Exploring Young Women's Perceptions of the Effectiveness and Safety of Maladaptive Weight Control Techniques

Tracy L. Tylka and Linda Mezydlo Subich

Despite the emerging awareness among professionals that eating disorders occur along a continuum of degree for women and that maladaptive perceptions regarding weight control techniques may be important in the development and maintenance of women's disturbed eating behaviors, no research has examined perceptions of weight control techniques as a function of women's placement on the eating disorder continuum. Thus, perceptions of the effectiveness and safety of weight control techniques of 166 high school and college women were examined. Women who use maladaptive weight control techniques were found to rate the effectiveness and safety of these techniques higher than did women who do not use these techniques. Results also indicate that perceptions of effectiveness and safety vary in a linear fashion with respect to eating disorder continuum placement.

It has been hypothesized that high school and college women are particularly susceptible to the development and maintenance of disturbed eating behaviors (Lester & Petrie, 1998; Rosen & Gross, 1987). Indeed, prevalence research supports that disturbed eating behaviors are common among these women. For example, large percentages of high school women indicate that they use several maladaptive weight control techniques such as fasting (39.4%), appetite suppressants (8.1%), and skipping meals (33.5%) to lose weight (Rosen & Gross, 1987). Moreover, a majority (i.e., 60%) of college women report engaging in subclinical eating behaviors such as chronic dieting and binge eating (Mintz & Betz, 1988; Scarano, 1993), and a high percentage either occasionally or regularly use extreme measures to control their weight (i.e., 69.7%) indicate using fasting, diuretics, diet pills, or purging after eating; Hesse-Biber, 1989). These high prevalence rates of subclinical eating behaviors, combined with the information that 5% to 2% of young adult women have clinical eating disorders (Diagnostic and Statistical Manual of Mental Disorders [DSM-IV], American Psychiatric Association, 1994), have prompted many counselors and health care professionals to devote attention to the prevention and treatment of disordered eating behaviors among women (Scarano & Kalodner-Martin, 1994). As a result, an extensive body of literature is emerging on the origin, nature, development, and treatment of disturbed eating behaviors (e.g., Meyer & Russell, 1998; Rogers & Petrie, 1996). This literature is presented in treatment manuals (e.g., Garner & Garfinkel, 1997), journals solely devoted to the study of eating disorders (e.g., International Journal of Eating Disorders), and other journals with a broader scope (e.g., Journal of Counseling & Development, Journal of Counseling Psychology).

One trend in this literature is the movement from a focus solely on clinical eating disorders to the consideration of such clinical eating disorders as one extreme group along a continuum of degree. This trend is especially compatible with the developmental focus of the field of counseling. In an article in the Journal of Counseling & Development in 1994, Scarano and Kalodner-Martin argued that assessing and addressing different levels of severity of disturbed eating behaviors may be useful in investigating the etiology, development, and treatment of clinical eating disorders as well as subclinical eating behaviors that affect individuals' well-being. Other scholars (e.g., Mintz & Betz, 1988; Mintz, O'Halloran, Mulholland, & Schneider, 1997; Tylka & Subich, 1999) have also adopted this perspective and have worked to develop a theoretical framework for conceptualizing disturbed eating along a continuum. Focusing on different levels of eating disturbance has particular relevance for high school and college women because a majority report that they engage in unhealthy eating behaviors such as chronic dieting and binge eating, whereas only a minority meet the criteria of clinical eating disorders (Mintz & Betz, 1988; Tylka & Subich, 1999).

The continuum hypothesis of eating disorders seems to be a useful theory to organize thinking and research on the development of various subclinical and clinical eating disorders (Mintz et al., 1997; Tylka & Subich, 1999). It suggests that...
the fundamental differences among individuals with clinical eating disorders and individuals with milder forms of eating disturbances are a matter of degree, not kind (Mintz & Betz, 1988; Nylander, 1971; Rodin, Silberstein, & Striegel-Moore, 1985). In 1994, Scarano and Kalodner-Martin noted that the groups along the continuum share similar psychological characteristics (e.g., dissatisfaction with body image) and differ only in the frequency or severity of these characteristics and eating problems.

One issue raised when investigating the eating disorder continuum is how it should best be operationalized (Ousley, 1986). Currently, there is no reliable and valid measure of the eating disorder continuum that assigns a total score that varies from a minimum score (i.e., indicating no eating disorder symptoms) to a maximum score (i.e., indicating all symptoms of eating disorders), with scores between these extremes indicating increasing eating disorder symptomatology. There is, however, a reliable and valid instrument (i.e., The Questionnaire for Eating Disorder Diagnoses, Mintz et al., 1997), which can be used to place individuals with no eating disorder symptoms in a category at one end of the eating disorder continuum (i.e., asymptomatic group), individuals with DSM-IV diagnoses of clinical eating disorders and Eating Disorder Not Otherwise Specified in a category at the other end of the continuum (i.e., eating disordered group), and individuals with some eating disorder symptoms (i.e., symptomatic group) in a category at an intermediate point. Thus, the groups represent ordered categories along a continuum of degree.

Although some researchers argue that not all psychological characteristics relevant to eating disordered behavior are manifest consistent with these eating disorder continuum categories (Hesse-Biber, 1989), many characteristics and correlates of eating disordered behavior do seem to be manifest in varying degrees of severity. For example, behavioral and psychological characteristics associated with clinical eating disorders such as body dissatisfaction, food and weight preoccupation, feeling fat, the fear of becoming fat, and lower self-esteem were related significantly to eating disordered continuum placement for college women (Mintz, 1989; Mintz & Betz, 1988). In addition, quantitative differences have been reported in interoceptive awareness (Garfinkel & Garner, 1982); feelings of ineffectiveness (Lehman & Rodin, 1989); and difficulties with interpersonal relationships (Dyakens & Gerrard, 1986) between clinical, subclinical, and asymptomatic women. In a study assessing the construct validity of the eating disorder continuum using a sample of high school and college women, Tylka and Subich (1999) found that many psychological characteristics associated with clinical eating disorders (e.g., ineffectiveness, interpersonal distrust) were related in a linear fashion to eating disorder continuum group placement. Moreover, these authors found that body dissatisfaction and the cognitive characteristic of dieting locus of control (both commonly associated with clinical eating disorders) related in a linear manner to the continuum groups. When taken collectively, the previous literature suggests good support for the validity of the eating disorder continuum framework.

This extant literature, however, fails to examine how cognitions beyond dieting locus of control relate to the eating disorder continuum hypothesis. This gap exists despite the fact that the literature on clinical eating disorders has long recognized that cognitive distortions are common among persons with bulimia and anorexia. For example, Fairburn (1995) proposed that dichotomous thinking is common among those with clinical eating disorders; individuals who engage in dichotomous thinking may view food as either dangerous or safe, or feel either in control or out of control when eating. Fairburn also proposed that women with clinical eating disorders (e.g., bulimia nervosa) are inclined to believe that maladaptive weight control techniques (e.g., vomiting after eating) are not ineffective or dangerous. The lack of research extending such proposals to women with nonclinical eating disorders is ironic because interventions to counter such maladaptive cognitions may be more easily applied to such women. For example, many treatment approaches (e.g., Cognitive-Behavioral Therapy) include provision of accurate information about nutrition and maladaptive methods of weight regulation, and counselors may find greater receptivity to this information among women with less severe degrees of eating disturbance. Consequently, it seems imperative to explore whether the continuum hypothesis may be extended to women’s cognitions about weight and weight control, especially treatment-relevant ones. Cognitions that seem especially important are those having to do with the effectiveness and safety of weight control techniques because these cognitions may play an important role in women’s eating behaviors.

There is certainly much medical evidence that many weight control techniques (e.g., chronic dieting, fasting, vomiting, and using laxatives and diuretics) are both largely ineffective and harmful in the long run (DSM-IV; American Psychiatric Association, 1994; Fairburn, 1995; Kaye et al., 1992; Lachenmeyer, Muni-Brander, & Belford, 1988; Polivy & Herman, 1985). Yet, despite this literature, many young women still use ineffective and unsafe techniques (Mintz & Betz, 1988; Rosen & Gross, 1987) in hopes of regulating their weight. This suggests either ignorance of these facts or the presence of cognitive distortion, with the latter more likely because women with eating disorders seem susceptible to various types of cognitive distortion (Fairburn, 1995). Consequently, to further our understanding of young women’s perceptions of maladaptive weight control techniques, it seems useful to examine these perceptions in relation to women’s use of the techniques and to investigate whether women in various categories along the eating disorder continuum differ in the nature and the strength of the cognitions they hold regarding the effectiveness and safety of weight control techniques.

Thus, the present research investigated high school and college women’s perceptions of effectiveness and safety of maladaptive weight control techniques as a function of their placement along the three eating disorder continuum categories. On the basis of the previously reviewed literature, it was hypothesized that (a) women who report using maladaptive weight control techniques differ from women who...
report not using these techniques in that the former have higher overall, short-term, and long-term perceptions of the effectiveness and safety of maladaptive weight control techniques than do the latter; and (b) women’s cognitions regarding the effectiveness and safety of weight control techniques vary with respect to continuum placement in that greater perceptions of maladaptive weight control techniques as effective and safe are expected to be related to placement within a group higher on the continuum. Finally, due to the expectation that perceptions of weight control techniques may vary according to time perspective (Fairburn, 1995), participants’ evaluations of the effectiveness and safety of maladaptive weight control techniques were examined for differences according to the time perspective adopted (i.e., short-term versus long-term control of weight).

**Method**

**Participants**

We surveyed a total of 166 high school (n = 35) and college (n = 131) women on their eating habits and perceptions of the effectiveness and safety of weight control techniques. The mean age of the total sample was 21.21 (SD = 4.53) years, ranging in age from 16 to 38 years. High school women ranged in age from 16 to 18 years (M = 17.71, SD = .68) and college women ranged in age from 18 to 38 years (M = 22.15, SD = 4.65). Participants were predominantly Caucasian (90.8%); there was minimal racial diversity among the participants with African American women constituting 8.4% of the sample and Asian American women constituting .8% of the sample. Only women were investigated in this study because the continuum hypothesis has only been researched with women.

**Materials**

*Effectiveness and safety of weight control techniques questionnaires.* Because no measures were found to assess the perceptions of effectiveness and safety of maladaptive weight control techniques, we constructed two questionnaires. The first questionnaire assessed perceptions of the effectiveness of a variety of recognized, maladaptive weight control techniques, and the second questionnaire assessed perceptions of the safety of the same maladaptive weight control techniques. The effectiveness and safety questionnaires each included 13 weight control techniques that were adapted from a list by Rosen and Gross (1987). This list included appetite suppressants, skipping meals, fasting, vomiting after eating, heavy exercise (i.e., defined on the questionnaire as exercising 6 to 7 times a week for several hours at a time), eating 1,200 calories or less a day, eliminating fats from diet, food supplements, laxatives, diuretics, enemas, eliminating simple carbohydrates, and liposuction. A response set was identified if the participant circled the same number for all weight control techniques on a page, or used another detectable pattern of responding (i.e., zigzag design). Participants who responded in such ways were not included in the analyses.

Ratings of the effectiveness and safety of each technique for initial and long-term weight control were made on a 7-point scale. For example, the effectiveness or safety of vomiting after meals was rated on a scale ranging from *not at all effective (safe)* (1) to *very effective (safe)* (7). Participants rated each maladaptive weight control technique twice, once for how effective (safe) they perceived it to be for initial control of weight and again for how effective (safe) they perceived it to be for long-term control of weight. The differentiation between initial (i.e., short-term) and long-term control was included to determine if perceptions of weight control techniques differ depending on the time perspective adopted. For example, a participant may perceive a certain weight control technique (e.g., skipping meals) as being more effective or safe for the initial control of weight rather than the long-term control of weight. This differentiation according to time was deemed appropriate due to the hypothesis that people may judge weight control techniques differently according to the time duration involved (e.g., Fairburn, 1995). Total scores were calculated for each questionnaire by averaging each item’s initial and long-term responses, summing them, and then dividing by the number of weight control techniques (i.e., 13) to yield an average score between 1 and 7. In addition, short-term and long-term subscale scores were calculated for each questionnaire by adding responses to all of the short-term (or long-term) items and dividing by the total number of weight control techniques to yield an average score between 1 and 7. In each case, higher scores indicate more maladaptive perceptions about the effectiveness and safety of weight control techniques.

For this sample, internal consistency reliabilities, item analyses and scale intercorrelations were calculated for the total scale score, and for the Short-term and Long-term subscale scores, of the maladaptive weight control technique items on the effectiveness and safety questionnaires. Internal consistency reliabilities were found to be relatively high for both the overall effectiveness (α = .88) and safety (α = .91) questionnaires. Internal consistency reliabilities for the Short-term (α = .86) and Long-term (α = .85) perception subscales of the effectiveness questionnaire, and the Short-term (α = .87) and Long-term (α = .80) perception subscales of the safety questionnaire were moderately high. Item analyses indicated that all items on the overall effectiveness and safety questionnaires were positively correlated with the total score for their respective questionnaire. The average corrected item total correlation was .42 for the effectiveness questionnaire and .48 for the safety questionnaire.

Test–retest reliability was established for both questionnaires on an independent sample of college women (N = 40). Over a 4-week period, both the effectiveness questionnaire (r = .64) and the safety questionnaire (r = .84) demonstrated adequate stability. Questionnaire validity may be inferred from the fact that the weight control techniques included have been demonstrated to be maladaptive (e.g., Fairburn, 1995) and are drawn from previous literature (e.g., the list of weight control techniques used by Rosen & Gross, 1987). Further validity evidence for the effectiveness and safety
questionnaires was garnered through exploratory factor analyses using the 166 women in this study. Principal components factorizing with varimax rotation was used for each questionnaire. For the effectiveness questionnaire, three factors were identified. The first and third factors, which together accounted for 37.0% of the variance, comprised 91% of the items on the short-term subscale. The second factor, which accounted for an additional 14.3% of the variance in the analysis, comprised 62% of the items on the long-term subscale. Two factors were identified for the safety questionnaire. The first factor, which accounted for 32.7% of the variance, comprised 62% of the items on its short-term subscale. The second factor, which added an additional 11.7% of the variance included most (i.e., 62%) of the long-term safety items. Thus, it seems that the short- and long-term subscales of the effectiveness and safety questionnaires are supported by these factor analyses. (Additional information concerning the factor analysis results may be obtained from the first author.)

The Questionnaire for Eating Disorder Diagnoses (Q-EDD; Mintz et al., 1997). This measure was used to classify individuals into the asymptomatic, symptomatic, and eating disordered categories of the eating disorder continuum. The Q-EDD is a self-report measure that contains 50 questions that assess frequency data for individual behaviors related to disturbed eating (e.g., “Do you make yourself vomit?” “How often do you do this?” and “How long have you been doing this?”). It takes about 10 minutes to complete. Items or combinations of items are scored dichotomously in terms of meeting or not meeting the parameters of a continuum category through a scoring manual that consists of flowchart decision rules. The Q-EDD operationalizes the DSM-IV criteria for bulimia nervosa and anorexia nervosa and is used to differentiate between individuals with eating disorders (anorexics, bulimics, and Eating Disorder Not Otherwise Specified), symptomatic individuals (those who have some symptoms of disturbed eating but do not meet DSM-IV criteria for anorexia, bulimia, or Eating Disorder Not Otherwise Specified), and asymptomatic individuals (who do not report behaviors consistent with disturbed eating). A list of 5 weight control techniques (i.e., skip meals, eat 1,200 calories a day or below, use powder mixes or supplements, eliminate fats from diet, and eliminate simple carbohydrates from diet) was added to this questionnaire to gather information on women’s actual weight control behaviors and the behaviors they would be willing to use in order to lose weight. This information was used only to determine women’s use of various maladaptive weight control techniques. This appended list was not used to classify women into the continuum categories. The format of these items was the same as for the other items on the Q-EDD.

The Q-EDD is based on Ousley’s (1986) Weight, Management, Eating, and Exercise Habits Questionnaire (WMQ). Mintz et al. (1997) examined the psychometric properties of the Q-EDD and found that Q-EDD scores corresponded with those from other inventories (Eating Attitudes Test and the Bulimia Test–Revised [BULIT-R]), giving evidence of convergent validity. Moreover, the Q-EDD was found to be superior to the BULIT-R when differentiating individuals who had bulimia from individuals who did not have bulimia, thus supporting the incremental validity of the Q-EDD. Criterion validity was supported by a 98% accuracy rate for differentiating between individuals who had eating disorders and individuals who did not have eating disorders and the high correspondence of Q-EDD diagnoses to clinician diagnoses. Test–retest reliability for a 1- to 3-month period ranged from a kappa of .54 to .64; for a 2-week period it ranged from .85 to .94. Interrater agreement was very high for the Q-EDD; there was 100% agreement between two scorers for differentiating between eating disordered and noneating disordered groups and between eating disordered, symptomatic, and asymptomatic groups (Mintz et al., 1997).

Balanced Inventory of Desirable Responding–Version 6 (BIDR-6; Paulhus, 1994). Due to the potential for social desirability to confound reports of personal information about eating habits and practices, participants were also asked to fill out the BIDR-6 (Paulhus, 1994), a 40-item measure of the tendency to give socially desirable responses on self-reports. The BIDR-6 is divided into two relatively independent subscales. Self-Deceptive Enhancement (SDE) assesses the tendency to give honest but inflated descriptions of oneself. Impression Management (IM) indexes the tendency to give inflated self-descriptions to others or to an audience. To control for response sets, every other item in each subscale is designed to be reverse scored. The method of scoring that was used for each subscale includes adding all of the items together and then dividing the sum by the total number of items in the subscale, so scores may range from 1 to 7.

Internal consistency reliability for BIDR-6 subscales is acceptable, ranging from .65 to .75 for SDE and .75 to .80 for IM (Paulhus, 1994). For this study, internal consistency reliability estimates were .73 for SDE and .84 for IM. Test–retest correlations over a 5-week interval are also adequate, averaging .69 for SDE and .77 for IM (Paulhus, 1994). Concurrent validity is supported by strong associations with other measures of desirable responding (i.e., Edwards Social Desirability scale for the SDE subscale; the Wiggins Social Desirability scale and the Eysenck Personality Inventory Lie scale for the IM subscale [Paulhus, 1994]).

Procedure
High school women were recruited through health classes at a public high school in the Midwest. College participants were recruited through posted flyers and through introductory and advanced psychology classes. Sorority groups were also sent letters requesting their participation in this research, and two sororities participated out of nine contacted. Each participant was given a verbal description of the research project detailing the purpose of the study (i.e., the researcher “wants to examine the relationship between perceptions of weight control techniques and eating habits”). Participants were tested in small groups consisting of between 3 and 20 women per group. High school women did not receive credit for their participation,
but a presentation on maladaptive weight control techniques and eating disorders was provided by the first author after the students filled out the assessments. Psychology students received extra credit for their participation, and sorority women received community service hours for their participation. Participants first filled out a demographic questionnaire and indicated whether they had ever been diagnosed with or treated for a clinical eating disorder. The remaining assessments were counterbalanced (in terms of perceptions of weight control techniques and actual eating habits) to ensure that the order of the assessments did not influence the results. Approximately half of the participants received the BIDR-6 after the demographic questionnaire, followed by the effectiveness and safety measures, and the Q-EDD; the other respondents received the Q-EDD after the demographic questionnaire, then the effectiveness and safety measures, and the BIDR-6. In addition, participants' weights were obtained to assess the weight criterion for anorexia nervosa in the Q-EDD scoring procedure. Because pilot work indicated that participants' self-ratings of weight were highly correlated with their actual weight as measured by an accurate bathroom scale ($r = .98$), it was decided to assess only self-ratings of weight and not weight participants. For participants unsure of their weight, however, an accurate scale was available.

**RESULTS**

Percentages of women using individual maladaptive weight control techniques were generated and examined. It was noticeable when examining these percentages that a broad range exists in the use of such techniques. For example, only 1.4% of women indicated using enemas, whereas 59% of women indicated skipping meals to control their weight. In addition, it was noticeable that a fairly large percentage of the participants reported eating less than 1,200 calories a day (36.7%), eliminating fats from their diet (30.1%), engaging in heavy exercise on a daily basis (27.7%), eliminating carbohydrates from their diet (26.5%), and fasting for 24 hours or more (25.9%) to lose weight. The percentages of women using the individual “maladaptive” weight control techniques are presented in Table 1.

<table>
<thead>
<tr>
<th>Weight Control Technique</th>
<th>Percentage of Women Using Weight Control Technique</th>
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<tbody>
<tr>
<td>Appetite suppressants</td>
<td>15.7</td>
</tr>
<tr>
<td>Eating less than 1200 calories/day</td>
<td>36.7</td>
</tr>
<tr>
<td>Diuretics</td>
<td>6.6</td>
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<tr>
<td>Eliminating carbohydrates</td>
<td>26.5</td>
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<tr>
<td>Eliminating fats</td>
<td>30.1</td>
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<tr>
<td>Enemas</td>
<td>1.4</td>
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<tr>
<td>Fasting</td>
<td>25.9</td>
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<tr>
<td>Heavy exercise</td>
<td>27.7</td>
</tr>
<tr>
<td>Laxatives</td>
<td>7.2</td>
</tr>
<tr>
<td>Powder supplements</td>
<td>13.3</td>
</tr>
<tr>
<td>Skipping meals</td>
<td>59.0</td>
</tr>
<tr>
<td>Vomiting after eating</td>
<td>4.8</td>
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</table>

Each participant was placed into one of the three continuum groups based on the Q-EDD scoring method. For the analyses, the asymptomatic continuum group was coded as a 1, the symptomatic continuum group was coded as a 2, and the eating disordered continuum group was coded as a 3, as these groups represent a linear ordering of eating disorder symptomatology. Because the three eating disorder continuum groups were not found to differ according to age, $F(2, 163) = 2.77, p > .05$, and women in a sorority were not found to be placed in any of the three continuum groups significantly more frequently than would be expected, $\chi^2(2) = 1.55, p > .05$, all participant groups were combined into a single group for the purpose of data analyses.

Analysis of covariance (ANCOVA) and chi-square procedures were used to examine whether the eating disorder continuum groups differed according to demographic and research variables. For the ANCOVA, the independent variable was the level of continuum placement, the covariate was social desirability, and the dependent variable was number of ineffective and harmful weight control techniques. Eating disorder continuum group placement, when controlling for social desirability, was found to differ significantly according to the number of ineffective and harmful weight control techniques that respondents reported using, $F(4, 161) = 24.83, p < .001$. The three post hoc analyses, with Scheffe tests to counteract inflation of Type I error rate (Tabachnick & Fidell, 1996), indicated that the asymptomatic group reported using a lower number of ineffective and harmful weight control techniques than did the symptomatic ($p < .05$) and eating disordered groups ($p < .05$), and the symptomatic group reported using a lower number of ineffective and harmful weight control techniques than did the eating disordered group ($p < .05$). Two $2 \times 3$ chi-square analyses then were undertaken to explore the diagnostic and treatment trends for women in the continuum groups; the chi-square dimensions were diagnostic (or treatment) status and eating disorder continuum group placement. It was found that women in the eating disordered group had been diagnosed previously with, $\chi^2(2) = 29.76, p < .001$, and treated previously for, $\chi^2(2) = 19.12, p < .001$, a clinical eating disorder significantly more frequently than would be expected by chance, whereas women in the asymptomatic and symptomatic groups had been diagnosed previously with and treated previously for a clinical eating disorder significantly less frequently than would be expected by chance. These analyses suggest the validity of the present data because it is logical that women in the eating disordered continuum group reported using more ineffective and unsafe weight control techniques and more frequently reported having been diagnosed with and treated for an eating disorder.

Correlations between the total scores and subscale scores of the effectiveness and safety questionnaires were generated and examined. The overall correlation between the effectiveness and safety questionnaires was significant ($r = .71, p < .001$), yet it is not high enough to suggest that the use of both measures is redundant. The correlations between the short-term and long-term subscales of the effectiveness questionnaire ($r = .34, p < .001$) and the safety question-
naire \( r = .78, p < .001 \) were both significant with only the latter, however, suggesting "substantial" overlap in responses.

Next, t-test procedures were used to examine the hypothesis that women who report using at least one maladaptive weight control technique (i.e., in their Q-EDD responses) differ in their overall perceptions as well as their short-term and long-term perceptions of the effectiveness and safety of maladaptive weight control techniques (i.e., effectiveness and safety questionnaire responses) from women who report not using any of these techniques. It was found that women who reported using maladaptive weight control techniques differed from those who reported not using maladaptive weight control techniques in regard to their overall (total) effectiveness, \( t(164) = 4.82, p < .001 \), and overall safety, \( t(164) = 3.69, p < .001 \), perceptions; as well as regarding their short-term effectiveness perceptions, \( t(164) = 3.40, p < .01 \); long-term effectiveness perceptions, \( t(164) = 5.19, p < .001 \); short-term safety perceptions, \( t(164) = 3.16, p < .01 \); and long-term safety perceptions, \( t(164) = 3.88, p < .001 \). As expected, the effectiveness and safety means for these two groups of women indicate that women who report using maladaptive weight control techniques have higher overall, short-term, and long-term perceptions of the effectiveness and safety of maladaptive weight control techniques. These means, as well as the number and percentage of women who used maladaptive weight control techniques, are presented in Table 2.

To test the hypothesis that women’s overall perceptions of the effectiveness and safety of weight control techniques vary with continuum placement, a multivariate analysis of covariance (MANCOVA; i.e., controlling for social desirability) was calculated using overall scores of the Effectiveness and Safety of Weight Control Techniques Questionnaires as dependent variables, women’s placement in one of the eating disorder continuum groups as the independent variable, and the BIDR-6 Self-Deceptive Enhancement and Impression Management subscale scores as the covariates. Results were significant, \( F(4, 318) = 16.21, p < .001 \), Wilks’s \( \Lambda = .69 \), and indicated that women’s perceptions of the effectiveness, \( F(4, 161) = 16.87, p < .001 \), and safety, \( F(4, 161) = 12.55, p < .001 \), of weight control techniques varied as a function of continuum placement.

Post hoc comparisons were used to examine further how perceptions varied according to eating disorder continuum group placement, and trend analyses were used to observe if the mean scores across the continuum groups increased in a linear fashion for each of the questionnaires. Both the overall score of the effectiveness questionnaire and the safety questionnaire varied by eating disorder continuum group. Post hoc analyses, with Scheffé tests to counteract inflation of Type I error rate (Tabachnick & Fidell, 1996), indicated that all three continuum groups differed from each other in the expected manner for the overall effectiveness score and the overall safety score (asymptomatic and symptomatic difference, \( p < .01 \); asymptomatic and eating disordered group difference, \( p < .001 \); symptomatic and eating disordered group difference, \( p < .001 \)). Furthermore, trend analyses indicated that both the overall effectiveness, \( F(2, 163) = 63.19, p < .001 \), and the overall safety, \( F(2, 163) = 40.34, p < .001 \), subscales had mean scores that increased in a linear direction with respect to continuum placement.

An additional MANCOVA was used to explore whether the short-term and long-term subscale scores of the effectiveness and safety questionnaires varied for eating disorder continuum groups. Eating disorder continuum group served as the independent variable, the short-term and long-term effectiveness subscale scores and the short-term and long-term safety subscale scores served as the dependent variables, and the two social desirability scales on the BIDR-6 served as the covariates. The multivariate effect for group was significant, \( F(8, 314) = 8.12, p < .001 \), Wilks’s \( \Lambda = .69 \); the short-term, \( F(4, 161) = 9.65, p < .001 \); and long-term, \( F(4, 161) = 11.02, p < .001 \), subscales of the effectiveness questionnaire and the short-term, \( F(4, 161) = 11.90, p < .001 \), and long-term, \( F(4, 161) = 10.14, p < .001 \), subscales of the safety questionnaire varied significantly with con-

<table>
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<th>TABLE 2</th>
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<tr>
<td><strong>Total (eTotal, sTotal), Short-Term (eST, sST), and Long-Term (eLT, sLT) Effectiveness (e) and Safety (s) Means and Standard Deviations for Participants Who Report Using Maladaptive Weight Control Techniques and for Participants Who Report Not Using Maladaptive Weight Control Techniques</strong></td>
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<table>
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<tr>
<th>Group</th>
<th>Perceptions of</th>
<th>Effectiveness</th>
<th>Safety</th>
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<tr>
<td></td>
<td></td>
<td>eTotal</td>
<td>eST</td>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
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<tr>
<td>Report use (n = 130)</td>
<td></td>
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<tr>
<td>3.73</td>
<td>0.83</td>
<td>4.13</td>
<td>1.08</td>
</tr>
<tr>
<td>Report no use (n = 36)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.00</td>
<td>0.68</td>
<td>3.45</td>
<td>0.99</td>
</tr>
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*Note. Report use = women who report using at least one maladaptive weight control technique. Report no use = group of women who report not using any maladaptive weight control techniques. Scores could range from 1 to 7, with higher scores indicative of more maladaptive perceptions.*
The results of this study indicate good support for the stated hypotheses, adding much information to our knowledge base regarding high school and college women’s eating habits and perceptions of the effectiveness and safety of weight control techniques. Women who reported using maladaptive weight control techniques were found to differ from women who did not report using maladaptive weight control techniques regarding the overall, short-term, and the long-term perceptions of the effectiveness and safety of maladaptive weight control techniques. Specifically, those who reported using maladaptive weight control strategies rated them as more effective and safe overall, and more effective and safe in both the short-term and the long-term control of weight than did those who did not report using these strategies. Indeed, women who reported using maladaptive weight control techniques did seem to hold more disturbed perceptions of the effectiveness and safety of these techniques as suggested by Fairburn (1995).

Results also indicate good support for the hypothesis that overall perceptions of effectiveness and safety, as well as short-term and long-term perceptions of effectiveness and safety, vary in a linear fashion with respect to eating disorder continuum group placement, even after social desirability effects are parialed out. Perceptions of effectiveness and safety of maladaptive weight control techniques do seem more disturbed for women nearer the eating disordered end of the continuum. These results are congruent with previous literature on the continuum hypothesis, which suggests that the fundamental differences among individuals with clinical eating disorders and individuals with milder forms of eating disorders are a matter of degree, not kind (Mintz & Betz, 1988; Nylander, 1971; Rodin et al., 1985; Scarano & Subich, 1999). In this study, women’s perceptions of the effectiveness and safety of maladaptive weight control techniques differed in degree in accordance with their placement along the three ordered categories of the eating disorder continuum. Means and standard deviations of the effectiveness and safety perceptions illustrate a gradual progression, with women lowest on the continuum (i.e., asymptomatic group) of the three groups studied rating maladaptive techniques as least effective and safe and women highest on the continuum (i.e., eating disordered group) rating these techniques as most effective and safe.

**TABLE 3**

| Total (eTotal, sTotal), Short-Term (eST, sST), and Long-Term (eLT, sLT) Effectiveness (e) and Safety (s) Means and Standard Deviations for Three Eating Disorder Continuum Groups (N = 166) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | eTotal | eST | eLT | sTotal | sST | sLT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asymptomatic (n = 45) | 2.97 | 0.59 | 3.34 | 0.92 | 2.60 | 0.58 | 2.47 | 0.50 | 2.71 | 0.59 | 2.23 | 0.51 |
| Symptomatic (n = 86) | 3.60 | 0.78 | 4.03 | 1.11 | 3.18 | 0.94 | 2.93 | 0.78 | 3.24 | 0.93 | 2.63 | 0.76 |
| Eating disordered (n = 36) | 4.26 | 0.78 | 4.66 | 0.76 | 3.86 | 1.13 | 3.57 | 1.00 | 4.02 | 1.14 | 3.12 | 0.96 |

*Note. See Table 2 Note.*
Findings from this study thus lend support to the hypothesis that the eating disorder continuum is a useful theory to organize current thinking and research on various subclinical and clinical eating disorders (Scarano & Kalodner-Martin, 1994).

Although women categorized as being higher on the continuum generally perceived the ineffective and unsafe weight control techniques as more effective and safe than did those categorized as being lower on the continuum, it is imperative to note that the means for their perceptions of the maladaptive techniques do not indicate that those higher on the continuum endorsed these techniques as clearly effective and safe; the highest mean value obtained was only 4.66 on a 7-point scale (i.e., a value of 4 on the rating scale indicated that the weight control technique was perceived to be moderately effective/safe). Nevertheless, the present pattern of results supports the assumptions of many therapeutic approaches (Fairburn, 1995) that individuals with eating disturbances have more maladaptive perceptions of weight control techniques than do symptomatic individuals or those who are asymptomatic and that these maladaptive perceptions increase with degree of eating disturbance.

Finally, the present analyses illuminate some differences between women's short- and long-term perceptions of effectiveness and safety. Maladaptive weight control techniques were rated overall as more effective and safe in the short term than in the long term, and women who reported using these techniques held higher perceptions of their effectiveness and safety than did women who reported not using these techniques. Therefore, although women did not indicate that they perceived the maladaptive weight control techniques as clearly effective and safe either in the short or long term, the observed response pattern may be extrapolated to suggest that women who use maladaptive weight control techniques may more strongly perceive these techniques as a way to obtain short-term gains (i.e., believing that their use will lead to rapid weight loss) with few immediate consequences (i.e., health risks). From these results, it seems that many high school and college women realize that many maladaptive weight control techniques are unsafe. Yet, it also seems that they still use these maladaptive weight control techniques, perhaps because these techniques are seen as an effective way to lose weight with little immediate risk to physical health.

**Implications for Theory, Research, and Practice**

As seen in the results of this study, a large percentage of high school and college women use maladaptive weight control techniques in hopes of weight regulation; however, these young women seem to have at least some knowledge about the ineffectiveness and dangers of these techniques. One framework from which to understand these results is that of cognitive dissonance. Cognitive dissonance theory suggests that individuals desire to maintain consistency within themselves, and the existence of dissonance, or inconsistency between attitudes and behavior, is uncomfortable and will motivate the person to try to reduce the dissonance and achieve consonance (Festinger, 1957). Moreover, to arrive at consistency, it is thought to be easier to change attitudes than it is to change behaviors (Festinger, 1957). In terms of this study, this theory suggests that women higher on the eating disorder continuum may have encountered information on the effectiveness and safety of weight control techniques in the past, but because this information was inconsistent with their eating behavior, they may have ignored this information as they made their ratings for the present research. Just as people who smoke often deny claims that smoking is harmful in order to reduce dissonance (Festinger, 1957), women in the eating disordered category on the eating disorder continuum may be motivated to reduce dissonance by minimizing the extent to which certain weight control techniques are ineffective and harmful.

If accurate, this framework may explain the difficulty encountered by counselors in attempting to change the attitudes of clients with eating disorders (Fairburn, 1995). Adopting and exploring the use of cognitive dissonance theory in research and practice in the area of eating disorders may be productive. For example, strategies to alter cognitions may be conceptualized as ways to challenge the cognitive dissonance that women in symptomatic or eating disordered groups on the eating disorder continuum may be experiencing. There is very limited research focusing on the role of cognitive dissonance in relation to eating disorders, and, given the attitude-behavior relation noted in this research, further study of it may clarify how best to help individuals change their behaviors of using ineffective and harmful weight control techniques.

The role of socialization may also provide a framework from which to conceptualize the results of this study. Mass media serve to promulgate the message that women must be thin and to minimize the consequences that may result from excessive dieting and exercising (Kilbourne, 1994; Schmidt & Treasure, 1993). For example, the advertising industry influences cultural standards and individual behaviors with its emphasis on excessive thinness for women and its offers of "miracle" methods to achieve weight loss (Kilbourne, 1994). Indeed, many weight control techniques (e.g., appetite suppressants, powder drink supplements) are marketed as effective and safe when research shows that they clearly are not effective and safe (Schmidt & Treasure, 1993). Women are socialized to value a thin physique, and those who adopt this ideal may internalize advertisers' statements that weight control products are effective and safe to a greater degree than may women who do not adopt this ideal.

In terms of this study, perhaps the women in the eating disordered group were more susceptible to media images of thinness and statements about weight control products and techniques than were asymptomatic women. Furthermore, in actively pursuing different weight control techniques to use, more susceptible women may increase their exposure to societal messages and weight loss techniques, thereby consolidating the impact of media socialization. For example, it has been proposed that a reciprocal relationship exists between the individuals and the mass media in that individuals who
choose to purchase fashion magazines and beauty products actively contribute to a context in which they are more likely to compare themselves with unrealistic images, feel inadequate as a result of this comparison, and therefore take action to attain such ideals (Irving, 1998). It may be useful to further explore what factors make women differentially susceptible to media influence.

Although the cognitive dissonance and media socialization frameworks may operate independently in the development of disordered eating, they may also be integrated into a single framework. It has been proposed that messages from the media may promote eating disordered attitudes and behaviors (Kilbourne, 1994). These messages from the media may differentially affect women and subsequently may be less challenged by women who have begun to accept such messages and to develop consonant attitudes (e.g., being thin at any cost) and behaviors (e.g., using extreme weight control strategies). Women who are more susceptible initially to media statements about images of thinness and weight control products and techniques may not subsequently challenge these statements because of cognitive dissonance. As a result, cognitive dissonance may set up a reciprocal influence, which then strengthens the woman’s eating disordered behavior.

Although the present study represents a first step in the exploration of the role of perceptions of effectiveness and safety of weight control techniques, its results raise many questions for further research in this area. First, additional cognitions need to be examined with respect to eating disorder continuum placement. For example, women’s beliefs regarding the context for women’s behavior (e.g., gender role expectations) may relate to eating disorder continuum placement. Women who hold beliefs that women are “supposed to” diet and be thin may be more susceptible to the development of eating disturbances. The investigation of the relationship between cognitions such as these and eating disorder continuum placement may offer a new direction to the understanding, prevention, and treatment of eating disturbances among women and offer possible explanations of why some women, and not others, further develop clinical eating disorders. Second, more research is needed to examine the psychometric properties of the present effectiveness and safety questionnaires because they are newly constructed and thus have limited evidence for their reliability and validity. Third, the generalizability of these results is restricted due to the limited diversity of the sample. Because this sample consisted mostly of Caucasian high school and college women from a limited geographical area, much more research on perceptions of weight control techniques is needed to see if these results can be replicated and applied to men, persons of different races and geographical areas, and younger samples of women (e.g., junior high students). Fourth, longitudinal research is needed to investigate how effectiveness and safety perceptions may develop and change with or without treatment. Fifth, future research needs to examine whether there are person variables (e.g., neuroticism) that mediate the relationship between maladaptive cognitions of the effectiveness and safety of weight control techniques and the level of eating disturbance.

Nevertheless, the results of this study have many treatment and prevention implications for counselors and organizations (e.g., college counseling centers, high school guidance programs) serving young women. In particular, the present findings support the relation of perceptions, in particular those of effectiveness and safety of maladaptive weight control techniques, to women’s behavior and placement along the ordered categories of the eating disorder continuum. Because these perceptions vary in a linear fashion with respect to continuum placement, it seems that addressing them in the treatment of disturbed eating may facilitate amelioration of women’s eating disordered behavior. Cognitive dissonance and socialization theory, however, suggests that this might not be a simple process. Counselors need to be aware that these maladaptive cognitions may not be obvious. The present findings indicate that women who have eating disorders do not report that more maladaptive weight control techniques are very effective or very safe but instead report only somewhat positive attitudes about these weight control techniques. Counselors may need to look for subtle cues (i.e., a failure to agree that a weight control technique is ineffective or unsafe) rather than more obvious ones. In addition, consistent with cognitive dissonance theory, information about weight control techniques may be more easily accepted if someone other than the counselor (e.g., a dietician) relates this information to the client. Because the client may perceive that the counselor’s goal is to change her beliefs and thus try to resist this change (Ellis, Abrams, & Dengelegi, 1992), it may be more effective if someone who does not have such a relationship with the client relates information about the ineffectiveness and dangers of maladaptive weight control techniques. This supports a multidisciplinary approach to the treatment of eating disorders (Garfinkel & Garner, 1982, 1997).

Finally, these results support incorporating discussions about the effectiveness and safety of weight control techniques into eating disorder prevention programs and health education. Early education programs (i.e., beginning in elementary schools and junior high schools) need to combat socialization messages and to address specifically what weight control strategies (i.e., appetite suppressants, vomiting after eating, eating less than 1,200 calories a day) are both ineffective and harmful before girls are pressured to begin using these techniques for desired weight loss.

REFERENCES


