

Appearance Vs. Health:
Does the Reason for Dieting Affect Dieting Behaviour?

by

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B.A., McGill University, 2000

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

In

THE FACULTY OF GRADUATE STUDIES

(Department of Psychology)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

August 2002

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Abstract

Objective: The purpose of this study was to investigate whether dieting out of concern for one's health, as opposed to for appearance reasons, is associated with the same negative consequences normally associated with chronic dieting. **Method:** 110 student and 96 community women dieters completed self-report measures of various eating behaviours, psychological variables, and motivations behind their dieting. **Results:** The findings indicated that individuals who were motivated to change their appearance through dieting were younger than those dieting to improve their health. They were also more likely to use drastic dieting strategies, and to score higher on measures of disinhibited eating, or lapses in restraint. On the other hand, it was found that dieting driven by health concerns was associated with fewer negative sequelae. **Discussion:** These results suggest that not all dietary behaviour labelled as 'dieting' is equally harmful, and that the driving force behind the dieting is a more important factor to consider than dietary restriction per se.

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Background

Despite a burgeoning weight-loss industry, Western societies are battling an escalating prevalence of obesity and obesity-related illness (Flegal, Carroll, Kuczmarski, & Johnson, 1998) and this trend is paralleled by media depictions of the ideal physiques becoming slimmer than ever. Ultimately, both changes have similar implications on a societal level—namely, that more and more people are preoccupied with their weight and are dieting to change it. In addition, there is rising awareness that diet plays an important role in the etiology and prevention of illness. Preoccupation with weight loss and dieting has become so widespread that periodic dieting may now even be considered ‘normal’ behaviour (Polivy & Herman, 1987). According to a study by French and Jeffery (1994), 20% of adults had reported that they were currently dieting to lose weight, with approximately 61% of adults reported having ever dieted. Recent estimates of the prevalence of dieting suggest an upward trend, and among some populations, such as female college students, prevalence rates are often as high as 50-60% (French & Jeffery, 1994). Since dieters and dieting strategies vary tremendously, numerous attempts have been made to understand why it is that certain dieters are unsuccessful and even negatively affected by dieting, while others are not. The reasons for, and the consequences of this heterogeneity have yet to be established. The study described below will attempt to shed light on this issue. More specifically, this study addressed the question of whether different approaches to and motivations for dieting influence the cognitive and behavioural ramifications of dieting.

The literature on diet and dieting is dichotomized into two fields: one group of researchers is attempting to ameliorate the health and weight of overweight persons by seeking ways to improve adherence to diet and other weight-loss recommendations (e.g. Devlin, Yanovski, & Wilson, 2000). On the other side are researchers who see dieting as a behaviour that needs to be diminished (e.g. Polivy & Herman, 1983; Wooley & Garner, 1991). Granted, these two camps are frequently targeting different

populations: the weight loss researchers focus on the overweight, while the dieting literature also includes normal-weight individuals. However, no attempt has been made to bridge these two camps. This study represents an initial effort at rendering the two positions closer.

Dietary Restraint

A fundamental concept in the examination of dieting behaviour is that of dietary restraint. Dietary restraint (or restrained eating) refers to the tendency to consciously restrict food intake in an effort to maintain one's weight or produce weight loss. The theory of restrained eating evolved from the realization that the observed eating behaviours of overweight persons were not, in fact, the cause of their obesity, but an actual consequence of their history of repeated weight loss attempts and chronic dieting (Herman & Mack, 1975). A vast literature now describes dieters, who are of normal weight, but who behave like dieting obese in their approach to eating. Herman and Polivy (1980) noted that a number of behavioural, emotional, and cognitive features characterize restrained eaters, above and beyond their concern with dieting and monitoring of food intake. Moreover, it has been well documented that in some conditions (as described below), dieters' eating behaviour is actually opposite to that of nondieters. Dieters (as classified by the Restraint Scale) display the tendency to overeat when anxious, whereas for normal, unrestrained eaters, anxiety leads individuals to eat less (Herman & Polivy, 1975). The same is true for individuals under stress (Rutledge & Linden, 1998). Since then, a variety of factors and conditions in which dieters respond by overeating have been described, such as dysphoric mood, alcohol consumption, and leading dieters to believe that they have broken their diets by having them consume a preload of food (Ruderman, 1986). The ingestion of a preload, anxiety, or other strong mood states all act as temporary suspensions on the dieters' chronic conscious control over their food intake. In response to this disruption of their closely monitored intake, the dieter's normally restrained appetite is unleashed, and overeating ensues (Polivy & Herman, 1985). This phenomenon, which has been termed *disinhibition* or *counterregulation*,

has been described as a characteristic of the dieter that is as notable as the restraint per se (Ogden, 1992). Reasons for this counterregulatory effect range from physiological explanations, and disassociation from conditioned satiety signals, to distraction from distress and learned helplessness (Polivy & Herman, 1999). Other psychological features associated with restrained eating include exaggerated responsiveness to nutritional or food-related cues (Tuschl, 1990), increased distractibility and emotionality, (Herman & Polivy, 1975; Polivy, Herman, & Warsh, 1978) depression, and anxiety (French & Jeffery, 1994). Physiological ramifications of dieting have also been noted, such as elevated triglyceride levels (Laessle, Tuschl, Kotthaus, & Pirke, 1989), and repeated weight cycling, which itself has been associated with higher risks of morbidity (Lissner et al., 1990). Additionally, restrained eating has been implicated in the development of eating disorders such as binge eating, bulimia, and anorexia nervosa (Polivy & Herman, 1985; Tuschl, 1990). Due to the mounting awareness of the many negative concomitants of dieting, as well as the failure of many dieting and weight-loss programs to induce long-term weight loss (Wooley & Garner, 1991), the sentiment that dieting is inadvisable for most people has been gaining momentum (Polivy & Herman, 1983; Polivy & Herman, 1985).

Disinhibition

While most researchers in the area of restraint argue that disinhibition and periods of overeating represent a central tenet of dietary restraint (Heatherton, Herman, Polivy, King, & McGree, 1988; Ogden, 1992), others have more recently pointed out that there is a subset of dieters who do not counterregulate, who are able to successfully restrain their food intake, and who can lose weight and maintain this weight loss (Ferguson, Brink, Wood, & Koop, 1992; Lowe & Kleifeld, 1988; Stunkard, & Pudel, 1999; Van Strien, 1997; Westenhoefer, 1991). More specifically, the Restraint Scale (RS; Herman & Polivy, 1975) has been shown to predict disinhibited eating in the laboratory, yet has been criticized for confounding restraint and disinhibition (Heatherton et al., 1988; Stunkard & Messick, 1985). This lack of differentiation between

success and failure in dieting, in addition to other concerns, prompted the development of two other scales, namely, the Three Factor Eating Questionnaire (Stunkard & Messick, 1985) and the Dutch Eating Behavior Questionnaire (Van Strien, Frijters, Bergers, & Defares, 1986). These measures have separate scales for the two phenomena of restraint and disinhibition. Restraint and disinhibition are negatively correlated in the TFEQ. The fact that the disinhibition scale was found to be related to binge eating, whereas the TFEQ restraint subscale was not has been taken as further evidence that these two constructs are indeed distinct (Stunkard & Messick, 1985). Proponents of the RS maintain, however, that the more representative dieter is one who exhibits periods of restraint, yet experiences disruptions of this restraint by episodes of overeating. Thus, the purpose of the Restraint scale was to identify these types of (presumably) more typical dieters, and therefore, it is argued that disinhibition is a vital part of the construct (Heatherton et al., 1988). Others point out that because restrained eating can be manifested without disinhibited eating being the inevitable result, the two constructs are relatively independent, and thus separate scales are warranted (Stunkard & Messick, 1985).

Restrained and disinhibited eating are often considered to be contributing factors in the etiology of eating disorders. At the very least, restrained eating is thought of as representing a midpoint on a continuum, with "normal" eating on one end and disordered eating on the other (Polivy & Herman, 1985; Polivy & Herman, 1987). Furthermore, whether or not one's restrained eating makes one susceptible to periods of overeating has implications for weight loss and maintenance (Heatherton, Polivy, & Herman, 1991; Lowe & Kleifeild, 1988). In other words, "unsuccessful" dieting bears consequence for both weight gain (or unhealthy weight fluctuation), and for the development of disordered eating. Therefore, insight into which types of diets, and types of dieters are at risk for either the development of an eating disorder or for whom dieting will not result in weight loss would be a valuable step in our understanding of dieting behaviours.

Heterogeneity of Dieters

Numerous attempts have been made to identify variables that distinguish between dieters who are prone to overeating, and those who are able to exert more enduring restraint. Westenhoefer (1991) found that those who scored higher on a disinhibition scale were more prone to use such dietary practices as counting calories, eating low-calorie foods, and avoiding certain foods, whereas those scoring lower on the scale tended to take smaller portions, and ate more slowly. Disinhibited eaters also felt guiltier after overeating than those less prone to disinhibition. Interestingly, those scoring higher on the disinhibition scale actually represented the minority of this particular sample. The author concluded that dietary restraint is not a homogeneous construct, but may represent two dimensions—flexible versus rigid control. Rigidly controlled eating behaviour was found to be associated with higher disinhibition scores, higher body mass index, and generally more disturbed eating patterns, whereas flexible control was associated with lower disinhibition scores and more successful weight reduction (Westenhoefer et al., 1999). Other distinguishing features of more unsuccessful dieters include poorer impulse regulation, perfectionism, drive for thinness and more weight fluctuation (Van Strien, 1997). In a study that examined the relationship between restraint and body weight, restrained eaters were found to have more weight fluctuation, and were not necessarily successful at losing weight (Heatherton et al., 1991). However, in this particular study, restraint was assessed with the Restraint scale, and hence it is not clear whether it is the restrained eaters, or simply those who are prone to overeating (i.e. disinhibited eaters) who are not successful at weight loss. Further evidence that restraint per se is not necessarily related to overeating was found by examining a group of weight suppressors, or individuals who were successful at initiating and maintaining a significant weight loss (Lowe & Kleifield, 1988). These individuals ate less than controls following a preload. The results did not elucidate whether these people represented a subset of dieters who simply were not susceptible to overeating to begin with; hence, they were able to reduce their

weights. Alternately, these individuals were successful in losing weight fairly easily, and thus did not have to diet long or intensely enough to become the chronic, prototypical dieter who is prone to lapses in control. As Westenhofer (1991) aptly stated, "dietary restraint covers several behavioural and cognitive strategies concerning restriction of food intake, some of which may promote the development of disturbances of eating behaviour, and others may not" (p.53). However, it remains to be seen why for certain people the consequences of dieting are undesirable, and possibly even counterproductive, while others are capable of dieting without negative ramifications.

Body Dissatisfaction

One factor that has been more recently linked with degree of restraint and disinhibited eating is body dissatisfaction (Dewberry & Ussher, 1994; Paa & Larson, 1998; Ricciardelli, Tate, & Williams, 1997). Research has shown that the level of body dissatisfaction predicts dietary restraint, using both the DEBQ and the Restraint scale (Dunkley, Wertheim, & Paxton, 2001; Paa and Larson, 1998). Not surprisingly, higher overall restraint scores are also associated with more unsuccessful dieting, or lapses in restraint (Ogden, 1992). Of course, it is unclear whether people who are prone to overeating are forced to exert more restraint in order to keep their body weight down, or whether it is the intense restraint that makes one susceptible to overeating. Thus, it appears as though dissatisfaction with one's body is related to the degree of restraint one exerts, and the degree of restraint may be related to experiencing failure of restraint. The relationship may be complicated even further by the unexpected finding of Ricciardelli et al. (1997) that body dissatisfaction actually mediated the relationship between restrained eating and bulimic patterns of eating. Restrained eating by itself did not explain any unique variance in binge eating over and above the salience of weight and shape. These findings do not shed light on whether body dissatisfaction leads to restraint, possibly because the researchers measured dietary restraint with the TFEQ, which, unlike the Restraint scale, does not contain items related to disinhibited eating. Additionally, the

researchers did not assess the relationship between body dissatisfaction and disinhibition; more severely disturbed eating was assessed using a bulimia scale in its place. What this study did point out, however, is that dietary restraint by itself cannot account for failure. Similarly, Neumark-Sztainer, Butler, and Palti (1995) studied a population of nonclinical adolescent girls (of which a startling 54% reported that they were currently dieting) and found that girls with lower self-esteem and higher body dissatisfaction were more likely to binge eat than other dieters.

Further evidence for the lack of homogeneity among dieters is that body dissatisfaction was not related to dieting in older men, whereas it was related to dieting in women and young men in one study (Davis, Shapiro, Elliott, & Dionne, 1993). The authors surmised that their finding of a relationship between neuroticism and dieting in older men might have reflected their concerns about health, although this hypothesis was not tested. The implications of dieting (such as overeating) for the different age groups and genders were also not assessed in this particular study. Taken together, all of these findings lead one to wonder if dieting that is not primarily motivated by dissatisfaction with one's body, and instead is motivated predominantly by health reasons would still result in the perils so often associated with dieting.

Self-esteem

Self-esteem, a related but broader concept than body dissatisfaction, has also been studied with respect to its relationship with dieting. For example, in an attempt to further understand the phenomenon of disinhibition, Polivy, Heatherton, and Herman (1988) found that only subjects who were classified as having low self-esteem displayed disinhibited eating after a preload. It is not clear whether subjects with low self-esteem are more susceptible to stress-induced eating, or, conversely, if repeated episodes of disinhibited eating take their toll on one's self-esteem (Polivy et al., 1988). However, this study has been criticized on methodological grounds in that self-esteem was measured after the taste testing (Eldredge,

1993). Nonetheless, self-esteem may still have bearing on the decision to diet in the first place, and the subsequent experience that ensues.

Reasons for Dieting

There is a glaring omission in the literature as to whether certain types of dieting predispose individuals to be more likely to overeat when disinhibited. Studies have demonstrated that restrained eating can be experimentally induced, thus challenging the notion that restrained eating is a trait (Lowe et al., 2001; Wardle & Beales, 1988). However, studies generally examine the effects of undergoing standard calorie-restricted diets, and thus it is unclear whether all types of dietary modifications would induce similar effects. It is not clear whether simply feeling as though one is dieting (ie. the cognitive aspect of restricting oneself) automatically makes one a restrained eater. Many people attempt to implement healthier eating habits as a weight-loss strategy or simply to improve their health by following recommended guidelines, such as eating less saturated fat, and consuming more fibre, fruits and vegetables (U.S. Department of Health and Human Services, 1990). It seems important to establish whether, by doing so, they may become restrained eaters and/or susceptible to disinhibited eating.

Research has shown that restrained eaters choose different foods, such as artificially sweetened foods, lower-fat items, and calorie-reduced items (Tuschl, Laessle, Platte, & Pirke, 1990). It has also been demonstrated that adolescent girls who used more moderate, rather than unhealthy or dangerous methods of dieting are less likely to binge (Neumark-Sztainer et al., 1995). Finally, Westenhoefer (1991) reported that "rigid" dieters, who consume more low-calorie foods and avoid certain foods altogether, are more prone to disinhibition. This raises a number of questions. Does simply changing the *nature* of one's diet (i.e. eating healthier foods) have negative psychological and behavioural implications? Does the strategy one chooses, fuelled perhaps by different motivations and reasons for dieting or losing weight, make a difference in what type of dieter one will become, and, ultimately, what type of effect that will have

on eating behaviours? A qualitative report that documented people's reasons for entering a weight-loss regime found that those who were successful at losing a significant amount of weight (changed their BMI category) were most likely to mention health reasons for losing the weight (Brink & Ferguson, 1998). The most motivating health reasons tended to be acute (such as cardiovascular disease), as opposed to chronic illnesses (such as diabetes), suggesting that immediate problems were more motivating.

Underweight women made the highest percentage of comments regarding appearance as a motivating factor. This report, however, did not include restrained eaters (normal or slightly above-weight dieters who are often not successful at maintaining weight loss) nor did it include measures of dietary restraint, disinhibition, or dieting approaches. It also failed to assess body dissatisfaction. It seems as though the reasons for wanting to lose weight and the chosen approach might play an important role in determining its ultimate success, and thus, possibly influence the consequences of dieting on one's cognitions and behaviours. A young, thin female who is deeply dissatisfied with her body will undoubtedly approach dieting very differently than a middle-aged person who wishes to change the nature of his/her diet in an effort to reduce his/her risk of a recurring heart attack. This issue of motivating factors has been neglected in the literature on dietary restraint and is addressed in this study.

Locus of motivation

Another factor that may have implications for dieting is related to the motivation behind dieting as primarily internal or externally driven. In one study, participants reported that the most frequently given reason for losing weight was that a physician had commented on their weight (Brink & Ferguson, 1998). In addition, several men mentioned that it was their wives who had made the dietary modifications for them. It is possible, then, that the degree to which one is intrinsically motivated to lose the weight would influence dietary behaviours, regardless, or even despite recommendations from others to the contrary. Obviously, a physician would not recommend weight loss to a normal weight individual. Therefore,

whether weight loss is warranted given a person's level of overweight and overall health is a factor to consider as well. Williams, Grow, Freedman, Ryan, and Deci (1996) found that autonomous motivation to participate in a weight-loss program was positively related to attendance in the program, the amount of weight lost, and the maintenance of the weight loss. It therefore appears as though the locus of motivation to diet would be a variable of interest in research on dietary restraint, as its relationship to dieting remains rather nebulous.

The purpose of this study was to explore several underresearched factors in dietary restraint in an attempt to elucidate the very complex phenomena of restrained eating and disinhibition. First, in order to derive an overall picture of how the variables of interest are related, the nature of the relationship between the following variables was sought: reasons for dieting, the locus of motivation for dieting, the strategy or approach one takes when altering one's dietary habits, body dissatisfaction, self-esteem, restraint and disinhibition. Next, whether those dieting for primarily appearance reasons would differ from those dieting for health reasons is investigated. It was hypothesized that the lower one's body dissatisfaction and self-esteem, the more likely it would be for dieting to be motivated by appearance concerns. Furthermore, it was predicted that if dieting is largely fuelled by appearance concerns, eating behaviour would be more marked by restraint and periods of disinhibition.

Methods

Participants

Two female samples were studied: a community sample and an undergraduate student sample. The student participants were recruited from the University of British Columbia psychology department. Advertising was directed only at students who were currently dieting. In return for course credit (and in order to receive two credits), the students were asked to complete a packet of questionnaires and also to

find an adult in the community who was dieting to complete the same questionnaire. Students who only returned their own questionnaire received 1 credit. Given that a only a small number of males participated in the study, results were analyzed using female participants exclusively. A total of 110 students and 96 community females completed questionnaires. Consistent with the demographics of the student population of UBC, 44.7% of the sample identified their ethnicity as East Asian, while 25.7% were White of European descent, and the rest were of various other ethnic backgrounds.

Measures

Weight and height. Subjects' self-reported weight and height were used to get a rough estimate of participants' body mass index ($BMI=kg/m^2$).

Restraint. Restraint was measured using two different measures, the Restraint Scale (RS; Herman & Polivy, 1975), and the Three-Factor Eating Questionnaire Cognitive Restraint subscale (TFEQ; Stunkard & Messick, 1985). The RS is a 10-item self-report questionnaire that assesses weight fluctuations, degree of chronic dieting, and attitudes toward weight and eating. The measure contains two subscales, the Weight Fluctuation, or WF subscale, and the CD, or Concern for Dieting subscale. Respondents are asked to indicate the degree to which certain statements, such as "How conscious are you of what you are eating?" or "Do you eat sensibly in front of others and splurge alone?" apply to them, by circling the appropriate statement, such as *never*, *moderately*, or *2.1-3 pounds*, and so on. Each item receives a score of 0-3 or 0-4. In general, the internal consistency of the RS is high, as Cronbach's alpha typically exceeds .75 (Gorman & Allison, 1995). Test-retest reliabilities tend to support the notion that dietary restraint is more of a consistent trait, rather than a state (Gorman & Allison, 1995). However, persons can become restrained eaters after participating in a dieting program (Lowe et al., 2001; Wardle & Beales, 1988). The factor structure of the RS has been a disputed issue. As previously mentioned, the RS has been criticized for selecting dieters with a high tendency towards disinhibition (Stunkard &

Messick, 1985; Heatherton et al., 1988), while the fact that both the concern for dieting as well as weight fluctuation items contribute to the overall score has also been controversial (Drewnowski, Riskey, & Desor, 1982; Heatherton et al., 1991; Ruderman, 1983). The factor stability has proven to be excellent in both obese and nonobese samples (Gorman & Allison, 1995).

The TFEQ-R, or Cognitive Restraint subscale of the Eating Inventory (Stunkard & Messick, 1985) was also included in order to obtain a "purer" measure of restraint, one that is not plagued by concerns of confounding weight fluctuation and disinhibition with restraint. However, both scales were included since the differences were of interest, given that some have claimed that the TFEQ tends to identify successful dieters, whereas the RS isolates more unsuccessful ones (Heatherton et al., 1988). The TFEQ is a 51-item inventory that contains a mixture of true/false and multiple-choice items. The questionnaire has three subscales: Cognitive Control of Eating (restraint), Disinhibition, and Susceptibility to Hunger. An example of an item from the restraint subscale is: "I consciously hold back at meals in order to not gain weight". The TFEQ-R has been found to have internal consistency coefficients that are generally above .80 (Gorman & Allison, 1995), and has demonstrated a two-week test-retest reliability of .91. The fact that the TFEQ has a separate disinhibition scale, and the fact that the TFEQ-R scale has a weak and inconsistent relationship with disinhibited eating can be taken as evidence for discriminant validity.

Disinhibition. Disinhibition was assessed using the disinhibition scale of the TFEQ. This scale has been found to have good reliability, with a coefficient alpha of .91, and a three-month test-retest reliability of .93 (Stunkard & Messick, 1985). This scale assesses the extent of disinhibition of control over restraint, and includes items such as: "Sometimes things just taste so good that I keep on eating even when I am no longer hungry" and "It is not difficult for me to leave something on my plate". The Hunger subscale of the TFEQ, which includes items such as "at certain times of the day I get hungry because I have gotten

used to eating then”, and which reflects feelings of hunger and its behavioural consequences (Stunkard & Messick, 1985) was completed by participants as well.

Dieting strategies. Given that there does not appear to be a standardized measure to assess dieting strategies, three questions were designed to assess the degree to which participants are engaging in various dieting strategies. One question assessed the extent to which they are using some degree of effortful caloric restriction, such as counting calories, reducing portion sizes, or attempting to eliminate carbohydrate or fat intake. Another assessed the use of more healthful eating strategies, such as reducing fat intake, consuming more whole grains, fruits and vegetables (as defined by the US Department of Health and Human Services, 1990). The final question assessed the extent to which they were using relatively unhealthy or potentially dangerous dieting practices, such as excluding entire food groups, taking laxatives, or vomiting (Neumark-Sztainer, et al., 1995; Rock & Coulston, 1988). Participants rated the extent to which they were engaging in such practices on a 10-point scale.

Self-esteem. Self-esteem was assessed using a widely used measure, the Rosenberg Self-Esteem Scale (RSE; 1965). This measure consists of 10 items that measure global self-esteem. Respondents are asked to rate the 10 items on a Likert-type scale from 1 (*strongly agree*) to 4 (*strongly disagree*), yielding scores between 10 and 40, where lower scores indicate higher self-esteem. Sample items include, “At times I think I am no good at all” and “I take a positive attitude toward myself”. This scale has demonstrated good reliability, with coefficient alphas ranging from .82 to .87, and 7-month test-retest reliabilities of .73 (Alfonso, 1995). This scale has also been found to have good validity as a unidimensional scale (Alfonso, 1995).

Body dissatisfaction. In order to assess body dissatisfaction, the Body Dissatisfaction subscale of the Eating Disorder Inventory-2 (EDI-BD; Garner, 1991), one of the most widely used global measures of body dissatisfaction, was used. This questionnaire has a six-point scale to measure satisfaction with nine

different body sites, such as the hips and stomach. Respondents rate whether each item applies to them *always, usually, often, sometimes, rarely, or never*. The most extreme, or pathological response earns a score of three, the immediately adjacent response a two, and the next a one. The three remaining choices receive no score. An example of an item is: "I feel satisfied with the shape of my body". All EDI-2 subscales have been shown to have coefficient alphas above .65, and three-week test-retest reliabilities range from .65-.92 (Williamson, Anderson, Jackman, & Jackson, 1995). The BD subscale has also demonstrated good convergent validity with other measures (Williamson et al., 1995).

Reasons for dieting and locus of motivation. Since no already existing measure assesses reasons for dieting, or the locus of motivation, four items were constructed to assess the extent to which participants were dieting for primarily health versus appearance-related reasons, both for themselves or at the request or urging of someone else. The items ask participants to indicate the extent to which the reason they are dieting is to improve their appearance or improve their health on a 10-point scale. Two of the items assessed the extent of appearance motivations (for self and others), and two assessed the extent of health motivations (for self and others). These four items were also collapsed (summed) to form several total scores. A total "other" score was derived by summing the other appearance and health question together, yielding scores that could range from 2 to 20. This score represents the extent to which one's dieting is motivated by others. The total "self" score, which reflects the extent to which one is dieting for oneself was similarly calculated by summing the two self scales, also yielding scores that could range from 2 to 20. A total "appearance" score, or the extent to which one is dieting to change one's appearance was calculated by summing the two appearance questions (both for self and other), and a total "health" score, reflecting the extent to which one is dieting to improve one's health was calculated by summing the two health questions. Both yielded scores with a possible range of between 2 and 20. All of these four scores were non-redundant and did not overlap. Finally, a total appearance motivation score was

calculated by reversing the health score and summing it with the appearance question to yield one score that represented the extent to which a participant is dieting for appearance reasons, and could range anywhere from 4 to 40. This score was used to reflect the degree to which one is dieting for primarily appearance-related reasons.

Additional items. In addition to the aforementioned scales, participants were asked how many pounds (or kilograms) they wished to lose, the duration of their diets, how many times they had dieted in the past, and whether dieting was encouraged in their families.

Procedure

Participants were given two questionnaire booklets when they arrived in the laboratory. They were then asked to give the other questionnaire to another person in the community, aged 35 or older who was also currently dieting. Participants returned both packets of questions (even if the second one was not completed), and were thanked for their time. It was explained to participants that returning both questionnaires was necessary in order to obtain the full 2 credits, otherwise, partial credit was given.

Results

Questionnaires were discarded if participants indicated both that they a) were *not* currently dieting and b) had *never* dieted in the past. Two questionnaires were discarded, as the participants indicated that their goal was to gain weight. Omitted answers were completed by replacing them with prorated responses based on whether their scores on the subscale in question were below or above the midpoint. There were never more than two omitted answers in any given subscale.

Sample Description

The two groups of women were compared with simple T-tests. They differed significantly in terms of age: the mean age of the community sample was 47.5 (ranging from 35 to 67), and the mean student age was 19.3 (ranging from 16 to 34). Multivariate analyses of variance were performed to examine the differences (thus controlling for error inflation from multiple t-tests). Community participants had significantly higher body mass indexes, $F(1, 155)=22.8, p<.001$, (means of 23.8 and 21.4) but did not have higher weight loss goals. However, they had dieted significantly more times in the past, $F(1, 155)=4.7, p=.031$ (means of 4.4 and 2.8). Student participants were more likely to indicate that their parents had dieted, $F(1, 155)=8.0, p=.005$, (means of 1.9 and 1.6) and that their families encouraged dieting, $F(1, 155)=24.1, p<.001$ (means of 2.1 and 1.5). Community women were more likely to be dieting for others, $F(1, 204)=6.1, p=.015$ (means of 7.7 and 6.2). Student participants were more likely to be dieting for appearance reasons, $F(1, 204)=6.8, p=.01$ (means of 11.8 and 10.4), and less likely to be dieting for health reasons, $F(1, 204)=14.9, p<.001$ (means of 9.3 and 11.6). There were no differences between the two groups in terms of dieting strategies used ($ps>.05$). The groups also differed in that student participants scored higher on the TFEQ Disinhibition scale, $F(1, 203)=10.0, p=.002$, (means of 8.3 and 6.8), the TFEQ-Hunger scale, $F(1, 203)=16.8, p<.001$ (means of 7.2 and 5.2) but did not differ on the Restraint Scale, $p>.04$ or the TFEQ restraint scale. The student sample also displayed lower self-esteem ratings, $F(1, 204)=12.84, p<.001$ than community participants (means of 30.3 and 32.9).

The following analyses were performed on the aggregated sample (student and community). Given the above sample differences, age needed to be considered a confound for the correlational tests and all correlations described below were partial correlations controlling for age.

Eating Behaviours

Restraint and Disinhibition. Controlling for age, disinhibition was positively correlated with restraint (RS), $r=.43$, $p<.001$, and TFEQ Hunger, $r=.60$, $p<.001$, but was not related to restraint as measured by the TFEQ. This is consistent with the literature, and served as the impetus for the development of the TFEQ—this scale measures restraint separately from disinhibition. From these data it appears as though the Restraint Scale measures both constructs, since it was correlated with both disinhibition and restraint as measured by the TFEQ, $r=.47$, $p<.001$, and $r=.35$, $p<.001$, respectively (see Table 1). However, it was more strongly correlated with disinhibition than with restraint, $p<.05$ (not controlling for age). Higher levels of restraint and disinhibition were more reported more frequently among heavier participants, $r=.41$, $p<.001$ and $r=.22$, $p=.002$, respectively, which is consistent with past literature.

-----Insert Table 1 about here-----

Dieting Strategies. The relationships among the three dieting strategies were such that, after controlling for age, unhealthy dieting was positively associated with caloric restriction, $r=.26$, $p<.001$, and was negatively associated with healthful eating $r=-.19$, $p=.007$. Higher levels of two types of dieting were associated with higher TFEQ-Restraint scores, caloric restriction, $r=.36$, $p<.001$, and healthful eating $r=.24$, $p<.001$, whereas unhealthy dieting was not. Healthful eating was the only strategy not associated with RS and disinhibition. Those using strategies such as caloric restriction and unhealthy dieting scored higher in disinhibition, $r=.26$ and $.24$ respectively, $ps<.001$, and restraint, $r=.36$ and $r=.23$, respectively, $ps<.001$, whereas those engaging in healthful eating did not report this more problematic eating behaviour to the same extent (see Table 1).

Psychological Correlates of Eating Behaviours

Self-esteem. Controlling for age, self-esteem and body dissatisfaction were related. Lower levels of self-esteem was related to greater body dissatisfaction, $r=-.26$, $p<.001$. Lower self-esteem scores were

also associated with higher levels of unhealthy dieting $r=-.29, p<.001$, while higher levels of self-esteem were associated with healthful eating, $r=.18, p=.011$. Women with lower levels of self-esteem also reported higher levels of disinhibition, $r=-.31, p<.001$, TFEQ Hunger, $r=-.33, p<.001$, and restraint, $r=-.21, p=.002$. There was no relationship between restraint as measured by the TFEQ and self-esteem (see Table 1). Self-esteem was also unrelated to BMI.

Body Dissatisfaction. Women with higher levels of body dissatisfaction were more likely to be using caloric restriction, $r=.24, p=.001$ and unhealthy dieting strategies, $r=.30, p<.001$, yet there was no relationship between body dissatisfaction and healthful eating. Body dissatisfaction was also associated with greater levels of disinhibition, $r=.39, p<.001$ and restraint $r=.45, p<.001$ (see Table 1).

Locus of Motivation. After controlling for age, the more people indicated that dieting was for oneself, the more they reportedly used strategies such as healthful eating and caloric restriction, $r=.32$, and $.23$, respectively, $ps<.001$. The more participants indicated that their dieting was motivated by others, the more they reported using unhealthy dieting measures, $r=.23, p=.001$, and the higher they scored in disinhibition, $r=.24, p=.001$, but not restraint (see Table 2).

History of Dieting and Weight loss Goals

Controlling for age, women who indicated that their parents dieted were currently more likely to be restrained eaters, $r=.18, p=.019$. Higher levels of restraint were also present in women who reported that they were overweight as children, $r=.29, p<.001$. The more weight participants wanted to lose (ie. higher weight loss goals), the higher their BMIs, $r=.70, p<.001$, the more restrained they were, $r=.44, p<.001$, and the more likely they were to become disinhibited, $r=.31, p<.001$ (see Table 3).

-----Insert Table 3 about here-----

Reasons for Dieting

Controlling for age, the more participants indicated they were dieting for appearance reasons, the higher they scored in disinhibition, $r=.26, p<.001$. Dieting for appearance reasons was also positively related to restraint, $r=.25, p<.001$, and TFEQ Hunger $r=.06, p=.024$, but not TFEQ Restraint. Women who indicated dieting out of concern for their appearance also scored higher in body dissatisfaction, $r=.35, p<.001$, and scored lower in self-esteem, $r=-.21, p=.002$.

Another way of evaluating the effect of sources and type of dieting motivation on eating behaviors, was to create and compare subsamples that were leaning towards dieting for health versus dieting for appearance. Using the total "dieting for appearance" score, the data were divided using a tercile split into "low appearance/high health" (H), "mixed" (M), and "high appearance/low health"(A) groups in order to assess whether participants with varying reasons for dieting differed on a number of dependent measures. Thus, for each group of related dependent variables, an overall multivariate analysis of variance (MANOVA) was performed to see if the three groups differed on any one of the variables and to control for type I error. Subsequently, individual analyses of variance were performed on each dependent variable, followed by post-hoc pairwise comparisons where appropriate (see Table 4 for means and standard deviations).

-----Insert Table 4 about here-----

Age and BMI. In a MANOVA for BMI and age, the three motivation groups differed significantly overall, multivariate $F(4, 396)=10.1, p<.001$. Those dieting for primarily health reasons were substantially older than the mixed and appearance groups, $F(2, 198)=19.4, p<.001$. The mean age for those dieting for health reasons was 38.9, while the average age of those whose dieting was mainly for cosmetic reasons was 24.5. Dieters who were trying to improve their health (with an average BMI of 23.4) had greater body mass indexes than those dieting for appearance reasons (with an average BMI of 21.4), $F(2, 198)=6.96,$

$p=.001$. However, there was no relationship between BMI and reason for dieting when age was controlled for. The homogeneity of variance assumption was violated for this MANOVA (ie. Box's M , $p<.05$), and further analyses revealed that, in fact, the results were liberally biased. This was not a concern given the magnitude of the difference in the means. Pairwise comparisons revealed that all three groups differed significantly for age, while for BMI, A differed significantly from M and H.

Self-esteem and body dissatisfaction. The three motivation groups differed overall for both self-esteem and body dissatisfaction, multivariate $F(4, 406)=7.4$, $p<.001$. All three groups differed significantly in self-esteem, $F(2, 203)=9.5$, $p<.001$. Pairwise comparisons revealed that the A group scored lower in self-esteem than M and H. For body dissatisfaction, the three groups differed overall, $F(2, 203)=9.4$, $p<.001$. More specifically, pairwise comparisons revealed that A had greater body dissatisfaction than M and H.

Dieting strategies. While the overall MANOVA for type of dieting strategy was significant, multivariate $F(6, 404)=3.3$, $p=.003$, the three groups differed significantly only for unhealthy dieting practices, $F(2, 203)=8.0$, $p<.001$. This MANOVA violated the homogeneity of variance assumption, Box's $M=39.8$, $p<.001$, meaning that the variances were not homogeneous. In order to ascertain whether this condition would result in the MANOVA being conservatively or liberally biased, the correlation between the variance and the N for each dependent variable had to be calculated (Hakstian, Roed, & Lind, 1979). In this case, there was a positive correlation between the generalized variances (i.e. determinants) of the variance-covariance matrix of each dependent variable and the N for each group. Thus, this MANOVA was conservatively biased, and so would only result in rendering any differences harder to detect, and further consolidates the rejection of the null hypothesis in this case (Hakstian, Roed, & Lind, 1979).

Those in the A group reported using strategies such as skipping meals, eating only one type of food, vomiting, using laxatives and diuretics more than H. Pairwise comparisons revealed that the A group

reported using these strategies significantly more than both M and H. The groups did not differ in their reported use of eating more healthful foods and caloric restriction.

Dietary restraint and disinhibition. A MANOVA of the TFEQ subscales and the Restraint Scale revealed that overall, the three motivation groups differed significantly, multivariate $F(8,400)=2.6, p=.009$. Those who were dieting for mainly cosmetic reasons scored higher on the TFEQ Disinhibition scale, $F(2, 202)=4.0, p=.021$, higher on the TFEQ Restraint Scale, $F(2, 202)=3.1, p=.049$, and higher on the RS scale, $F(2, 202)=5.3, p=.006$. This group also scored higher on the TFEQ Hunger scale, $F(2, 202)=3.8, p=.024$. Post-hoc pairwise comparisons revealed that for disinhibition and restraint, the A groups scored higher than the H groups. The H and M groups differed significantly for TFEQ Restraint subscale, and the H group differed significantly from both the A and M groups for the Hunger subscale.

Discussion

The purpose of this study was to examine whether dieting for aesthetic versus health-related reasons also translates into different dieting strategies, dieting behaviours, and, ultimately, the experience one has with dieting. It was primarily meant to be descriptive in nature. The results demonstrated that in fact, the more a participant's dieting was motivated by appearance, or body dissatisfaction, the more likely she was to report using unhealthy dieting strategies and to have experienced lapses in restraint. Those participants who reported dieting out of concern for their health were older and heavier than their counterparts, and did not use drastic dieting strategies like fasting or excluding a food group. They were also higher in self-esteem, their eating was less restrained, and they were not as prone to disinhibited eating than the younger, more appearance-conscious participants. From these results, it appears that the more 'toxic' factor in dieting (i.e., the factor contributing to lapses in restraint, or overeating) is not necessarily a change in diet per se, but the motivation for a slimmer physique that drives the dieting

behaviour. Classic calorie reducing diets, marked by reducing portion sizes and counting calories, as well as more extreme dieting, such as vomiting or fasting, were associated with higher disinhibition scores, whereas deciding to eat more healthfully was not. Thus, these results highlight the need to distinguish among types of dieting strategies as well as the type of dieter when advocating either against the harmful, or for the beneficial aspects of altering one's diet.

The fact that the RS correlated more strongly with TFEQ Disinhibition than the TFEQ Restraint subscale serves as evidence that the Herman and Polivy Restraint scale (RS) captures relatively unsuccessful dieting better than the TFEQ-R subscale, which is consistent with previous literature (Heatherton et al., 1988). The TFEQ-R was related only to caloric restriction and healthful eating, but not unhealthy dieting, which further suggests that this scale measures more successful dieting. It was also unrelated to self-esteem, whereas the RS and disinhibition scales were associated with lower levels of self-esteem. Moreover, since healthful eating was not associated with restraint, disinhibition, or TFEQ-Hunger, once again it seems that this type of dieting is more adaptive than calorie reducing diets and drastic dieting measures.

As expected, those indicating that they were dieting for appearance reasons were more likely to have higher levels of body dissatisfaction and lower self-esteem. However, the correlations were not as high as one would intuitively expect, and suggest there is not a one-to-one mapping of these two constructs. Curiously, the implication is that one can be dissatisfied with one's body, yet not be dieting solely for the purpose of changing it.

Dieting for oneself appears to be associated with more positive eating behaviours, such as healthful eating. Older participants were more likely to indicate that other people motivated their dieting behaviour. This finding probably reflects the fact that physicians are more likely to advise older persons to lose weight or change their diets. Unfortunately, dieting that is motivated by others was also related to

disinhibited eating and unhealthy dieting practices. Thus, intrinsically motivated dieting that is not fuelled by body dissatisfaction seems to be the form of dieting that is also the least likely to be associated with disinhibited eating.

It appears as though the more weight people wanted to lose, the more they reported being prone to lapses in restraint. Also, if participants indicated that the purpose of their dieting was weight loss per se, they were more likely to have experienced disinhibited eating. Along a similar vein, the more dissatisfied they were with their bodies, and the lower they were in self-esteem, the more their eating was marked by disinhibition, which is consistent with past literature that has demonstrated that body dissatisfaction is related to restraint (Paa & Larson, 1998; Ricciardelli et al., 1997). It is not clear from these results if periods of disinhibited eating lead to weight gain or less successful weight loss, and hence fuel the desire to lose more weight (by effectively sabotaging the weight loss efforts). Those scoring higher in restraint and disinhibition were also heavier—a finding that is consistent with the literature (Heatherton et al., 1991). Alternately, it is possible that setting one's sights on a goal that is too challenging (i.e. a weight loss target that requires extreme restraint) inevitably leads to failure. It might be that taking such a stringent approach to losing weight ultimately has a paradoxical effect. Taken together, these results do suggest that it is the focus on weight loss and modification of one's appearance that increase susceptibility to maladaptive eating.

Women with lower levels of self-esteem reported higher levels of unhealthy dieting, and scored higher in disinhibition, hunger and restraint. It is unclear from these results whether chronic (unsuccessful) dieting and being prone to hunger take their toll on self-esteem, or rather, if women with lower levels of self-esteem are more likely to engage in dieting. It is likely that it is the more unsuccessful type of dieting that contributes to low self-esteem, given that TFEQ restraint scores were not related to self-esteem and that healthy eating was associated with higher levels of self-esteem. Self-esteem was found to be

negatively related to body dissatisfaction and unrelated to BMI, which implies that simply being overweight does not necessarily lead to lower self-esteem.

Growing up in a household in which parents were reported to have dieted seems to be associated with chronic dieting (restrained eating) that is aimed at changing one's appearance. An environment in which dieting is regarded as normative behaviour may very well set the stage for chronic dieting, and the subsequent problems associated with it. These findings suggest that, as one would expect, a certain amount of modelling may take place with regard to eating behaviour and dieting. However, since a household marked by dieting was associated with a history of being overweight at a young age, it is equally likely that such a family environment leads to a downward spiral marked by a lifetime of chronic dieting and overeating. Furthermore, parents are more likely dieting if they themselves are overweight, possibly reflecting familial weight problems that may be genetic in origin. It is interesting that younger women were more likely to indicate that their dieting was encouraged in their families, perhaps reflecting the fact that dieting, over the years, is becoming increasingly regarded as normative behaviour (Polivy & Herman, 1987).

It should be noted that the mean Restraint score for those dieting mainly for health reasons was 15, which is often used as a cut-off for classifying restrained from unrestrained eaters in laboratory studies (for example, see Polivy & Herman, 1999). Thus, in this study, most participants were restrained eaters, regardless of motivation. The fact that the aesthetic motivation group demonstrated poorer self-esteem, and had even higher disinhibition scores suggests that above and beyond simply restraining one's eating, the additional desire to change one's appearance through dieting exacerbates any negative consequences that may simply result from dieting per se. Perhaps they fall somewhere lower than the health motivated dieters on the continuum between normal eaters, nondieters and eating disordered persons (Polivy & Herman, 1987).

These results do imply that different dieting strategies may result from different dieting motivations, as well as differences in eating behaviour. For instance, healthful eating (which many may consider 'dieting', especially if they are requested to do so by a physician) was not associated with pitfalls, such as disinhibited eating and hunger, to the same extent as other types of dieting. However, whether the relationship can be explained by body dissatisfaction leading to the type of diet, and in turn, its consequences, or rather, represent a manifestation of a direct link between the type of dieting and its implications remains nebulous. Thus, this study leads to the inevitable question: if a young female who was deeply dissatisfied with her body took a more moderate approach to dieting, would she still experience bouts of overeating? It is likely that the deeper the desperation to change, the more drastic the approach taken to implement such changes. Future research should explore more thoroughly the various pathways among the motivation behind dieting, how one diets, and the results that ensue.

Our findings may come as good news to those who have been afraid to alter their diets for fear of the fairly well-known side-effects of classic 'yo-yo dieting'. In other words, the implications are that changing one's diet by eating more healthy foods, without the intent to dramatically alter one's body, is less likely to lead to bouts of overeating or eating disorders. It is also possible, though, that dieting, without true caloric restriction (but just monitoring the quality of one's food intake and choosing more healthful foods), and despite feeling as though one is dieting, is not really dieting at all. However, it remains to be seen whether it is the perception that one is 'dieting' (the cognitive aspect) or labelling it as such, or the actual decrease in caloric consumption and resulting physiological disruptions that disrupts normal eating. Perhaps concentrating one's efforts on health-related outcomes and goals serves as a protective factor against the dangers of dieting. Unfortunately, chronic dieting is prevalent even in those who do not have health problems associated with being overweight.

The current findings suggest that the primarily appearance-motivated dieters, especially the younger women, present with a package or cluster of characteristics that contains a pervasive pathological quality (low self-esteem, body dissatisfaction, and a strong desire to change their bodies despite not being overweight). From a therapeutic standpoint, it would make more sense to direct intervention in these individuals toward maladaptive cognitions about body image and body satisfaction in lieu of targeting actual dietary habits. This is a group of people for whom attempts at changing appearance should be discouraged but success with this recommendation is, of course, severely jeopardized by unrealistic images of 'perfect' women's shapes as routinely portrayed in the media.

This study was limited in that it relied solely on self-report data. Future research should directly explore the actual behavioural consequences of differences in dieting motivations and different types of dieting. It would be informative to know how many of the participants would have actually met criteria for eating disorders. Even though all participants indicated that they had some prior experience with dieting, the results may have been affected by the fact that some participants may not have been actively dieting at the time of the study. However, the current dieting status would likely be more problematic in a laboratory study measuring actual eating behaviour in lieu of self-reported eating characteristics. The topic of different types of dieting, and whether or not any type of dieting is harmful would be further illuminated using a population that has been instructed to diet and lose weight for some health-related reason, such as a cardiac population. Longitudinal, as opposed to cross-sectional data would also help unravel the effects of various types of dieting on eating behaviour.

To bridge the two camps of literature, the 'weight loss group' needs to recognize that dieting does involve deleterious consequences for eating behaviour, depending on the individual's motivations, type of diet, and history of dieting (and hence determine whether the potential benefits warrant the possible risks). Those in the 'anti-dieting' camp need to recognize more fully that some people who should lose weight

can do so without necessarily experiencing negative sequelae, especially if the dieting is not fuelled by cosmetic concerns and is approached more moderately by adopting healthy eating habits.

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Table 1

Correlation Matrix for Self-Esteem (SE), Body Dissatisfaction (BD), and Measures of Restraint (N=202)

	Caloric Restriction	Healthful Eating	Unhealthy Dieting	TFEQ-D	TFEQ-H	TFEQ-R	Restraint	SE
BD	.24**	-.14	.30**	.39**	.26**	.13	.45**	-.26**
Caloric Restriction	----	.23**	.26**	.26**	.15*	.36**	.36**	-.09
Healthful Eating	----	----	-.19**	-.06	.02	.24**	.04	.18*
Unhealthy Dieting	----	----	----	.24**	.18*	.12	.23**	-.29**
TFEQ-D	----	----	----	----	.60**	.04	.47**	-.31**
TFEQ-H	----	----	----	----	----	-.06	.29**	-.33**
TFEQ-R	----	----	----	----	----	----	.35**	-.02
Restraint	----	----	----	----	----	----	----	-.21**

Note. TFEQ-D=Disinhibition, TFEQ-H=Hunger, TFEQ-R=Restraint

** $p < .01$, * $p < .05$

Table 2
Correlations Between Locus of Motivation (Self and Other), and Dieting Strategies (N=197)

	Other	Caloric Restriction	Healthy Eating	Unhealthy Dieting	TFEQ-D	Restraint	Diet Purpose	BMI
Self	.13	.23**	.32**	-.10	.07	.08	.07	.09
Other	----	.15	-.04	.23**	.24**	.17	.01	.13
Caloric Restriction	----	----	.22**	.28**	.25**	.37**	.20**	.18*
Healthy Eating	----	----	----	-.18**	-.06	.04	.01	-.01
Unhealthy Dieting	----	----	----	----	.25**	.23**	.05	-.02
TFEQ-D	----	----	----	----	----	.47**	.14	.19**
Restraint	----	----	----	----	----	----	.02	.33**
Diet Purpose	----	----	----	----	----	----	----	-.09

Note. TFEQ-D= Disinhibition

** $p < .01$, * $p < .05$

Table 3

Correlation Matrix for Weight Loss Goal, Parental Dieting, Childhood Overweight, and Measures of Restraint (N=160)

	RS	Disinhibition	TFEQ-H	Weight loss goal	BMI	Parental Dieting
Childhood Overweight	.29**	.12	.07	.20*	.20*	.13
RS	----	.49**	.23**	.44**	.41**	.18*
Disinhibition	----	----	.57**	.31**	.22**	.15
TFEQ-Hunger	----	----	----	.07	-.02	.13
Weight loss goal	----	----	----	----	.73**	.09
Purpose-Weight loss	----	----	----	----	-.01	-.05
BMI	----	----	----	----	----	.02

Note. RS=Restraint Scale, BMI=Body mass index, TFEQ-H=Hunger Subscale.

** $p < .01$, * $p < .05$

Table 4

Means and Standard Deviations of Dieters Low and High in Appearance Motivation for Various Dependent Measures

Variable	Motive for Dieting					
	Appearance		Mixed		Health	
	M	SD	M	SD	M	SD
Age ^d	24.5	10.5	31.5	13.8	38.9	14.9
BMI ^d	21.4	2.7	22.9	3.0	23.4	3.9
Body Dissatisfaction ^{a,b}	16.2	6.7	13.2	6.9	10.8	7.9
Self-Esteem ^{a,b}	29.2	5.3	32.3	5.3	32.7	4.6
Caloric Restriction	6.3	2.5	6.7	2.2	6.1	2.5
Healthful Eating	7.3	2.2	7.5	2.2	7.9	2.1
Unhealthy Dieting ^{a,b}	3.6	2.6	2.5	2.2	2.1	1.8
TFEQ-Disinhibition ^a	8.6	3.3	7.5	3.7	6.9	3.6
TFEQ-Restraint ^{b,c}	11.8	4.4	12.0	4.6	10.3	4.3
Restraint ^a	17.6	4.6	16.1	4.7	15.0	4.7
Parents Dieting ^{a,b}	2.1	0.9	1.8	0.8	1.6	0.7
Family Encouragement ^{a,b}	2.2	0.9	1.7	0.8	1.6	0.7

^aHigh and Low, $p < .05$

^bHigh and Mixed, $p < .05$

^cLow and Mixed, $p < .05$

^dHigh, Mixed, & Low, $p < .05$

Appendix I
Questionnaire

Please complete the following questions as truthfully as you can. There are no right or wrong answers. Thank you.

1. Age: _____ Height: _____ Weight: _____
2. Sex: F M
3. Are you *currently* 'on a diet'? Yes No
4. Are you currently dieting in order to lose weight? Yes No
5. How many pounds would you like to lose? _____ lbs.
6. How many pounds have you already lost on *this* diet? _____ lbs.
7. How long have you been on this diet for? _____ months/years.
8. Has your physician recommended that you lose weight or change your diet? Yes No
9. On a scale of 1-to 10, to what extent do the following changes characterise your most recent diet: Counting calories, using meal replacements, reducing portion sizes, reducing carbohydrates.

1	2	3	4	5	6	7	8	9	10
Not at all			Somewhat			Mostly			Very much so
10. On a scale of 1-10, to what extent do the following changes characterise your most recent diet: eating more healthful foods (more fruits, vegetables, grains), cutting out fatty foods, increasing fibre.

1	2	3	4	5	6	7	8	9	10
Not at all			Somewhat			Mostly			Very much so
11. On a scale of 1-10, to what extent do the following changes characterise your most recent diet: skipping meals, eating primarily one type of food, using laxatives or diuretics, fasting, vomiting.

1	2	3	4	5	6	7	8	9	10
Not at all			Somewhat			Mostly			Very much so
12. How many times have you dieted in the past? _____ times.

Continued

13. On a scale from 1-10, so far, have you been successful in following this diet?

1 2 3 4 5 6 7 8 9 10
 Not at all successful Somewhat successful Very successful

14. Please indicate the extent to which the reason you are dieting is to improve your **appearance** (such as fit into another size clothing/ change your body shape/ look younger) because **you** want to (your own personal goal):

1 2 3 4 5 6 7 8 9 10
 Not at all Somewhat Mostly Very much so

15. Please indicate the extent to which the reason you are dieting is to improve your **appearance** (such as fit into another size clothing/ change your body shape/ look younger) at the urging/request of **someone else** (i.e. a spouse or friend):

1 2 3 4 5 6 7 8 9 10
 Not at all Somewhat Mostly Very much so

16. Please indicate the extent to which the reason you are dieting is to improve your **health** (for example, to feel more energetic, lower your cholesterol or blood pressure, live longer, control blood sugar) because **you** want to (your own personal goal):

1 2 3 4 5 6 7 8 9 10
 Not at all Somewhat Mostly Very much so

17. Please indicate the extent to which the reason you are dieting is to improve your **health** (for example, to feel more energetic, lower your cholesterol or blood pressure, live longer, control blood sugar) at the urging/request of **someone else** (i.e. your physician, spouse):

1 2 3 4 5 6 7 8 9 10
 Not at all Somewhat Mostly Very much so

Background

1) What is your nationality? _____

2) What is your ethnicity? _____

3) Growing up, did your parents frequently diet to try and lose weight?

1	2	3	4
never	rarely	often	always

4) As a child, did your family encourage you to change your diet?

1	2	3	4
never	rarely	often	always

5) Would you say that as a child you were overweight?

1	2	3	4
not at all	slightly	moderately	very much