on your hall to
complete them too

7. Responsibilities & Reimbursement

- A. \$ 15 for training sessions at end semester
 - 1. will complete reimbursement forms next session
 - 2. Completed women's health survey
- B. Requirements to be a peer leader
 - 1. Attend two 3-hour training meeting
 - 2. Attend 4-15 minute follow-up meetings
 - If there is a time when you each meet anyways, I
will try attend this time
 - Otherwise-will need schedule 15 minute meetings
 - 3. Participate in self-assessment & behavior change program
 - 4. Run intervention program for 1 month, by conversing
with sorority sisters, doing quick assessments, helping
them change
 - 5. Complete contact monitoring sheets
- C. Grant support by WRI
- D. Can put on your resume- peer leader in eating disorders
prevention program
- E. Will ask Dean Bev Sgro to recognize your sorority as being active
in this program for prevention of eating disorders and
promoting wellness if you would like
 - 1. some sororities don't want to be recognized

8. Confidentiality

- A. Code names are last 5 -digits of SS#
- B. Disclosures from peers in training group, held confidential
and kept within groups
- C. Evaluation: pre vs. post tests
 - 1. Are to evaluated program, not evaluate peers

Appendix K (Cont.)

D. Sorority names will not be announced in data

Pretest-Assessment

9. Skills training test

- A. Will do 2 times to determine effectiveness of training program
- B. We are going to ask you individually and privately to respond to 3 hypothetical situations into an audio recorder
- C. Invite 1 by 1 into recorder room

RA's

1. Ask peer leader to enter the last five digits of her social security # onto tape recording then stop it herself
 2. You come back into room and give her directions for responding
- D. Please respond verbally in the best way you know how to the following student's comments. You may take a moment to think about your response before you begin speaking if you would like.
1. Speak into the tape recorder
 2. *Scenario 1*
 - "I really need to lose weight before this summer. I think I should begin my diet again."
 - If she doesn't respond, whisper please respond
 3. *Scenario 2:* You are to talk with a student who is worried about her recent weight gain. You want to assess what type of unhealthy and healthy behaviors she is currently doing. You will want to encourage her to commit to some behavior change and help her come to a plan for doing this.
 - "I have gained quite a bit of weight this semester, I just don't know what to do."
 - If she asks you questions, respond that you are dieting, skipping breakfast, not exercising, and don't know how much fat is in your diet. You would prefer to increase your exercise, but not stop skipping breakfast.
 4. *Scenario 3:* You are to talk to a student who you think has an eating disorder and try to get her to the Va Tech counseling center. You have not talked to her about this before. You are not sure whether or not she has an eating disorder. She doesn't know that you suspect that she may have a problem.

You ask her, Hey how have you been doing. She responds.
"I've been hanging in there."

 - If she doesn't respond, whisper please respond

10. Privately take fat facts quiz

Appendix K (Cont.)

- A. Give 1/2 sheets paper for quiz
- B. Put last five digits of SS# on it

Eating Disorders & Health Education

1. Today I will give you information about eating disorders & health behavior

- A. What behaviors we will be targeting in your sorority members
 - 1. why these specific behaviors
- B. Next Session
 - 1. We will focus on how to do unhealthy & healthy assessments
 - 2. how to get commitment to change at least one behavior
 - 3. how develop behavior change program & follow-up
- C. Please feel free to ask questions as we go along

2. EDO Statistics

- A. Types Eating Disorders
 - 1. Anorexia, bulimia, binge eating, exercise disorder
 - 2. EDOs NOS- Binge eating
 - Extreme dieting
 - Exercise or activity disorders
- B. Incidence in College Women
 - 1. 5-15% get bulimia each year
 - 2. 1-7% get anorexia
 - 3. 9 Women: 1 Man
 - Women's Issue

3. Health Consequences of Eating Disorders

- A. Depression
- B. Fatigue
- C. Electrolyte imbalance salts & minerals in blood nerve conduction
- E. Heart murmurs
- F. Constipation
- G. Kidney disturbances
- H. Neurological abnormalities
 - 1. altered brain structure on CATs
- I. Swollen salivary glands
- J. Dehydration
- K. Dental erosion if purging
- L. gastrointestinal problems
- M. lowered metabolism
 - 1. makes easier gain weight
- N. thyroid dysfunction: Cessation irregular periods
- O. Inability maintain normal body temperature

4. Mortality and EDOs

- A. Untreated Anorexics- 25% die (over ten years)
- B. Treated Anorexics- 7% die within 10 years after tx
- C. Don't know mortality for bulimia
- D. Tx can cost \$30K

Appendix K (Cont.)

5. What women are at risk for developing EDOs
 - A. Mid-Upper class
 - B. Attractive women
 - C. Well-educated
 - D. Usually White
 - E. Mean age onset is 18 years
 1. Seen b/t 13-50
 - F. See a trend here?
 - E. Families value slenderness as necessary for attractiveness
 - F. More feminine women who believe appearance is important self-worth
 - G. Tendency to be overweight
 1. fighting biology and genetics to reach cultural ideal
 - H. Repetitive dieting

6. Different kinds weight control behaviors
 - A. Some healthier than others (put in handout)
 - B. Unhealthy weight control behavior
 1. Using laxatives, diet pills, diuretics, emetics, purging
 - a. not many people use
 - b. usually person with eating disorder
 2. dieting, skipping meals, fasting, not eating when hungry
 - C. Healthy Weight Control
 1. Regular exercise- 3 times week, 30 minutes aerobic
 2. no dieting
 - a. don't skip meals
 - b. snack on healthy foods when hungry
 - c. try think food as positive fuel for your body
 3. lower dietary fat
 - a. eat less red meat
 - b. eat less fried foods
 - c. eat more breads, fruits, vegetables

7. Focus on dieting
 - A. Many uncontrollable risk factors for EDOs
 1. Can't change family history or personality
 - B. Can change whether one diets or not
 - C. EDO prevention is possible by reducing or eliminating dieting
 - D. Dieting, in itself, places psych and physical health in jeopardy

8. Model: Dieting is public health problem (Overhead)
 - A. Goal is help you understand who is dieting and why
 - B. Why people continue to diet
 - C. What are the short vs. long term consequences of dieting
 - D. How dieting can be linked to binge eating, weight cycling, obesity, and EDOs

Appendix K (Cont.)

9. Prevalence of Dieting

- A. Everyone seems to be dieting
 - 1. As American as baseball & apple pie
- B. 75% women & 47% men have dieted
- C. First diet in females age 16
- D. 61% college females report dieting
 - 1. Dieting is a women's issue
- G. Women more dissatisfied than men with weight and body shape
 - 1. experience more food related conflict
 - 2. consume less calories than men
 - 3. 1/2 women don't eat when they want
 - 4. ~20% women always skipping meals
 - 5. Women report their weight affects self-esteem more men

10. Why Are Women focusing on weight & dieting?

- A. Appearance central component of female role
 - 1. Women who buy into femininity more likely diet
- B. Men valued for what they do, women for how they look
- C. Modern superwomen
 - 1. Must "do" careers, family, money
 - 2. But still must "look" good!

11. Cultural Influences

- A. "You can never be too rich or too thin"
- B. Prejudice called "weightism"
 - 1. thin people morally superior, more in control, than larger people
 - 2. overweight stigmatized & discriminated against

12. Dieting is Big Business

- A. 1990 Americans spent \$33 Billion on diet & weight loss services
 - 1. By 2000, Expected \$77 Billion
- B. This industry is invested in our desire to be thin
- C. Thinness is good is repeatedly modeled for us in media
- D. Thinness is what's attractive
- E. Thinness linked to success and happiness
 - 1. For example
 - Kathy Lee Gifford-used slimfast products to help her lose the weight related to pregnancy she's a successful talk show cohost sings radiantly, takes exciting Caribbean cruises married ex-football star and current sports announcer, Frank Gifford

Appendix K (Cont.)

F. Diets promise us great benefits !

13. There are 2 Very Important, but Hidden misconceptions concerning diet for thinness relationship in contemporary media
 - A. Human body is infinitely malleable, anyone can obtain ideal
 1. Can change our bodies some, but we can't vary size much or shape at all
 - B. Vast awards await those who obtain the ideal
 1. If you diet & get thin, will be happy, get that man you've always wanted, get money
14. If Diets Don't Work Well, Why do people Continue to Diet?
 - A. Many believe dieting is their only hope
 1. Supposed to work quicker than exercise
 - B. How many of you have had Intro Psych?
 1. Heard of term reinforcement?
 2. Power of immediate reinforcement
 - Similar notion as drugs and addiction
 - Short term effects are so great, overrides nasty long term effects
 - C. Dieting can be immediately rewarding
 1. Do tend to lose weight immediately
 2. Calorie restriction- depletes muscle glycogen
 - protein metabolism
 - lose muscle tissue & H₂O
 - E. Self-rewarding if set goals and meet them
 - F. Reinforcement strengthens
 1. frequency and intensity dieting behavior
 - G. Society continues tell us it will work, but one must diet well enough
 - H. Remember, people diet b/c they really want to lose weight
 1. When we do something that helps us meet a desired goal, tend to repeat over and over, even if stops working later
 2. So diets work, but only in the short term
15. Dieting Doesn't Work in Long Run
 - A. Recently a weight loss association was sued for false advertising
 - B. Can still say, we'll help you lose weight
 - C. Can't say in help help you "keep it off"
 - D. I argue that dieting damages your health
 - E. Why doesn't it work?

Appendix K (Cont.)

16. Set Point Theory

- A. Our biology functions on homeostasis
 - 1. Steady states of body actively maintained by corrective physiological mechanisms
- B. Example: Body temperature
 - 1. Reg 98.6 F
 - 2. Little low- shiver
 - 3. Very low- hypothermia-die
 - 4. Little high- sweat
 - 5. Very high- fever, fry brain-die
- C. Body weight is regulated too
 - 1. Not as socially accepted- even though same biological fact
 - 2. Body weight tends to be regulated around a point or range
 - 3. Body fat is regulated
 - Between 15-25% is necessary for physical functioning in body
 - Fat keeps us warm
 - Fat helps us make hormones
 - Fat reduces friction important places b/t heart and linings
 - Fat serves energy storage
 - For women, makes us smooth
- D. Chronic dieting mediated by set point mechanism
 - 1. Creates symptoms which all function restore weight
 - 2. Set Point is defended

17. Long Term Effects: • Cognitive/Affective (Psychological)

- A. Dieting creates stress
- B. Dieting causes depression, irritability, moodiness, decreases concentration and intellectual performance
- C. Women who ate 1200 cal/day for 2 months-preoccupied food & eating, felt out control when did eat
- E. Dietary restraint
 - 1. In Psych, we use constructs to describe phenomena
 - Cognitive restraint how we describe this way of thinking about food & eating
 - 2. Cognitively regulated eating style to override physiological hunger
 - Eat when diet prescribes not when want
 - 3. Tend dichotomize foods into good vs. bad
 - 4. Highly restrained ind. will binge eat after sampling forbidden foods

Appendix K (Cont.)

18. Long Term Effects: Behavioral

- A. Restraint causes binge eating
 - 1. "I've blown my diet, so what the hell" effect
- B. Fainting, decrease tolerance cold
- C. Social withdrawal

19. Long Term Effects: Physiological

- A. Decrease metabolic rate
 - 1. Body begins savoring its calories
 - 2. Predicts weight gain
 - 3. Exercise slows, but not completely
- B. Gastrointestinal changes
 - 1. Makes easier to digest nutrients
 - 2. Also nausea, bloating, vomiting
- C. Circulatory
 - 1. Decrease HR, BP, fainting
- D. Hormonal
 - 1. Changes in brain chemistry indicative depression
 - 2. Decrease thyroid & growth hormones-metabolism
 - 3. Increase blood triglycerides
 - 4. Increase insulin production following foods
 - must eat a lot or experience symptoms hypoglycemia
 - hunger, confusion, sweating

20. Note Long Term Effects

- A. How function to return body back healthier weight
 - 1. Binge eating, lower BMR, Slowed cardiovascular

21. Potential Outcomes Chronic Dieting

- A. Eating Disorders
 - 1. Dieting classic symptom anorexia
 - 2. Dieting causes binge eating
 - Purging for fear gaining weight
 - 3. Get trapped
 - Incredible fear gaining weight
 - Diet, want to stop eat normally, but when do
 - Now much easier regain weight, so continue more intense dieting
 - 4. Multiple factors interact influence development EDOs
 - Dieting is critical behavior
 - Dieting is controllable behavior
 - 5. We discussed health consequences dieting earlier
- A. Binge Eating

Appendix K (Cont.)

1. Uncontrollable consumption large amounts food in short time
2. 24-90% college females binge eat
3. More women than men
 - more women diet than men
4. Overeating may place health at risk
5. Some people binge eat in response stress
 - This does cause weight gain
6. Binge eating is unnatural & unhealthy, but natural response to dieting

B. Obesity

1. Condition or description
 - not a psych disorder, not a disease
2. 20% above normal weight
3. More women than men
 - Obesity less dangerous health for women
4. Determinants of weight
 - Primarily genetic
 - If I ask you why you are your height
 - Then asked you why you are your weight
 - Exercise & diet may modify slightly
 - Obese eat same as skinny
 - But under biological or genetic control
5. Many obese have dieted repeatedly over lifetime
6. Recent research suggests what obese individuals **do**
 - (dieting, not exercising) may be more related to
 - traditional health risks (High BP, CHD) than the
 - actual amount fat stored
7. Weight gain is more related to health risks than being overweight

D. Weight-Cycling

2 Hours

1. Rat Studies
 - As cycles continue, becomes harder to lose weight, regain happens faster is easier
 - Often overshoot original weight in end
 - Diets cause loss muscle & water
 - rats lost heart muscle tissue during weight loss
 - rats regained fat in rear, never restored heart
2. Human Research
 - For women, weight cycling increases risk of death from heart disease by ~1.5 after excluding traditional risk factors (high bp, smoking)

22. Cartoon

1. Summarize my thoughts on dieting

Appendix K (Cont.)

23. Given this information

- A. Have your ideas about dieting changed at all?
- B. What are some of the myths or misconceptions that you've heard about dieting or weight loss methods?

24. Talked About What is Unhealthy: Now Discuss What is Healthy Behavior

What is Healthy methods weight control (Give handouts: Appendix L)

A. Healthy Nutrition

1. Aim for daily food intake to be

- At least 50% carbohydrates
High fiber fruits, veges, whole grains
- About 20% protein
Lean meats, low-fat dairy products, chicken, fish, alternatives (beans, peas)
- Less than 30% fat
Aim for less saturated fats Don't eat fats in desserts, fried foods, whole dairy products, eggs, meats
By decrease dietary fat
Usually also decrease serum cholesterol
Still need about 10% dietary fat for proper body functioning

2. Vitamin/Mineral supplements

Not needed if consume well balanced diet

B. Pyramid Scheme

1. Guidelines

- Eat a variety of foods
- Choose diet low in fat, saturated fat, and cholesterol
- Choose diet /plenty of veges, fruits, grains
- Use sugars only in moderation
- Use salt and sodium in moderation
- If you drink alcoholic beverages, do moderation

2. Levels

- 6-11 Servings Breads, cereals, rice, pasta
- 2-4 Servings fruit
- 3-5 Servings vegetables
- 2-3 servings meat, poultry, fish, beans, eggs, nuts
- -3 servings milk, yogurt, cheese
- Use Sparingly-fats, oils, sweets

C. Healthy Exercise

Appendix K (Cont.)

1. Aerobic exercise 20-30 minutes 3 time week for cardiovascular fitness
 2. Some muscle toning-weight 20 minutes 2-3 times week
 3. Stretching
 4. Effects
 - Improved muscle tone & cardiovascular conditioning
 - Decreases risk heart disease & certain cancers
 - Reduces stress
 - Prevents depression
25. Think of 2 friends whom you feel close to (Hand out contact sheets)
- A. Within the next week before our next meeting
 - Talk with them about dieting
 - Try asking them if they have ever dieted, how it worked, in short term or long term
 - Try advocating how dieting can be dangerous
 - See how well this is received
 - Note how the conversation goes from start to finish
26. Next Session
- A. Find out what makes effective communications
 - Practice conversations thru role plays
 - B. Find out how recognize women w/ potential eating problems
 - Talk about treatment referrals
 - Practice thru role plays
 - C. Determine how assess individuals on health behavior
 - Determine where person wants to make change
 - Help person devise strategy for behavior change
 - Follow up and give person feedback about her change
 - E. Talk about advertisements for Don't Diet campaign
 - Instructions for how give intervention 1 month
 - how keep track of conversations **3 hours**
27. Schedule for next week

Peer Leader Training Session 2

Social Skills Training

1. How conversations can create health change
 - A. Behavior often results from social norms
 1. Social norm- thinness is beautiful
 - Dieting leads to weight loss
 - B. As a popular and well respected leader in your house, what

Appendix K (Cont.)

1. you say carries a lot of weight- Your beliefs are powerful
 2. Your conversations can impact on social norms related to dieting and weight control
2. Report and Discuss practice conversations
- A. Any problems? (collect contact sheets)
 1. Anything helped
 - B. We will show you how to effectively communicate healthier
 1. beliefs and behaviors
 2. These are techniques and skills
 - Can be integrated into your communication style
 - C. Effective Communication
 1. What you say is important
 2. How you say it
 3. When and where you say it
3. Levels of Peer Leader Communication
- A. Assessment
 1. Want find out how person stands on
 - a. dieting behavior
 - b. exercise behavior
 - c. fat intake
 2. Role Play
 - Student: I have been worrying about my weight gain recently.
 - Peer leader: Lots of women worry about gaining weight in college. I been participating in a program where I've been learning about healthy ways to control weight. For instance, do you exercise regularly?
 - Student: Sometimes I go jogging.
 - Peer: Is that something you do a couple of times a week?
 - Student: No not really
 - Peer: How about dieting? Have you been cutting back on calories to help you control your weight?
 - Student: Yes, I went on a diet before Spring break, but it didn't help much.
 - Peer: Also, do you make healthy food choices in the dining hall, like choosing broiled foods over fried food and eat chicken or vegetables instead of red meats?
 - Student: Yes, I don't eat meat and I try to eat lots of fruits & vegetables
 - Peer: That's great! It sounds like your diet is really healthy. If you are worried about gaining weight, it seems to me that regular exercise and not dieting would be the keys for you.

Appendix K (Cont.)

Are you interested in making some changes in your exercise and dieting habits? If so, I know some techniques that can help you achieve these changes.

3. Through this conversation this peer has determined where this student stands on important weight control behaviors. She has reinforced positive food choices, but implied that changes could be made in her dieting and exercise habits. She then asks to see if the student would like to make changes. A person must commit to a decision before she can begin to plan changes.

B. Commitment

1. Peer wants determine if student has thought about making certain changes

2. Does the person want to make changes now?

3. Does the student want to hear about strategies now or should they set up another time to talk about this?

4. Role Play

- Peer: It sounds like your food choices are excellent. The only thing I can see is that you don't seem to exercise regularly and sometimes you diet. The great thing is that you have exercised before. Jogging can be a great aerobic activity, plus there's lots of other things you can do other than jogging. Have you thought about jogging with someone?

- Student: A couple of times I ran with someone. It does make the time go by quickly.

- Peer: I know that Susan down the hall goes running several days a week. Maybe you could go with her.

- Student: Wow Susan runs really far though, like 5 or 6 miles each time. I could never do that.

- Peer: Yeah, me neither at first. It's not the mileage that's important, it's trying to get going that can be the hardest. I'll bet Susan would have some great tips for you though. You know another thing that's often very helpful is to set a reasonable goal for yourself, like trying to jog for 10 minutes 3 times this week and then 12-15 minutes each time next week. Would you be interested in making this type of goal.

- Student: Sure I could do that.

C. Strategies

1. Find out what worked in past & didn't work

a. build on these

2. Set reasonable but challenging goals for next weeks

a. write down your goal, plan when to do behavior

3. Monitor your progress by keeping a log and writing out

Appendix K (Cont.)

4. Reinforce yourself for making goal
 - a. take warm bath
 - b. get a massage or manicure
 - c. watch a enjoyable TV show
 - d. call a friend
5. Set a new goal that improves on the last one
6. Problem solve barriers
 - a. If raining when you wanted to run
 - b. go to field house
 - c. go to gym & work out instead
 - d. wait until tomorrow to run, but decide to if raining
7. Take students with you to work out, show how use weights
8. Accompany her to dining hall, analyze food choices, point out healthy ones from high fat foods

D. Follow-up

1. On your contact sheets, keep track of who you've talked with and the assessment, commitment, and goal setting for each person.
2. Either as you bump into people or plan to check in on them
 - a. ask how the exercise is going or changing food choices
3. praise positive change
4. help problem solve if necessary
5. Role Play
 - Peer: Hey Donna, how are you? How's the food plan coming along?
 - Student: Hey, Kelly. You know I've been reading label or looking in the dining hall at the fat content of foods. I've been amazed at how many foods have over 30% of their calories from fat. I've been trying really hard to not eat as many french fries and chips. They're the killers.
 - Peer: That's great, it sounds like you are doing wonderful. Let me know if you need any more information or help.

Or

- Student: Hey Kelly. I am having a tough time figuring out what's healthy. I guess I haven't done very good.
- Peer: When I talked with you a couple of days ago, it sounded like making these changes were pretty important for you. Maybe you need some help, would you like for me to give you some tips? Go back to strategy information. Get creative.

D. Remember Sequence of Conversations

2 hours

1. Assessment

Appendix K (Cont.)

2. Commitment
 3. Strategies
 4. Follow-up (May want recycle plan)
4. Other Communication tips
- A. What you say
 1. give facts- be clear & specific
 - a. No dieting means
 - b. don't skip meals
 - c. don't try reduce calories
 - d. don't not eat when hungry
 2. stress seriousness of your message
 3. emphasize norm of hall is that dieting is unhealthy
 - B. How you say it
 1. Don't be "preachy"
 2. May want stress changes you've made
 3. Use "I" messages, not "yous"
 4. Don't scold or belittle
 - C. Where and when you say it
 1. Always address serious concerns in private
 2. Easier to interject in ongoing conversation
 - May be times when you should initiate topic
- A. Process role play (Research Assistants)
- Student: I think I'll try this new diet in this magazine, I need to lose some weight before graduation.
 - Peer: "You know, I've been participating in this program and I have found out a lot about dieting that I didn't know before. I always thought that dieting was harmless and that it usually worked well for weight loss. I've dieted before and I lost weight. But, of course, I gained it back. Anyways, in this program, I have learned that dieting can actually be dangerous. It lowers basal metabolic rate. It can cause depression. It can even take years off of your life, like smoking does. I've been trying to exercise more to help and keep my weight stable instead of dieting."
 - Student: Wow, I never really thought about how dieting doesn't work in the long run. I mean I always gain back the weight too. I especially didn't know it was dangerous. I think I'll try exercising more too.
 - Peer: Exercising more sounds like a great plan. I've often found that it helps to set some weekly goals when trying to make these types of lifestyle changes. Do you have a certain goal in mind, say for next week? Not dieting next week sounds like a great goal, but what will you eat, and what about setting a realistic goal for exercise?

Appendix K (Cont.)

- Student: Hmm. Well I think I could eat more salads, fruits and vegetables. What else would be good to eat?
- Peer: Breads withouts butter or spreads like bagels and rolls are low in fat and very healthy also.

4. Secondary prevention

- A. How recognize and refer women with eating problems
- B. Many factors work against successful intervention in early stages of EDO
 1. Overlap b/t symptom & cultural values
 - Being in control
 2. Immediate benefits of symptoms to individual
 - Social approval from others
 - Self-reinforcement
 3. Anxiety and shame about being caught & being bad
 4. Secrecy, denial, & self-absorption which accompany most EDOs
 - Women tend wait 5.5 years after onset b/f seek help

5. Purpose of detection

- A. Identification of problem, including emergencies
- B. Communication of care and concern
- C. Make sensitive & effective tx referral
- D. Detection is part Assessment in conversation
 1. want to assess if want help
 2. if so, want commit to getting help
 3. want set goal- therapy appointment at counseling center
 4. want to follow-up on your concerns

6. How to recognize signs & symptoms of EDOs

- D. Go over handout (Appendix P)
 1. Who reads general signs: Physical & Medical:
 2. " " : Food & Weight control:
 3. " " : Personality:
 4. " " : Anorexia & related:
 5. " " : Anorexia, Physical
 6. " " : Bulimia
 7. " " : Emergencies:

7. Guidelines for reaching out to person whom you suspect has EDO

- A. Select time when can talk privately, not be interrupted
- B. Unless emergency, Don't be confrontive
 1. "I know you have bulimia"
- C. In direct, but non-punitive way, describe to person the specific

Appendix K (Cont.)

1. observations which have caused you concern
 2. " I've noticed you haven't eaten much recently. I've also noticed that after you eat you go to the bathroom and return with bloodshot eyes and you look pale. I am concerned about you." Always allow her time to respond.
- D. If she discloses information about her problem, listen carefully, empathically, and in a nonjudgemental way.
1. Don't make face when talks about vomiting
 2. Do say.."so you feel upset about this?"
 3. Don't say, "Oh that's crazy, you are not fat."
- E. Keep your focus on the eating problem.
1. Don't try diagnose EDO
 2. Psychologists at Health Center can assess and help her decide if she has eating problem & make diagnosis.
 3. Make a therapy referral
 4. " I am concerned about you. It seems that you are having significant problems with your eating (weight, body image). I think you should talk with one of the counselors at the health center about this. I have the names and phone numbers of some people who have helped women like you before. It's free and I think a visit would be worth your while. I'd even go with you if you'd like.
- F. Demonstrate role play for someone suspected having eating disorder (Research Assistants)
1. Peer leader goes to talk to students who she believes has an eating disorder
 - Peer: "Hey Carol, can I talk with you for a few minutes, Want to come into my room.
 - Student: Sure
 - Peer: Carol, I've been kind of concerned about you lately. I've noticed that you haven't been eating much when we've been at lunch or dinner, and it looks like you have lost a good bit of weight. One of the residents told me that she saw you throwing up one afternoon. I'm worried about you.
 - Student: Looks surprise & tense. "Yea, but the weight I've lost, I really needed to lose, I was looking pretty fat."
 - Peer: I understand why you may want to lose weight. But, I am just concerned about how much you've lost and if you are vomiting, you may be putting your life at stake. I am concerned that you may have an eating problem.
 - Student: I am having a tough time.
 - Peer: I know some people at the Counseling Center who have helped women figure out what's going on. I think it would be very smart if you set up an appointment with one of them to talk about this. It is free for students. I'll give you the number and I would even be glad to go with you for the meeting.
 - Student: I appreciate your concern. You won't tell any of the other girls, will you?

Appendix K (Cont.)

•Peer: Of course not. I am just worried about you.

8. Break into groups of 2-3 peers per trainer

A. Ask write response to:

1. You are sitting in the cafeteria and the conversation turns to weight loss. No one has mentioned dieting, but your companions seem preoccupied with their weights and appearance. You say..... (write response)

2. Try express healthy attitude

3. Try to ask questions to assess unhealthy & healthy behavior

B. When everyone's through, discuss responses.

1. Good vs. not so good points

C. Try role play with trainer and peer

D. Ask write response to:

1. You notice a resident on your hall has thrown up in bathroom. It is late Saturday night, so you guess that she may be sick from alcohol. What do you do or say?.....(Write response)

E. When everyone's through, discuss responses

1. Good vs. not so good points

F. Try role play

9. Return to big group

A. Process-did you learn what is more effective

B. Treatment Referrals

1. Va Tech Counseling Center- free of charge
group or individual
231-6557

Dr. Pam Tessnear

Dr. Marshall Tessnear

Dr. Jane Keppel-Benson

2. Va Tech Department of Psychology
Psychological Services Center 231-6914
Sliding scale fee-Take insurance
Denise Martz, M.S.
Lisa Varner, Ph.D. Donna Yaffee, M.S.

10. Goal setting for conversations

A. Want to try assess and converse with all house members

1. May also want do same for sisters not living in house

B. Show contact sheets-check frequency, place, planned vs. unplanned conversation, tx referral

1. assessment, commitment, strategy for change, follow-up

C. Turn in contact sheets weekly on ??Staff meeting day?

Appendix K (Cont.)

1. For one month or 3 weeks
 2. I will collect and give you feedback
11. Explain No D symbol, posters
- A. Explain purpose buttons
 1. How respond to buttons, wear daily on shirt
 2. To class on shirt or book bag
12. Retake fat fact quiz
- A. Place last 5-digits SS# on it
 - B. Collect
13. Reimbursement
- A. Ask to complete receipt sheets
 - B. Will deliver checks after evaluate contact sheets
 - C. Intervene for one month- Can stop Date _____
14. Audiotape Skills Retest
- A. Research Assistants do one by one
 - B. We are going to ask you individually and privately to respond to 3 hypothetical situations into an audio recorder
 1. Ask peer leader to enter the last five digits of her social security # onto tape recording then stop it herself
 2. You come back into room and give her directions for responding
 - D. Please respond verbally in the best way you know how to the following student's comments. You may take a moment to think about your response before you begin speaking if you would like.
 1. Speak into the tape recorder
 2. *Scenario 1*
 - "I really need to lose weight before this summer. I think I should begin my diet again."
 - If she doesn't respond, wisper please respond
 3. *Scenario 2:* You are to talk with a student who is worried about her recent weight gain. You want to assess what type of unhealthy and healthy behaviors she is currently doing. You will want to encourage her to commit to some behavior change and help her come to a plan for doing this.
 - " I have gained quite a bit of weight this semester, I just don't know what to do."
 - If she asks you questions, respond that you are dieting, skipping breakfast, not exercising, and don't know how much fat is in your diet. You would prefer

Appendix K (Cont.)

to increase you exercise, but not stop skipping breakfast.

4. *Scenario 3*: You are to talk to a student who you think has an eating disorder and try to get her to the Va Tech counseling center. You have not talked to her about this before. You are not sure whether or not she has an eating disorder She doesn't know that you suspect that she may have a problem.

You ask her, Hey how have you been doing. She responds.

"I've been hanging in there."

- If she doesn't respond, wisper please respond

10. Privately take fat facts quiz

Thank you for participating, Good Luck! Call me if have questions or problems. I will see you briefly on _____

Appendix L

"Fat Facts" Quiz
Adapted from Levine & Hill (1991)

Appendix L
"Fat Facts" Quiz
Adapted from Levine & Hill (1991)

Please answer true or false for the following statements. These were read verbally and peer leaders listed their answers privately on a sheet of paper.

1. How much you eat and how much you exercise are the major factors that determine how much you weigh. (F)
2. Women need to pay more attention than do men to their weight, because obesity is a greater health risk for women. (F)
3. Obesity causes heart disease and cancer. (F)
4. Studies show that people who are fat due to heredity eat the same amount or less than non-obese people. (T)
5. Overweight or obese people tend to be more emotionally disturbed ("neurotic") than non-obese people tend to be. (F)
6. A healthy diet should contain up to 30% fat. (T)
7. Gaining weight and fat is a natural part of development during puberty for females. (T)
8. Once you have developed a fat cell, it cannot be eliminated, except by liposuction. (T)
9. Other than keeping us warm, fat serves no useful purpose in the human body. (F)
10. Some people become overweight because, in response to stress, they eat too much fattening food. (T)
11. Dieting is a healthy way to lose weight. (F)
12. Eating disorders are psychological and physical disorders. (T)
13. The long-term effects of dieting are not very serious. (F)
14. Being overweight is unhealthy. (F)
15. Weight-cycling is less dangerous than being overweight. (F)

Appendix M

Peer Leader Dietary Recall Feedback

Appendix M
Peer Leader Dietary Recall Feedback

54080

Basal Energy Needs: 1977 calories

Extra Calorie Needs from Exercise: 109 cals per day

Daily Calorie Needs: 2086

Sample Calorie Intake: 1563

Energy Balance: -523 a little low

Percentage Energy From Nutrients: great

Protein: 13%

Carbs: 66%

Fat: 22%

Vitamin Deficits: Calcium, iron, magnesium, potassium, zinc, vit C,
niacin, B6, folic, B12

Recommended Increasing These Foods: wheat breads, lentils, nuts,
bananas, citrus fruits, milk products, rice, fish, molasses, cheeses,
sunflower seeds, ect.

Monday
3/22/93

Log: T1-54080
Type: Adult Female



24 FL OZ CAN: Carbonated beverage; Cola
 24 OZ: Tea; Instant, Sweetened w/ saccharin,
 Lemon flavored, Prepared
 2 C LONG GRAIN, HOT: Rice; White, Pre-Ckd instant,
 Ready to serve, W/salt added
 1 SUB: SUBMARINE SANDWICH, W/ COLDCUTS(FF)
 2 SECTOR, 1/8 PIZZA: Pizza w/sausage topping; W/
 cheese, Enr, Baked from home recipe
 1 OZ: Yogurt; Plain, Lowfat, 12 Gr protein per 8 Oz
 1.5 CUP: Popcorn; Popped, Plain

	Total	%RDA
Cal	1563	75 %
Prot	49g	107 %
Total Carb	257 g	
<input type="button" value="Total Fat"/>	37 g	
Chol	77 mg	
Fiber	0 g	
Sodium	3565 mg	
	155mEq	

RDA Table

46	Protein (g)
1977	Calories
1200	Ca (mg)
15	Fe (mg)
280	Mg (mg)
1200	P (mg)
2000	K (mg)
500	Na (mg)
12	Zn (mg)
1.5-2.5*	Cu (mg)
2.0-5.0*	Mn (mg)
800	A (IU)
60	C (mg)
1.1	B1 (mg)
1.3	B2 (mg)
15	Niacin (mg)
1.6	B6 (mg)
180	Folic (µg)
2	B12 (µg)

User Type Selection

Vital Statistics	
20	Years
Female	
115	Lbs
64	in

Sports & Exercise

Exercise Cal/Day

108.83

OK

Reset

Cancel

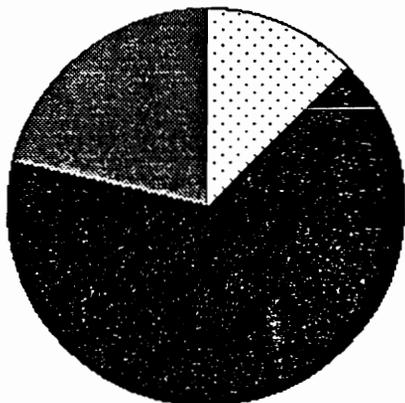
- Adult Male
- Adult Female
- Pregnant
- Lactating
- Infant
- Child (1-3 yrs)
- Child (4-6 yrs)
- Child (7-10 yrs)
- Teenage Girl
- Teenage Boy

* Average or Adequate Daily Intake range



Print Graph

Calorie Distribution



Legend

- % Calories From:
- 13  Protein
 - 66  Carbohydrate
 - 22  Fat
 - 0  Alcohol
 - 6.8 Saturated Fat

T1-54080

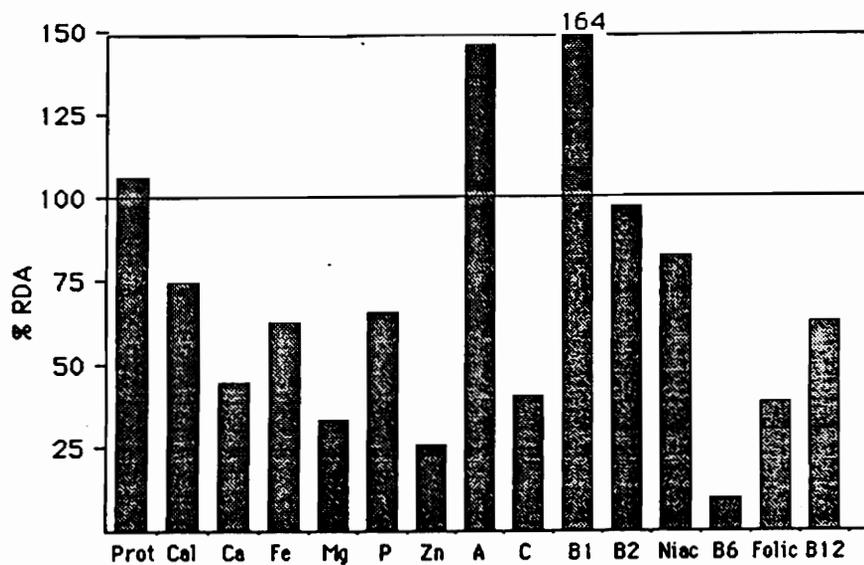
Monday
3/22/93



T1-54080

Nutritional Achievement

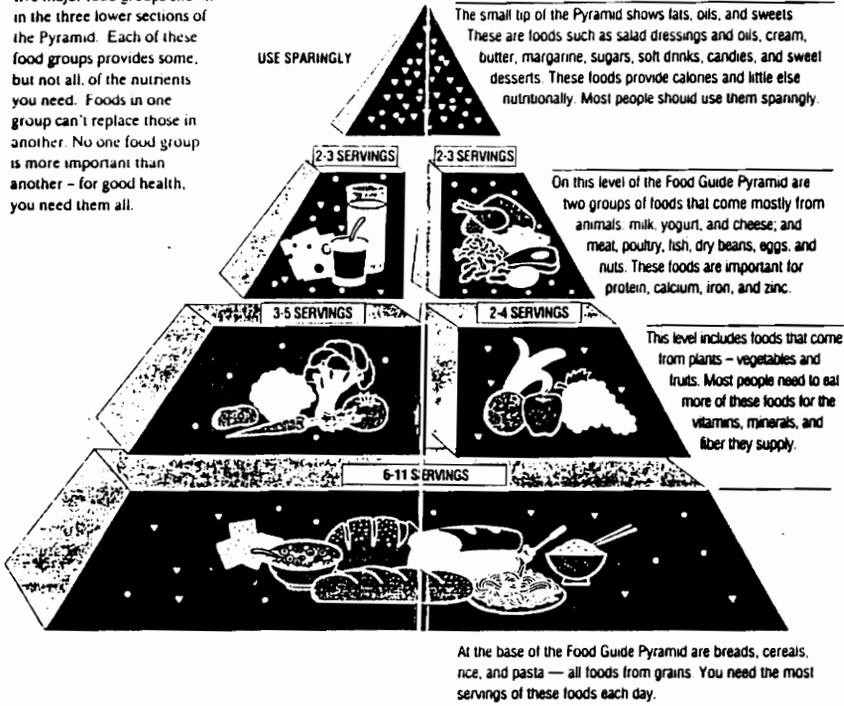
Monday, 3/22/93



Appendix N
Healthy Eating Sheet

Looking at the Pieces of the Pyramid

The Food Guide Pyramid emphasizes foods from the five major food groups shown in the three lower sections of the Pyramid. Each of these food groups provides some, but not all, of the nutrients you need. Foods in one group can't replace those in another. No one food group is more important than another — for good health, you need them all.



Appendix N (Cont.)

Healthy Nutrition

I. Aim for daily food intake to be

- At least 50% total calories from carbohydrates
High fiber fruits, vegetables, whole grains
- About 20% total calories from protein
Lean meats, low-fat dairy products, chicken, fish, alternatives (beans, peas)
- Less than 30% total calories from fat
Aim for less saturated fats Don't eat fats in desserts, fried foods, whole dairy products, eggs, meats
By decrease dietary fat, usually also decrease serum cholesterol
Still need about 10% dietary fat for proper body functioning

II. Vitamin /Mineral supplements

- Not needed if consume well balanced diet

Pyramid Scheme

I. Guidelines

- Eat a variety of foods
- Choose diet low in fat, saturated fat, and cholesterol
- Choose diet with plenty of vegetables, fruits, grains
- Use sugars only in moderation
- Use salt and sodium in moderation
- If you drink alcoholic beverages, do moderation

II. Levels

- 6-11 Servings Breads, cereals, rice, pasta
- 2-4 Servings fruit
- 3-5 Servings vegetables
- 2-3 servings meat, poultry, fish, beans, eggs, nuts
- 2-3 servings milk, yogurt, cheese
- Use Sparingly-fats, oils, sweets

Healthy Exercise

I. Requirements for Health

- Aerobic exercise 20-30 minutes 3 time week for cardiovascular fitness
- Some muscle toning-weight 20 minutes 2-3 times week
- Stretching

II. Effects

- Improved muscle tone & cardiovascular conditioning
- Less fatigue
- Decreases risk heart disease & certain cancers
- Reduces stress & improves concentration
- Prevents depression

Appendix O
Peer Leader Contact Sheets

Appendix O
Peer Leader Contact Sheets

Peer Name _____
Please Complete Weekly Week of _____

•Contact # 1: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

•Contact # 2: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

•Contact # 3: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

•Contact # 4: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

•Contact # 5: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

•Contact # 6: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

•Contact # 7: First Name _____ Place _____

Who initiated Conversation: Me _____ Her/Him _____

Quality of Conversation _____

Appendix P

Recognizing Signs of Eating Disorders Adapted From Levine & Hill (1991)

Appendix P
Recognizing Signs of Eating Disorders
Adapted From Levine & Hill (1991)

General Warning Signs

- Frequent and unusual dental problems
- Nauseated after eating a small or normal amount
- Bloating, water retention, or edema not attributable to other physical problems
- Constipation and in some cases loss of bowel control in an apparently healthy young person
- Cardiac abnormalities, from vomiting or ipecac abuse. Can be fatal.
- Swelling of glands under jaw. Can yield "chipmunk" facial appearance
- Inexplicable muscle cramps or kidney problems
- Failure to begin menstruation or amenorrhea
- Inexplicable sore throat
- Inexplicable bowel or urinary problems
- Paleness or complaints of lightheadedness

General Warning Signs: Food and Weight Control

- Difficulty in concentration or enjoying daily activities due to preoccupation with weight, food, or dieting
- Frequent (and often irritating) claims to others of appearing "fat" when weight is normal or low
- Guilt and shame about eating ordinary meals
- Excessive, rigid exercise regimens, despite fatigue or illness
- Stealing or hoarding food
- Evidence of use of purgatives such as laxatives, diuretics, enemas, or ipecac

General Warning Signs: Personality and Emotionality

- Prolonged moodiness or irritability
- Inflexibility to changes in routine
- Low self esteem and suicidal ideation
- Perfectionistic thinking. Dichotomous thinking (e.g., I'm thin or I'm gross)
- Withdrawal from social activities and immersion of self in highly physical, repetitive activities like dance, running, or swimming

Specific Warning Signs of Anorexia

- Significant weight loss in the absence of relevant illness
- Significant reduction in eating
- Unwillingness to eat becomes focus of family attention
- Dieting unleashes sense of pleasure, control, & strength
- Expressions of anxiety about being fat, that doesn't diminish with weight loss
- Unusual eating habits such as odd mixtures of foods or eating large quantities of foods that are normally samples (e.g., cake icing)
- Unusual oral habits such as chewing several packs of gum a day or drinking 15 diet sodas
- Collects recipes and cooks for others, but doesn't eat
- Frequent days of fasting
- Dressing in layers of clothing which appear too warm for the weather
- Inflexible and perfectionistic commitment to routines
- Thinning hair and hair loss
- Excess hair, called lanugo, on cheeks, neck, forearms, and thighs
- Repeated complaints of stomach problems
- Complaints of feeling cold, despite temperature

Appendix P (Cont.)

Specific Warning Signs of Bulimia Nervosa

- Evidence of binge eating, such as food disappearing at a rapid rate, or large amounts of food purchased or shoplifted. Excessive amount of candy wrappers found in trash
- Evidence of self-induced vomiting, including bathroom messes or smells, unexplained plumbing problems; purchases of ipecac, or callouses or tooth marks on hands from vomiting
- habitual overeating in response to stress
- Eating foods which are normally sampled (e.g., cake frosting, cookie dough)
- Alternating strict dieting with binge eating
- Dramatic weight fluctuations
- Intense mood swings
- Other impulsive behaviors
- Broken blood vessels in eyes
- Fainting or lightheadedness

Appendix Q
Verbal Skills Rating Sheet

Appendix Q Verbal Skills Rating Sheet

Peer Leader Code: _____ Person Rating: _____

Pretest: _____ Posttest: _____

Diet Scenario 1:

	No	Yes
1. Used "I" messages	0	1
2. Stressed non-dieting norm	0	1
3. Gave information about dangers of dieting	0	1
4. Gave alternative behaviors other than dieting	0	1
5. Stressed seriousness of dieting	0	1
6. Stressed how I've made changes	0	1
7. Stressed short or long term consequences of dieting	0	0 1
8. Tried problem solving approach	0	1
9. Made judgement about her weight	1	0
10. Used "you shoulds"	1	0

Total out of 10: Score 1_____

Stages of Change Scenario 2:

1. Stated Concern	0	1
2. Didn't state judgement about her weight	0	1
3. Used "I" messages	0	1
4. Asked questions about dieting	0	1
5. Asked questions about exercise	0	1
6. Asked questions about healthy eating	0	1
7. Asked if interested in making behavior change	0	1
8. Asked for commitment to behavior change	0	1
9. Gave strategies (plan) for this change	0	1
10. Encouraged follow up	0	1

Total out of 10: Score 2_____

Eating Disorders Scenario 3:

1. Stated Concern	0	1
2. Asked to speak in private (certain place)	0	1
3. Used I messages	0	1
4. Stated specific observations which have caused concern	0	1
5. Was nonjudgemental	0	0 1
6. Showed support or empathy	0	0 1
7. Gave information about counseling	0	1
8. Asked student how she was doing	0	1
9. Used "you shoulds"	0	1 0
10. Stated would help her with appointment	0	1

Total out of 10: Score 3_____

Overall Total Score: _____

Appendix R

Sorority Peer Leader Communication Log

Appendix R Sorority Peer Leader Communication Log

Name _____ Sorority _____

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1							
2							
3							
4							
5							
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through

conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S

Completed Sorority Peer Leader Communication Logs

Appendix S Completed Sorority Peer Leader Communication

Log

Name KJ. Sorority DG

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	D.C.	Skipping Meals	Eat 3 meals a day even if on the run	Keep pick up food in form room	Leave room w/ an apple or orange every day	Has improved significantly	
2	R. P.	Eating no fat in diet	Add at least some fat into diet Don't be compulsive	Stop looking at labels so much	Says getting better	Does not obsess anymore about fat in diet	
3	C.B.	Obsessive about exercise	Not thinking about it so much	Limit herself to 30 minutes a day	Has cut down on worrying about frequency	Now exercises 30 minutes 5 times per week	
4	J. B.	Drinks excessively to force vomiting	Stop drinking	No alcohol at all to begin with	Has not had any liquor in past week		
5	S. Z.	Obsessive about weight. Was anorexic	Stop binging and then starving self	Eat 3 meals a day, but no snacks	Has done this for past 4 days	Continues to eat 3 meals day. Done extremely well	
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name LM Sorority KAO

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	P.C.	Upset about her weight. Feels she's overweight	Watch what she eats. Exercise more	Stay away salty foods & saturated fat	Cut down on chips ect. No exercise	No long term change	
2	C. W.	Skips meals often. Doesn't eat to get back at people	To think of her health 1st not worry so much about weight	Not skip meals. Not drink caffeine to fill up, but to eat instead	A bit better, but no long term improvement	Same	Too many emotional problems Referred to counseling
3	S. M.	Obsessed w/ fat free diet and dieting	To be healthy but not obsessed	Can eat all foods as long as less of them	Says she's doing it, but I don't think so	Talks less about dietary fat, less obsessive	
4	M.K.	Constantly obsessed w/ what she eats, but eats junk food privately	To eat what she wants when she wants, but less of it	Not to hide what she's eating	No enduring changes		
5							
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name J.H. Sorority DF

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	M.A.	Dieting	Don't diet, but eat healthy				
2	M.O.	Overeats wrong food minimal exercise	Stop eating fast food Eat healthy Exercise 4X week	Work out with someone else	Started exercising eating more fruits & vegetables		Her friends have helped her change
3	K.R.	No exercise Late eating of high fat foods Lots alcohol	Drink less No late night eating Start walking	Walk instead of taking bus to school treat self once week	No change in habits Too hard		Feels overweight & doesn't have control
4	K. I.	Exercises often Eating healthy Loves sweets	Continue exercise & eating try limit sweets	Treat self once a week	Too hard loves sweets		Needs more suggestions about cravings
5							
6							
7							

Remember the following goals! Peers want to advocate:

- No Dieting
 - Healthy Eating
 - Exercise
 - Referral

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- Assessment
 - Commitment
 - Strategies
 - Follow-up

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name KM Sorority KAO

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	E.M.	Feels pressure to be thin	Commitment to exercise				Still needs healthier attitude for self-image
2	K.A.	Feels pressure to be thin, but doesn't give in					Still need develop healthier eating plan
3							
4							
5							
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name _____ JE _____ Sorority _____ DG _____

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	A.S.	Eats regularly Not exercising	Wants begin exercising	Told about nutrition pyramid	Good at exercise	Still exercising	
2	J.S.	Gave info healthy eating					
3	S.B.	Gave info healthy eating					
4							
5							
6							
7							

Remember the following goals! Peers want to advocate:

- No Dieting
 - Healthy Eating
 - Exercise
 - Referral

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- Assessment
 - Commitment
 - Strategies
 - Follow-up

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name _____ T.C. _____ Sorority _____ KAO _____

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	S.A.	Skips meals	Wants begin exercise	Checked up on eating & exercise	Having hard time exercise due to finals		
2	J.E.	Eats healthy	Wants exercise more	Needs more exercise			
3	M.S.	Need more exercise	Wants exercise more	Do aerobics with other sisters			
4	J.U.	Eats healthy exercises	Wants exercise more	Do aerobics with other sisters			
5	L.Y.	Exercises	Wants exercise to continue	Do aerobics with other sisters			
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name LL Sorority DG

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	L.C.	Has anorexia & bulimia	Will stop purging, will not seek counseling	Talked w/ her about importance of counseling Got referral # for home town	Discuss progress	Possibly notify family if nothing changes	Hasn't had period in 8 months
2	C.B.	Excessive dieter Eats only salads	Broaden meals to include all food groups	Education about nutrition try integrate new foods	Observe & continue to educate	Observe and develop exercise program	Has already made progress
3	J.B.	Had bulimia before, may have now	To talk w/ a professional	I will take to counseling services	Observe & educate	Observe & possible notify family	Still exercises a lot, won't go counseling
4	B.M.	Normal & healthy	To continue exercise & eat healthy	Maintenance	Observe & Maintenance		She's a good role model
5	S.Z.	A little paranoid about her weight	Not to watch her weight so much	Remove scale from bathroom	Discuss improvement if any		VT cheerleader lots of pressure about weight
6	K.C.	Wants to lose weight	Will exercise and eat healthy	Modify diet & develop exercise program	Discuss improvement	Observe & motivate	Not overweight at all
7	S.B.	Wants to lose weight					VT Dance Co Feels lot pressure be thin

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**
- By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:*
- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name _____ K.P. _____ Sorority _____ KAO _____

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1 K.T.	Dieting now Used diuretic in past Binge eats on occasion No exercise	Learn to eat healthier Make exercise part of routine	Pair up with friend to use as encouragement	Eating habits changed to healthier Very conscious to eat healthy	Less alcohol intake & healthy eating	
2 L.F.	Dieting to reduce weight Low fat intake No time for exercise	Goal setting Begin w/ Lent cut back red meat & high fat foods Exercise for 3 weeks goal	Make back up plans for rain & snow	Has had constant exercise program	Reinforce for exercising Plans stick with this plan	After graduation found spa at home to work out
3 D.E.	Has gained quite bit weight since last year	Set serious exercise program thru body shop Concentrate on healthy eating		Works out at body shop 3-5 to times week Has lost weight	Feels great about herself Reading & learning about healthy eating	
4						
5						
6						
7						

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name M.E. Sorority DG

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	J.O.	Not exercising Eating healthy	Thinking about exercising	Goal to exercise 3 times week	Asked how program doing		Strong & healthy woman Exercise will help her feel stronger
2	K.I.	Already exercising eating right	Wanted to know about program	Not interested in making changes			
3	M.E.	Already exercising eating right	Wanted to know about program	Not interested in making changes			
4	R.E.	Carefree Does what wants	Interested in exercising		Before Spring break excited about exercising After break didn't care		Still eats healthy but not motivated to exercise
5							
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies**
 - **Follow-up**

Appendix S (Cont.)
Completed Sorority Peer Leader Communication

Log

Name J.M. Sorority KAO

Pledged Contacts in Sorority House

• Please check once this phase of communication has taken place, record the date, and overview of conversation

	Name	Assessment	Commitment	Strategy	Short term Follow-up	Long term Follow-up	Other Comments
1	S.G.	Vomits so could eat dinner Eats junk food feels guilty for not eating dinner	Eat less junk food & work on eating healthy dinner	Keep food log to see what have eaten	Doing fine eating more healthy		
2	S.K.	Eats fairly healthy Exercises in spurts	Will work on eating well & exercising regularly	Eat with friends & exercise w/ others	Doing much better Exercising more regularly		Had to leave school due to chronic health problem
3	C.G.	Takes diet pills in afternoon to curb appetite Does eat 3 meals per day	Not take diet pills, but instead eat snack, may be hard since student teaching	Taking extra snacks to school to eat when gets hungry	Doing better Still hard to eat snacks at school with kids around Making an effort		
4	D.E.		Wants eat more healthy	Keep food log to compare choices w/ roommate	Keeping food log Noticing high fat chips		
5	K.T.		Wants eat more healthy	Keep food log to compare choices w/ roommate	Keeping food log Noticing high fat foods & candy		
6							
7							

Remember the following goals! *Peers want to advocate:*

- **No Dieting**
 - **Healthy Eating**
 - **Exercise**
 - **Referral**

By doing the following with sorority house members (1st) and other sorority members (2nd) through conversations:

- **Assessment**
 - **Commitment**
 - **Strategies** • **Follow-up**

CURRICULUM VITA
Denise Michele Martz

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Personal Information

Date of Birth: 2/13/67
Spouse: Timothy David Ludwig, Ph.D.
Children: David Christian Martz Ludwig

Education

Virginia Polytechnic Institute and State University
Major: Honors Psychology
Bachelor of Science, 1989
Summa Cum Laude

Honors Thesis Title: Examination of Sex-Typing and Sex Role Ideology in Binge Eaters.

Virginia Polytechnic Institute and State University
Major: Clinical & Health Psychology
Master of Science, 1991
Ph.D. Expected May, 1994

Masters Thesis Title: The Effects of Female Gender Role Appraisal and Body Image Threat on the Stress Responses of Women: A Validation of the Feminine Gender Role Stress Scale.

Preliminary Examination Title: Epidemiology, Issues, and Public Health Consequences of Dieting Behavior: A Social Learning and Set Point Theory Analysis.

Dissertation Title: Prevention of Eating Problems: A Peer Leader Program to Reduce Dieting in College Females.

Medical University of South Carolina
Clinical Psychology Internship Specializing in Behavioral Medicine
Date of Completion: August 1994

Clinical Practica

- 2/94-8/94: Clinical Rotation on Weight Management
Practicing Behavioral Medicine with Severely Obese and Eating
Disordered Outpatients (480 Hours)
Medical University of South Carolina in Charleston, SC
Supervisor: Patrick O'Neil, Ph.D.
- 2/94-8/94: Clinical Rotation in Wellness and Counseling
Practicing Eclectic Therapy & Health Psychology with Outpatients
Medical University of South Carolina in Charleston, SC
Supervisor: Darlene Shaw, Ph.D.
- 11/93-Present: Clinical Rotation on Inpatient Assessment and Diagnosis
Using Standardized Psychological Assessments Such as MMPI-2,
MCMI,
WAIS-R, SCID, CERAD, PAI, ect. (480 Hours)
Medical University of South Carolina in Charleston, SC
Supervisors: Randy Waid, Ph.D.
Mark Wagner, Ph.D.
- 8/93-11/93: Clinical Rotation on Psychiatry Consult Liaison Service
Practiced Behavioral Medicine with Patients in Medical Hospital,
Charleston County Hospital, and Family Medicine Clinic (240 Hours)
Medical University of South Carolina in Charleston, SC
Supervisors: Bonnie Dansky, Ph.D. Madeline Wohlreich, M.D.
John Roitzsch, Ph.D. Russ Monroe, M.D.
- 8/93-11/93: Clinical Rotation on Inpatient Psychology Treatment Service
Practiced Cognitive Behavioral Therapy with Patients in Institute of
Psychiatry (240 Hours)
Medical University of South Carolina in Charleston, SC
Supervisors: Bonnie Dansky, Ph.D.
John Roitzsch, Ph.D.
- 8/92-5/93: Advanced Curriculum Practicum in Cognitive Behavioral
Therapy (180 Hours)
Practiced Cognitive Behavior Therapy with Outpatients at the VA Tech
Psychological Services Center in Blacksburg, VA
Supervised First and Second Year Clinical Psychology Students
Supervisors: George Clum, Ph.D.

Russell Jones, Ph.D.

5/91-3/92: Externship in Eating Disorders and Obesity (500 Hours)
Practiced Family Therapy and Behavioral Medicine with Inpatients and Outpatients at the St. Albans Psychiatric Hospital in Radford, VA
Supervisor: Joseph McVoy, Ph.D.

8/90-5/91: Curriculum Practicum in Cognitive Behavioral Therapy (330 Hours)
VA Tech Psychological Services Center in Blacksburg, VA
Supervisors: Robert Stephens, Ph.D.
Carolyn Pickett, Ph.D.

8/90-5/91: Consulting & Community Practicum
"Sexual Politics and the Male Gender Role: A Date Rape Prevention Program" (20 Hours)
Program Development & Presentation with Sal Corbin & David Lombard
Supervisor: Richard Eisler, Ph.D.

8/89-5/90: Curriculum Practicum in Eclectic Therapy (180 Hours)
VA Tech Psychological Services Center in Blacksburg, VA
Supervisors: Richard Eisler, Ph.D.
Christopher Boyd, Ph.D.

Presentations

Martz, D. M., Sturgis, E. T., Gustafson, S. B., & Nicklas, L. A. (1994, April). Development and preliminary validation of the Cognitive Behavioral Dieting Scale. Paper to be presented at the Annual Meeting of the Society for Behavioral Medicine in Boston, MA.

Martz, D. M. & Sturgis, E.T. (1993, March). Epidemiology, issues, and public health consequences of dieting behavior: A biopsychosocial analysis. Paper presented at the Annual Meeting of the Society for Behavioral Medicine in San Francisco, CA.

Martz, D. M. & McVoy, J. (1993, March). Female gender role stress and eating disorders: An inpatient study. Paper presented at the Annual Meeting of the Society for Behavioral Medicine in San Francisco, CA.

Martz, D. M. (1992, August). Female gender role stress and its relationship to body image. Paper presented in the Division of Health Psychology at the Annual Meeting of the American Psychological Association in Washington, D.C.

Martz, D. M. (1990, November). Female gender role stress and its implications for eating disorders. Invited Colloquium for Women's Network and Women's Studies Colloquia Series in Blacksburg, VA.

Grants

1992-1993 Funded: Principal Investigator for a Women's Research Institute Grant. A Multidimensional Primary and Secondary Prevention Program for Eating Disorders. Amount \$2,300.

Manuscripts Submitted for Publication

Martz, D. M., Sturgis, E. T., Gustafson, S. B., & Nicklas, L. A. (1993). Development and preliminary validation of the Cognitive Behavioral Dieting Scale.

Martz, D. M., & Handley, K. B. (1993). The relationship between female gender role stress, body image, and eating disorders.

Manuscripts in Preparation

Desiderato, L. L., Yaffe, D. M., Winett, R. A., Martz, D. M., & Hook, R. J. Motivating older adults to exercise: Lessons learned from the Virginia Golden Olympics. Unpublished manuscript.

Martz, D. M. & Shaw, D. Predictors of dieting and other unhealthy weight management behaviors and their relationship to exercise in first year medical students. Unpublished raw data.

Martz, D. M., Shaw, D., & Lancaster, C. Clinical interviews in medical school admissions process: Reliability and validity. Unpublished raw data.

Martz, D. M. & Sturgis, E. T. Evaluation of a peer leader intervention for the primary and secondary prevention of eating disorders in college females.

Unpublished manuscript.

Teaching

8/92-12/92: Instructor for Social Psychology (Psych 2084) course:
100 students
Overall Student Rating: 3.6/4.0

1/93-5/93: Instructor for Social Psychology (Psych 2084) course:
150 students
Overall Student Rating: 3.5/4.0

Research Supervision

1992-1993: Supervised one student's senior thesis. Supervision involved overseeing empirical study on cognitive schemas in dieters.

1992-1993: Supervised one student's independent study. Supervision involved overseeing research and proposal writing of study on body image and popular culture.

1992-1993: Supervised 20 undergraduate psychology majors
Instructed students to assist with skills training groups, how to run dietary recall nutritional analyses with Nutrition Stacks, how to use and enter data using Microsoft Excel, and how to develop a psychological inventory.

1989-1991: Supervised 5 undergraduate psychology majors
Instructed students in using blood pressure & computer equipment, how to enter and analyze data using SAS.

Professional Experience and Employment

Summer 1993: Research Assistant for a Skin Cancer Prevention Project
Sponsored by the American Cancer Society.
Supervisor: Richard Winett, Ph.D.

Summers 1991 & 1992: Social Sciences Curriculum Advisor for VPI & SU
First Year Students and Parents during Summer Orientation.
Supervisor: Michael Ogliaruso, Ph.D.

8/90-5/92: Graduate Assistant for the Department of Psychology, VPI & SU.
Coordinated Undergraduate Advising Including Registration and Graduation.
Supervisor: Joseph Sgro, Ph.D.

5/89-5/90: Graduate Assistant for Residential Programs, VPI & SU.
Managed a Residence Hall of 110 International and American Graduate Students.
Published a Bimonthly Undergraduate Newsletter, The Roomer.
Supervisor: Gail Kirby, M.Ed.

8/88-5/89: Head Resident Advisor for Residential Programs,
VPI & SU.

Supervised 6 Resident Advisors.
Managed a Residence Hall of 350 Students.
Supervisor: Della Marshall, M.S.

Professional Organizations

Clinical Division 12 of the American Psychological Association
Health Psychology Division 38 of the American Psychological Association
Association for the Advancement of Behavior Therapy
National Anorexic Aid Society
Society for Behavioral Medicine

Graduate Core Courses

Research Methods	Statistical Methods I & II
Personality	Social Psychology
Learning & Cognition	Developmental Psychology
Biological Basis of Behavior	History & Systems of Psychology

Clinical Psychology Courses

Intellectual Assessment	Behavioral Assessment & Treatment
Personality Assessment	Adult Psychopathology
Child Psychopathology	Advanced Psychotherapy
Ethics in Psychology	

Health Psychology: Specialization Courses

Community Psychology	Health Psychology
Behavioral Medicine	Epidemiology

Honors and Awards

Phi Beta Kappa	Summa Cum Laude
Senior Honors Scholar Award \$500	Who's Who
Psi Chi: Vice President & Secretary	Omicron Delta Kappa
Outstanding Senior Award: College Arts & Sciences at VA Tech	

Denise M. Martz-Judwig