

**MEDIA IMAGES AND EFFECTS ON MOOD AND EATING:
A FUNCTION OF DIETARY RESTRAINT?**

BY

KARINA M. VANSTONE

**A Thesis
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**Department of Psychology
University of Manitoba
Winnipeg, Manitoba**

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Karina M. Vanstone

Abstract

Media images of thin fashion models, larger-sized fashion models, or scenery were shown to undergraduate females who had obtained either high or low scores on the Revised Restraint Scale (Herman & Polivy, 1980) during pre-screening. Of particular interest was how the media images affected both participants' mood and the amount of potato chips they ate subsequent to viewing the photographs. Predictions were that restrained women would experience both negative mood, as measured by the Profile of Mood States (POMS; Mc Nair, Lorr, & Droppleman, 1971) and increased eating after viewing photographs of thin fashion models, but not after viewing photographs of larger-sized models or scenery; and, that restrained women would consume more potato chips than unrestrained women would after exposure to photographs of thin models. Female participants from the University of Manitoba Undergraduate subject pool were recruited based on their scores on the Restraint Scale. Women whose scores were within the 30 highest scores or the 30 lowest scores were randomly assigned to one of three groups, and exposed either to photographs of thin fashion models, larger-sized models, or scenery photographs. The POMS was administered after participants viewed the photographs. Next, a taste-test paradigm was used to measure the amount of potato chips consumed after viewing the photographs. Finally, the BULIT-R (Smith and Thelen, 1984) was administered. Results indicated that restrained women experienced significantly higher levels of anxiety after viewing photographs of thin models than after viewing photographs of scenery. In addition, restrained women ate more potato chips after viewing photographs of thin models than after viewing photographs of larger-sized models. A significant positive correlation was observed between perception of model weight and perception of model attractiveness for restrained eaters who viewed photographs of thin fashion models. Another significant positive correlation was observed between

BULIT-R scores and perception of model weight; that is, as BULIT-R scores increased, participants rated the models as heavier. Implications of this study are discussed, and directions for future researchers suggested.

Literature Review

Binge-eating. Chronic dieting. Obsession with thinness. Food preoccupation. These are often characteristics that we associate with serious eating disorders such as bulimia nervosa. Bulimia nervosa is an eating disorder which is characterised by repeated episodes of gross overeating (bingeing), and subsequent compensatory behaviours such as purging or laxative abuse, in addition to the symptoms listed above. Since the 1970's, an ever-increasing line of research in psychology has been devoted to studying the factors which may trigger binge-eating, one of the defining characteristics of bulimia nervosa. The Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM-IV) characterises a binge as:

(1) eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances.

(2) a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).

It is not as well known that binge-eating behaviour, weight preoccupation, and other pathology not only occurs among women with eating disorders, but also occurs in individuals who do not meet DSM-IV criteria for eating disorders. These symptoms are particularly prevalent among women who habitually "diet" (Halmi, Falk, & Schwartz, 1981). Dieting behaviour, and the previously mentioned associated symptoms, has relevance for almost everyone at some time in his or her life, and in Western society, concerns with weight and shape have become normative (Polivy & Herman, 1987).

Habitual dieting is sometimes referred to as "restrained eating" (Herman & Mack, 1975) or "dietary restraint". Research results suggest that a pattern of restrained eating may actually lead to binge-eating

behaviour (e.g., Heatherton, Polivy, & Herman, 1990; Rand & Kulda, 1991). Dietary restraint often coexists with a variety of abnormal eating patterns, including fasting, overeating, bingeing, and purging.

This pattern of behavioural cycling between restraint and overeating may contribute to weight fluctuation (Lowe, 1993). These weight fluctuations may occur due to irregular food intake, punctuated by periods of bingeing, and the concomitant metabolic disruption resultant to low caloric intake. For some people, this effectively creates a pattern whereby the efforts of a person to lose weight are foiled by the very behaviour our society has deemed appropriate for weight loss—dieting.

Dietary restraint

The concept of dietary restraint was first described by Herman and Mack (1975). Since then, restraint, and how it influences eating behaviour, has been heavily researched. In lay terminology, restraint refers to being in a chronic "dieting" condition. That is, a restrained eater consistently attempts to restrict his or her caloric intake by eating less than he or she might otherwise eat. One large-scale study conducted on a random sample of 2115 adults found that 20.7% of women and 8.9% of men could be classified as restrained eaters (Rand & Kulda, 1991). These figures are consistent with other research results which indicate that the numbers of restrained eaters in our society is high, and that significantly more females than males fall into this category.

Measures of Restrained Eating

One scale used to measure restrained eating in humans is Herman and Polivy's (1980) Revised Restraint Scale. The Restraint Scale is a self-report measure which was developed in order to identify people who cognitively (but often not calorically) restrict their food intake. The eating pattern which ostensibly follows from this pattern of restrained eating as measured by the Restraint Scale, and which is most frequently studied in research on restraint theory, is binge eating (Ruderman, 1983).

That the Restraint Scale can predict eating behaviour in laboratory restraint research is crucial, as it is used in a large number of past and current restraint research studies. Researchers have consistently found that unrestrained eaters consume less food after they are given a food "preload" than without one, whereas restrained eaters (classified based on their scores on the Restraint Scale) do the opposite. This effect, termed "counterregulation" (Herman & Mack, 1975), has been extensively studied in the laboratory.

The Restraint Scale may be less effective in predicting the behaviour of overweight individuals (Ruderman, 1983). Among obese individuals, unrestrained eaters may generally eat more than restrained eaters, while among normal-weight individuals, the reverse is true (Ruderman, 1983).

One problem with the Revised Restraint Scale as a true restraint measure is that it fails to accurately identify individuals who are actually in a state of energy deficit (Lowe, 1993). That is, this scale does not identify "effective dieters". One reason why the Restraint Scale may not identify dieters who are in a state of energy deficit is that it includes items related to both overeating and restricted eating, and may confound restrictive behaviour with excessive eating (Ogden, 1993). In addition, some questions on the Restraint Scale pertain more to weight fluctuation than weight reduction. For example, the question "Do you eat sensibly in front of others and then make up for it alone?" is certainly related to overeating, whereas questions such as "What is the maximum amount of weight (in pounds) you have ever lost within one month?" is more related to restrained eating. The concept of restraint as measured by Herman and Polivy's (1980) Restraint Scale may be defined as combining both successful and failed restriction (Ogden, 1993).

The Dutch Eating Behaviour Questionnaire (DEBQ) (Van Strein, Frijters, Bergers, & Defares, 1986) was developed in order to compensate for criticisms and inadequacies pointed out in the

Restraint Scale. Reportedly, it could select for exclusively restricting dieters (Van Strein et al., 1986).

Its subscales include restrained, emotional, and external eating subscales.

One study which attempted to assess whether the Restraint Scale and the DEBQ were able to differentiate between successful and failed dieters found that successful dieters actually had the lowest scores on both the Restraint Scale and the restrained eating section of the DEBQ, whereas failed dieters had high scores (Ogden, 1993).

The implications of this are that high scorers on these two measures of dietary restraint may actually not be in a state of caloric deficit, and may more likely be unsuccessful dieters than people who are successful at losing weight. This is an important caveat to keep in mind when using measures of dietary restraint in research; according to some critics of the restraint literature (e.g., Lowe, 1993) the Restraint Scale is probably not effective in identifying people who are in a state of caloric deficit, and may be more likely to identify persons who are preoccupied with their weight, but are unsuccessful in long-term weight loss and are prone to weight fluctuation. Upon observation of the number of "repeat customers" in the multi-million dollar diet industry, it would appear that these "unsuccessful dieters" are more prevalent than successful ones in our society.

The Bulimia Test (BULIT) was developed by Smith and Thelen (1984). It is a 32-item self-report inventory intended to distinguish between bulimics and non-eating disordered individuals. Further, it is intended to indicate severity of bulimic symptoms within this population, and to show improvements made after treatment for bulimia. The BULIT demonstrates construct validity, as it correlates most highly ($r=.73$) with measures having like constructs, such as the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983) (Wertheim, 1991). In addition, the validity of the BULIT as a measure of change in bulimic symptomatology after treatment has been supported.

Treated bulimics demonstrated greater gains at posttreatment as measured by both the Eating attitude Test (Garner & Garfinkel, 1979) and the BULIT (Wertheim, 1991). However, a study of the relationship between BULIT scores and daily self-reports of bulimic behaviours found that the BULIT correlated well with daily self-report of vomiting behaviour, but did not correlate significantly with self-reports of binge-eating behaviour (Wertheim, 1991). This suggests that the BULIT may be effective in identifying people who engage in compensatory behaviour such as vomiting, but not those who demonstrate other eating pathology such as binge eating.

After changes were made in DSM-IV to the psychiatric definition of bulimia nervosa, some changes were made to the BULIT. The revised version (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) has several new items, and some of the older items have been omitted, in order to bring it up to date with the new diagnostic criteria. The BULIT-R has been found to correlate well with self-reports of binge eating and vomiting behaviour (Brelsford, Hummel, & Barrios, 1992).

Disinhibition of Dietary Restraint

Since restrained eaters continually attempt to restrict their caloric intake, one might think that restrained eaters would be of below average weight. However, the research has consistently shown that this attempted restriction is ineffective as a weight loss method (Wooley & Wooley, 1984; Herman & Polivy, 1992). In fact, restrained eaters, on average, may be even heavier than unrestrained eaters. Rand and Kuldau (1991) found that the percentage of persons falling into the category of "restrained eater" was higher in overweight populations than in normal or underweight populations for both men and women. Further, restraint can lead to a variety of negative cognitions and behaviours such as guilt about eating, overeating when under stress or when depressed, and overestimation of body size (Dewberry & Ussher, 1994).

The results of these and other researchers imply that restrained eating is ineffective as a weight control method, and may in fact work counter to weight loss. Tiggemann (1994) found that neither restrained eaters (according to the Revised Restraint Scale, Herman & Polivy, 1980) or non-dieters reported weight loss when measured over a period of 6 months. However, weight fluctuation throughout the six month period was significantly more common in restrained eaters than in unrestrained eaters. Further, the weight fluctuations of restrained eaters had a much larger influence on their affect than the occasional weight fluctuations of the non-dieter. The results of this study clearly illustrate the ineffectiveness of "restraint" as a weight loss method, and further point to its adverse effects on a person's emotional well-being.

Because the concept that a person who consistently restricts his or her food intake will lose weight is deeply ingrained in our culture, the idea that habitually doing so (or attempting to do so) may not lead to weight loss initially might not make sense. Since a true calorie deficit should lead to weight loss, if restrained eating actually involves a calorie deficit situation, some weight loss should occur. As this is often not the case, one might infer that the restrained eater is engaging in other behaviour which is sabotaging weight loss. As previously mentioned, the restrained eater, as measured by the Restraint Scale, is usually not in a state of calorie deficit. Certain behaviours that work counter to lasting weight-loss tend to co-exist with a pattern of restrained eating. Some of these behaviours will be outlined in the next section.

Counter-Weight Loss Behaviours

It has been consistently demonstrated that, under normal circumstances, restrained eaters are able to keep their eating behaviour under control; that is, consistent with their self-imposed restrictions (Stephens, Prentice-Dunn, & Spruill, 1994). However, certain events may trigger a loss of control of

restrained eating that can lead to a binge. This overeating tends to occur under certain experimental conditions. These conditions include: "preloads" of food given prior to *ad libitum* food availability, cognitions of having eaten too much; ingestion of alcohol; and the induction of dysphoric moods (Westenhoefer, Broeckmann, Munch, & Pudel, 1994). Overeating behaviour, when it occurs in restrained eaters, is often known as "disinhibition" of dietary restraint. Disinhibition of dietary restraint is a concept that was first proposed by Herman and Mack (1975).

Research results indicate that the process of dieting, through which many people go in order to rid themselves of actual or perceived excess weight, may actually lead to overeating. In an early study, Herman and Mack (1975) noticed that a paradoxical effect which they called "counterregulation" occurred when dieters were "preloaded" with a milkshake. A "preload" refers to an experimental situation in which the experimental group is given food as an independent variable prior to a second food-intake situation which becomes the dependent variable. A comparison group is not given the "preload". Following the milkshake preload in Herman and Mack's (1975) study, all participants were given a "taste-test", during which they were asked to rate different flavours of ice cream on a variety of dimensions. They were told that they could eat as much ice cream as they wished. Following the "taste-test" of each participant, the experimenters weighed the remaining ice cream to see how much each participant had eaten. They found that dieters (restrained eaters) who were preloaded with a milkshake ate more ice cream than did dieters who were not preloaded. Further, non-dieters did not experience this paradoxical effect. They ate less ice-cream following the milkshake preload, as one would expect due to the effects of satiety. Herman and Mack (1975) proposed that dieters may abandon their diet if they believe they have "blown it" already. This all-or-nothing thinking may be one trigger of a binge, as a dieter who believes he or she has already "blown" his or her diet may be more

likely to really go overboard. This study illustrates the process of becoming disinhibited in eating, which is often manifested behaviourally through bingeing or overeating.

Specific stimuli have been shown to induce disinhibition in restrained eaters in the laboratory. Women who are restrained eaters have been found to be particularly vulnerable to these disinhibitors (Green & Saenz, 1995), compared to women who are not habitually restrained. The proportion of restrained eaters who engaged in binge-eating was found to be twice that of unrestrained participants in one study (Rand & Kuldau, 1991).

Preloads

The most frequently used method of inducing disinhibition in the laboratory was described in the Herman and Mack (1975) experiment reported earlier. It involves using a "preload" of food, often a milkshake. Preloads have been found to increase subsequent eating in restrained eaters (according to Herman & Polivy's restraint scale). This process has sometimes been referred to as "counterregulating" (i.e., showed paradoxical, abnormally high food intake: Merola, Stein, & Beckwith, 1992). In contrast to the behaviour of restrained eaters, unrestrained eaters will decrease their eating behaviour following a preload. The research shows that restrained eaters are more likely to evidence disinhibited eating when confronted with food perceived as high in calories, regardless of its actual calorie content. In one study, dieters were more easily disinhibited by foods they perceived to be fattening, such as a milkshake, than by food they thought was lower in calories, such as cottage cheese, even if the portions were actually equal in calories (Knight & Boland, 1989).

A preload is posited to induce bingeing *via* cognitive mechanisms. Since restrained eaters often hold all-or-nothing beliefs about dieting, eating a "forbidden" high calorie food such as a milkshake may induce cognitions such as "I've blown it"; "the day is lost"; or "I might as well continue to eat"

(Ruderman, 1985). These all-or-nothing attitudes may facilitate weight gain rather than weight loss, as eating one "forbidden" food often turns into a binge for a restrained eater, whereas the unrestrained eater may eat treats" in moderation without the subsequent binge phenomenon.

Mood.

Mood may influence eating behaviour, particularly in restrained eaters. Ruderman (1985) found that dysphoric mood resulted in disinhibited eating among restrained eaters, whereas unrestrained eaters consumed similar amounts of food in a non-dysphoric vs. dysphoric mood state. Schotte, Cools, and McNally (1990) found that exposure to a frightening film induced negative affect (measured as increased anxiety and depression on the Profile of Mood Scales, POMS) for all participants when compared to a neutral film. Further, exposure to the negative film increased eating among restrained eaters but not among unrestrained eaters.

Self-awareness.

Level of self-awareness may also affect eating behaviour in the laboratory. Self-awareness refers to the degree to which a person is focused on him or herself. Reduction in self-awareness has been shown to disinhibit eating; conversely, activities which increase self-awareness do not have this effect. For example, one study illustrated that dieters ate three times as much food while watching a very absorbing film as they did when engaged in activities that promoted more self-awareness (Wardle & Beales, 1988). Heatherton, Polivy, Herman, and Baumeister (1993) found that restrained eaters demonstrated disinhibited eating only in experimental conditions which allowed low self-awareness. In conditions which promoted dysphoric affect but high self-awareness, disinhibited eating did not occur. This study supports the idea that low self-awareness is a necessary condition for disinhibition of dietary restraint to occur.

Social Comparisons.

Social Comparisons may also trigger disregulated eating. There is evidence to suggest that bulimic women frequently engage in social comparisons, continually comparing themselves to other women with respect to slenderness and weight control (ReynaMcGlone & Ollendick, 1989). Women who do not have eating disorders also engage in social comparisons, and this is considered normative behaviour. However, restrained eaters may be more likely to experience a negative affective response when comparing themselves with an attractive other. Restrained eaters tend to be lower in self-esteem than unrestrained eaters, and persons low in self-esteem may focus more on the negative components of social comparisons (Green & Saenz, 1995).

Green and Saenz (1995) hypothesized that threatening social comparisons involving physical appearance could increase negative affect, decrease dieting self-efficacy, and subsequently disinhibit eating. To test this hypothesis, participants in their study were exposed to a female confederate made to look either very thin and physically attractive, or made to look unattractive and overweight. In addition, participants were classified as either high or low restraint based on Herman and Polivy's Revised Restraint Scale (1980). A "taste-test" paradigm was used to assess eating behaviour following exposure to one of the two confederate conditions. The researchers found that there was no significant difference for amount of food eaten following exposure to the attractive target, but that restrained eaters ate more than unrestrained eaters following exposure to the unattractive target. Both restrained and unrestrained eaters experienced increased negative affect following exposure to the unattractive target as compared to the attractive target. Thus, it was the interaction between restraint and negative affect which was a necessary precursor to increased eating.

Criticism of Restraint Theory

Herman and Polivy's restraint theory has not escaped criticism. As previously mentioned, some researchers (e.g., Lowe, 1993) have pointed out that current measures of restraint (i.e., Herman & Polivy's Restraint Scale (1980); DEBQ) do not identify individuals who are in a state of energy deficit. That is, the scale which has been used in much research surrounding this theory does not identify "successful" dieters. Despite the frequent interchange of the terms "restrained" and "dieting" in the literature, the two terms may not be synonymous (Lowe, 1993).

The disinhibition effect has been found consistently in the laboratory when participants were divided into restrained and unrestrained groups based on their scores on Herman and Polivy's Revised Restraint Scale (1980), but not when divided based on the Dutch Eating Behaviour Questionnaire (DEBQ by van Strein et al., 1986), or the Three-Factor Eating Questionnaire (TFEQ by Stunkard & Messick, 1985) (Westenhoefer et al., 1994).

Heatherton et al. (1988) have responded to some of the criticisms expressed regarding the Restraint Scale. These researchers try to crystallize the concept of restraint, a concept which they describe as a "multifaceted syndrome involving both a propensity to restrict food intake as well as a tendency to splurge" (Heatherton et al., p. 26). That is, the Restraint Scale measures the concept of Restraint, which includes binge-eating as one of its components, and is not intended to measure caloric deficit. In addition, Heatherton et al. (1988) acknowledge that the DEBQ and the Restraint Scale may measure entirely different constructs: whereas the Restraint Scale identifies "dieters", the DEBQ identifies "successful dieters".

Body Perception as a function of External Stimuli

Our society's increasing emphasis on an extremely thin body shape parallels the increase of eating disorders in our society. Ironically, this emphasis also parallels the increasing average weight of

North Americans, both individually and societally. A causal link between this societal emphasis and the increase in dieting and eating disorders is often inferred, and recently, researchers have begun to examine the reaction of women to societal images of thinness and beauty (Irving, 1990; Stice & Shaw, 1994). Various external stimuli may affect how people perceive their body size and shape.

One of these external influences comes from the media. Women may find models of physical comparison everyday on television, in magazines, in music videos, and in movies. Researchers have posited that women comparing themselves to these often unattainable images are likely to produce low evaluations of their own attractiveness (Irving, 1990). Recent research demonstrates that media portrayal of women has the effect of increasing the body image distortion of anorexics and bulimics (Waller, Hamilton, & Shaw, 1992). Hamilton and Waller (1993) found an effect on body size estimation in anorexic and bulimic participants following their viewing photographs of thin fashion models, but not following their viewing pictures from magazines that did not portray people. Specifically, the anorexic and bulimic participants evidenced greater personal body size overestimation after seeing the photos of the fashion models. There was no such effect for the control group who did not view images of thin fashion models.

Researchers and lay persons alike have posited that the extremely "thin-ideal" images portrayed in the media contribute to eating pathology among women. There are various ways in which exposure to media images could induce eating pathology in women: induction of negative affect could induce binge-eating; the thin-ideal stereotype may become internalized by women who are bombarded by these images; and exposure to ideal-body images may lead to body dissatisfaction *via* social comparison (Stice & Shaw, 1994). One correlational study found a significant correlation between mass media usage (i.e., magazines, television, movies, etc.) and Restraint Scale and BULIT scores; that

is, participants who used more mass media tended to have higher scores on the RS and BULIT (Abramson & Valene, 1991). Another piece of correlational research (Stice, Schupak-Neuberg, Shaw, & Stein, 1994) reported significant correlations between media exposure, measured by participant self-report of how much time she had spent watching television or reading popular magazines, and eating disorder symptomatology, as measured by the Body-Dissatisfaction subscale of the Eating Disorders Inventory (EDI) (Garner et al., 1982), and the Eating Attitudes Test (Garner, Olmsted, Bohr, & Garfinkel, 1982). Unfortunately, there seems to be a temptation to view these purely correlational data as causal, even by the authors of these research articles (e.g., Stice et al., 1994). As there could be a multitude of intervening variables which are actually the causes of both eating disorder symptomatology and high media use, these purely correlational data must be interpreted with caution.

Some researchers have attempted to directly examine the effects of media images on women in a more controlled fashion. Stice and Shaw (1994) hypothesized that women exposed to pictures of ultra-thin models would exhibit increased negative affect, body dissatisfaction, and endorsement of the thin-ideal stereotype compared to controls who were not exposed to photographs. A third group of women who were exposed to photographs average-weight models was also included in this study. As hypothesized, the researchers found that exposure to photographs of ultra-thin models increased feelings of depression, unhappiness, shame, guilt, stress, and decreased confidence. These photographs also increased the women's body dissatisfaction. The groups of women exposed to pictures of average-sized models or pictures without models did not show this effect. The results of this study provide support for the idea that media images can influence how women perceive their bodies, in this case, negatively. Further, this study was conducted using women with "normal" body image and eating behaviour, not women with eating disorders. This suggests that all women, not only those with pre-

existing eating disorders, are susceptible to these images.

Irving (1990) investigated the link between media images of thin fashion models and self-evaluations of women exhibiting varying levels of bulimic symptoms. Participants in three experimental groups viewed photographs of either thin fashion models, average-sized women, or oversize fashion models. Each participant was then asked to fill out five questionnaires, which included measures of body and self-esteem. Individuals who evidenced a high level of bulimic symptoms were expected to be more susceptible to the photographs, and were expected to give lower self-evaluations following exposure to photographs of thin fashion models compared to individuals exhibiting few bulimic symptoms. The results of this study did not support the author's hypothesis that bulimic women are more susceptible to media images; in fact, all of the women in the study experienced an "esteem-deflating" effect in response to the photographs of thin models, regardless of level of bulimic symptomatology.

More recently, Kalodner (1997) investigated the immediate impact of brief exposure to media images on undergraduate male and females. Ninety-three students were shown photographs of "ideal" vs. "average" body types. These students were then given a number of self-report measures. Kalodner (1997) found that looking at thin models impacted women only, and that women showed higher private self-consciousness and state anxiety after looking at these images.

Social comparisons may also affect women's eating behaviour. One study found that women who had average scores on the Restraint Scale ate significantly less following a conversation with a partner (male or female) whom they perceived as attractive compared to average restraint women who conversed with a less attractive partner (Copeland, C. S., Woods, D. J., and Hursey, K. G., 1995). Although partner attractiveness did not have a significant effect on the amount eaten by restrained

eaters, the direction of effect for these participants was indicative of a "disinhibition" effect; high restraint women in the attractive partner group tended to eat more than high restraint women in the less attractive partner condition. The results of this study stand in contrast to the previously reported study by Green and Saenz (1995). This could be due to effects of gender, as the Green and Saenz (1995) study used only female target persons, or to some other methodological difference.

Statement of the Problem

There has been some research to date which has focused on the effects of media images on women's body image and mood. Some of this research has posited a linkage between negative affect, eating-disordered thinking, and media use (e.g., Stice & Shaw, 1994). This research has not focused what actually occurs when women eat following exposure to these images. It is possible that viewing some of these images, particularly images of very thin models, could act as a disinhibitor in women who are binge-prone (i.e., due to restrained eating patterns), perhaps by increasing negative affect. Images of women who do not conform to the "thin-ideal" may not evoke negative mood states and/or dietary disinhibition in restrained eaters.

The current study assesses both mood and amount eaten following exposure to various media images. Previous research has assessed women's body image, mood, and level of self-esteem in response to images of thin fashion models. In this study, the hypothesis that negative affect induced by viewing photographs of very thin fashion models will induce disinhibition of restraint was tested. Female undergraduate volunteers were divided into two groups based on their scores on the Revised Restraint Scale (either high or low restraint), and each of these groups was divided into thirds by random assignment. All women were exposed either to photographs of very thin fashion models, larger-sized fashion models, or neutral scenery photographs with no human figures based on which

condition they were assigned to.

Choice of Restraint Measure

For the current study, it is necessary to divide participants into two groups based on their eating behaviour. The BULIT-R was not chosen as a divisor. For the purposes of the current study, it was preferable to identify participants who are restrained eaters with a tendency to disinhibit eating, rather than individuals with full-blown eating disorders. Due to the prevalence of dieting behaviour in Canada, and the frequency of unsuccessful dieting, it is likely that there is a higher proportion of unsuccessful dieters than persons with bulimic symptomatology in the general population.

The DEBQ was not chosen as a restraint measure for the current study. This scale may be more effective in identifying successful dieters than it is in identifying restrained eaters who binge (Heatherton et al., 1988).

The Revised Restraint Scale (Herman & Polivy, 1980) was used to divide participants into experimental groups. This scale was chosen with the knowledge that it will identify participants who are weight concerned and who continually attempt dietary restriction, but will mainly identify participants who are unsuccessful in this attempt. High scorers (>15) on the Restraint Scale will have a tendency toward binge-eating in response to disinhibitors. This scale was chosen as the measure which would identify the most appropriate group for the purposes of the current study, because of its focus on dietary disinhibition in the face of dysphoric mood. In addition, this scale is the most widely used in the restraint literature (Laessle, Tuschl, Kotthaus, & Pirke, 1989), which will increase the comparability of the results of this study to the work of other researchers in this field.

Although the BULIT-R was not used to divide participants into groups, it was administered to all participants at the end of the study. This scale identifies bulimic symptomatology, and scores

participants' obtained on this measure were included in post-hoc analyses.

Hypotheses

1. Exposure to photographs of thin models will induce dysphoric affect in restrained women, as measured by three POMS subscales (Depression-dejection, Anger-hostility, and Tension-anxiety), and these POMS scores will be significantly different ($\alpha < .017$) compared to POMS scores of restrained women exposed to either photographs of scenery or photographs of larger-sized fashion models.
2. Exposure to photographs of thin models will significantly ($\alpha < .05$) increase eating, as measured by grams of potato chips eaten, in restrained eaters as compared to the amount eaten by unrestrained eaters.
3. Exposure to photographs of thin models will significantly increase ($\alpha < .05$) eating in restrained eaters, as compared the amount eaten when restrained eaters view photographs of scenery.
4. Exposure to photographs of thin models will significantly ($\alpha < .05$) increase eating in restrained eaters as compared to the amount eaten when restrained eaters view photographs of larger-sized models.

Method

Participants

Participants were recruited from the University of Manitoba Undergraduate Subject pool.

Only female students were asked to participate in this study.

Initially, the Revised Restraint Scale (Herman & Polivy, 1980) was administered to 245 female undergraduate volunteers during the last 10 minutes of 4 psychology classes. Of this initial sample, the 30 highest scoring women and the 30 lowest scoring women were selected to participate in the study.

High scorers had a mean age of 20.90 years (range = 17-30 yrs.) and a mean Restraint score of 38.00.

Low scorers had a mean age of 18.73 (range = 17-24) and a mean Restraint score of 13.16. The cutoff Restraint score suggested by Herman and Polivy (1980) to indicate a pattern of restrained eating is 15; thus, the high-scorers in this study may be said to demonstrate a pattern of highly restrained eating.

Materials

The Bulimia Test-Revised (BULIT-R). (Appendix A) The BULIT-R is a 28-item self-report, multiple choice scale. Possible scores on the BULIT-R range from 28 to 140. This measure has demonstrated construct validity in a study which compared BULIT-R scores and the self-monitored frequency of binge-eating and purging behaviour among a group of college women ($r=.83$, $p<.05$) (Brelsford, Hummel, & Barrios, 1992). This measure correlates highly ($r=.73$) with the Eating Disorders Inventory (Garner, Olmstead, & Polivy, 1983), a measure having like constructs (Wertheim, 1991). The BULIT-R demonstrates concurrent validity, in that it correlates highly ($r=.90$) with the Bulimia Investigatory Test Edinburgh, another measure of bulimic symptomatology (Welch, Thompson, & Hall, 1993). A cutoff score of 104 has been suggested by the original authors; that is, scores of >104 are indicative of bulimia nervosa.

Revised Restraint Scale. (Appendix B) A 10 item self-report questionnaire which includes questions about dieting, weight, eating, binge-eating, and weight variation. Higher scores on the Restraint Scale indicate greater disturbance of eating patterns and greater weight fluctuation. Scores of 15 or more on the Restraint Scale are used to indicate a pattern of restrained eating (Herman, Polivy, Lank, & Heatherton, 1987). Reliability coefficients of .78 (Laessle, Tuschl, Kotthaus, & Pirke, 1989) and .86 have been demonstrated in normal-weight samples (Ruderman, 1983). The Restraint Scale loads on the same factor as scales measuring like constructs, such as the EDI-Bulimia and EDI-Body

Dissatisfaction subscales (Laessle et al., 1989). Restraint scores tend to be higher and more homogenous in an obese sample, which may limit its utility with this population (Ruderman, 1983).

Profile of Mood States (McNair, Lorr, & Droppleman, 1971).

(Appendix C) A list of 65 adjectives which are self-rated on a 5-point scale. It is used to measure six affective states and a global mood disturbance scale: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigour-Activity, Fatigue-Inertia, and Confusion-Bewilderment. Internal consistency and construct validity of the POMS has been demonstrated *via* factor analysis (Boyle, 1987). Studies reported in the POMS manual demonstrate results indicating that the POMS is effective in detecting changes in mood following experimental procedures intended to affect mood (McNair, Lorr, and Droppleman, 1981). However, this scale may be particularly susceptible to the effects of social desirability due to the transparency of its items (Boyle, 1987).

Photos. Ten photographs were used as stimulus materials in each of the three conditions (slim model, larger-sized model, and scenery photograph). Photographs of thin models were taken from popular fashion magazines and catalogues (e.g.; Vogue, Glamour, Elle, and Victoria's Secret). Each photograph was a full-body shot with little or no typeface on the woman's body. These photos were matched as closely as possible on dimensions such as hairstyle, pose, clothing style, makeup, and skin-tone with photographs of ten larger-sized models. All larger-sized model photographs were taken from Mode magazine, a magazine which is designed to appeal to women sized 12 and above. Scenery photographs were used as control stimuli, and were selected from Beautiful British Columbia magazine and Western Gardener magazine. An initial photo pool of fifteen photographs of both thin and large-sized women were given to four pilot participants, and this pool was reduced to ten of each based on rater's scores.

Procedure

A preliminary screening was conducted to delineate the appropriate testing group. The Restraint Scale was administered to approximately 245 female undergraduate volunteers at the end of participants' psychology class. Women were told that the questionnaire was "Part of a study that I am conducting for my Master's research, that I am researching how media images influence womens' perceptions of themselves and other women, and that I may contact some of them by telephone." They were asked to provide their name and telephone number, and were told that all data would be stored in a locked cabinet, and destroyed when data collection was completed. Answering the questionnaire and providing name and telephone number was voluntary, although participants received credits toward their undergraduate psychology course if they chose to participate. Participants scoring in the upper and lower eighth (i.e., the top 30 scorers and the bottom 30 scorers) on the Restraint Scale were contacted by telephone, and asked if they were interested in participating in the continuation of the study. If they agreed, they were scheduled to participate and given instructions about how to get to the meeting area. Participants were contacted in order of Restraint-score until there were 30 participants in the high-restraint group, and 30 in the low restraint group; that is, the highest scorers and the lowest scorers were contacted first, in alphabetical order, continuing to the next highest and next lowest, and so on. During this initial telephone contact, participants were asked to refrain from eating for two hours prior to the experiment, and were asked if they had a health problem which would make this difficult for them. No participant reported a health problem which would pose problems in this area. One participant reported that she was diabetic, but that not eating for two hours would not be a problem, nor would consuming potato chips adversely affect her health.

Participants were scheduled at various times throughout the day, from 9:30 a.m., to 6:30 p.m.

Group and restraint level were randomized across times, so that there would be no systematic bias due to time of day.

Once the High restraint and Low restraint groups were established, they were further divided by random assignment into three subgroups. A dice was thrown in order to decide which group a participant would be assigned to: if the dice was showing a 1 or a 4, the participant was assigned to Subgroup 1; if a 2 or a 5 was thrown, the participant was assigned to Subgroup 2; and if a 3 or a 6 was thrown, the participant was assigned to Subgroup 3. This procedure was modified for the last participants assigned to each group so that sample sizes would be equal among subgroups; if a number was thrown that would assign a participant to a group which was already full, the die was re-thrown. Each subgroup consisted of equal numbers of "high-restraint" and "low-restraint" participants; that is, there were 10 high restraint and 10 low restraint participants in each experimental subgroup.

When participants arrived to participate in the experiment, they were told that they would be participating in experiments which would take a total of 45 minutes, and that they would be run individually. Consent forms (Appendix D) were given and explained to each participant at the onset of the experiment, and were signed if the participant wished to continue participation in the study. Participants were asked if they had complied with the request to refrain from eating immediately prior to the taste-test portion of the experiment. It was explained to participants that this was important in order to control for differences in taste-perception due to the effects of hunger. 59 of the 60 participants reported that they had complied with the request; one participant reported that she had eaten an orange approximately one hour prior to the study. The experimenter decided not to eliminate her data from the study.

The three subgroups of participants were exposed to the three different experimental induction

procedures (i.e., the three different photo conditions), followed by a "taste-test" paradigm. The "taste-test" was carried out in exactly the same way for all three groups. Due to the possible effects of self-monitoring and social comparison on eating, all participants were run individually. In addition, the experimenter wore a large lab coat in an effort to control for comparison between her body and those of the participants.

The Photo Conditions.

Subgroup 1 was exposed to 10 photographs of extremely thin female fashion models. The reason and procedure for viewing the photographs was described as follows: "I am investigating women's perceptions about attractiveness of various media images. I am also researching how media images influence women's perceptions of themselves and others. I would like you to follow the guidelines on the forms which you have been given, and rate each photograph based on the criteria provided. Please look carefully at each photograph, and rate them in the order that they appear."

Each photo was mounted on black construction paper and each grouping of photographs (i.e., scenery) was inserted in a black 3-ring binder. The order of the photographs was constant for all participants. To ensure that participants looked closely at each photo, they were asked to rate the photos on two dimensions using 7-point Likert scales. The two dimensions were weight and attractiveness, respectively. Scores were recorded on a score sheet provided by the experimenter (Appendix E). Each participant was given as much time as she needed to examine and rate the photos. The experimenter was not present in the room while participants were rating the photographs, and was called back into the room by the participant when she had finished rating.

Self-Report Inventories.

Following exposure to the photographs, participants were asked to fill out two self-report

inventories. The Profile of Mood States (POMS, McNair et al., 1971) was administered, as was a basic information sheet (Appendix F) and the first page of the California Psychological Inventory (CPI) (Appendix G). The purpose of the CPI was to mask the intention of the study, and it was not scored or used for analysis. The POMS was administered with the instruction to "fill in the bubble on the sheet which corresponds to how you are feeling RIGHT NOW, not yesterday, or a few hours ago, but right at this moment".

Subgroup 2 participated in an experimental procedure almost identical to that described for Subgroup 1. However, this group was exposed to photos of larger women as opposed to thin women. Again, these photographs were mounted on black construction paper, and presented in a black binder. Following photo exposure and rating, participants completed the same self-report inventories as Subgroup 1.

Subgroup 3 was shown 10 landscape photos and asked to rate them on two dimensions, one being attractiveness, and two being similarity to the landscape in Winnipeg. They recorded their responses on a scoresheet provided by the experimenter, which again involved the use of a 7-point Likert scale (Appendix H). Subsequently, they completed the same self-report inventories as Subgroups 1 and 2.

Taste-test.

Following the induction procedures, participants from all three groups took part in a "taste-test" procedure. In order to prevent participants from guessing the researcher's hypotheses, participants were told that the taste-test was part of an unrelated study. They were told: "Another graduate student is studying how mood and time of day influence taste perception, and since I am also studying mood, the experiments are being conducted at the same time."

This mild deception was essential; if participants were aware that the amount of food they consumed was relevant to the study, results could be affected.

After finishing the first part of the study (viewing the photographs and filling out the questionnaires), each subject was taken into a separate room. On a table, there were three large (400g) premeasured bowls of potato chips. The bowls of chips were quite large in order to visually mask the amount that each participant ate, and may have helped them feel more free to eat as much as they wished. Participants were also provided with a large pitcher of water and a glass. Each participant was told that she must rate each chip's saltiness, sweetness, sour-taste, and crunchiness on a 1-3 scale. Participants recorded their scores on a form provided by the experimenter (Appendix I). They were told that once they had finished their ratings, they could eat as many chips as they wanted, as "the person doing this research is getting the chips for free as a promotion, and the leftovers will just be thrown out anyway", and that they had 10 minutes in which to complete the test. Then, they were left alone in the room. After the 10 minute period, each participant was brought back to the first room. The bowls were weighed by the experimenter, and the amount of potato chips eaten was calculated.

Following the taste-test, the BULIT-R was administered to all participants.

After completion of the experiment, participants were asked to indicate to the experimenter their ideas as to what the purpose of the experiment was. They were directly asked what they thought the purpose of the taste-test was. This served as a validity check. A short general debriefing was provided to each participant at this time (Appendix J). It included telephone numbers for various resource agencies.

Each participant was told that she would be debriefed by letter in more detail after all participants had completed the study (Appendix K). This ensured that experimental results were not

affected by participants discussing the study with one another in the interim. If participants were aware that the amount of food they ate eating was being monitored, they would be likely to adjust their eating habits due to the effects of self-awareness and increased self-monitoring. It was essential to the results of this study that this did not happen. Since all participants in the study were females from the Undergraduate subject pool, it is likely that many were acquainted with one another, and might have been tempted to discuss the study. For this reason, letter debriefing was determined to be the best way to preserve the integrity of the experimental procedure.

Twenty of the 60 participants were weighed. This served as a check on the accuracy of participants' self-reported weight. One participant refused to be weighed, and the next person who participated in the study was weighed instead. Only one of the participants selected from the initial pool refused to participate in the taste-test; she was replaced with another participant, and her data were not included in the analysis.

Results

Manipulation Checks

Initially, an independent samples t-test was conducted to determine whether the difference in weight between the larger and the thin model conditions was actually perceived as different by participants (Table 1). The mean attractiveness ratings between these two conditions was also compared. The perceived difference in model weight between the conditions was highly significant, $t(38) = -11.53$, $p < .001$ at two-tailed level of significance, whereas participants' perceptions of model attractiveness did not differ between the thin and the large model condition. These data reveal that participants perceived model weight as different between conditions, but the effect of attractiveness was consistent across conditions. This is important, as the effects of weight would otherwise be

confounded with the effects of perceived attractiveness.

Of the 60 participants in this study, 5 (8.3%) guessed that the "taste-test" and the rest of the experiment were related, and that the amount of chips they consumed was being monitored.

The *a priori* hypotheses were analyzed using planned comparisons. These planned comparisons were structured based on the four hypotheses outlined in the hypothesis section. It is important to note that the first of these four hypotheses actually consists of 6 planned comparisons. In effect, it can be broken down into three separate mood comparisons (Anger, Anxiety, and Depression) between the thin-model and the large model condition, and three mood comparisons (Anger, Anxiety, and Depression) between the thin-model and the scenery condition.

Although the experimenter runs the risk of making predictions in the wrong direction, or deciding to ignore comparisons that may prove interesting, the planned comparisons procedure is preferable to doing an overall MANOVA and analyzing data *post hoc*. This procedure increases power, particularly when there are a low number of experimental participants. Planned comparisons are carried out by specifying appropriate contrast coefficients and running MANOVA based on those coefficients. Protection against Type I error is achieved by doing these planned contrasts instead of an omnibus F (Tabachnick & Fidell, 1983). As the present manipulation involves two separate sets of dependent variables, eating, measured by grams of chips eaten, and three aspects of mood, measured by the POMS, the alpha level is considered separately for each of these sets. The general factorial model in SPSS for Windows 3.1 was used to analyze the data involving one dependent variable, whereas the multivariate procedure was used for the data involving three dependent variables. An alpha level of $<.05$ was used for the comparisons involving amount eaten, whereas $\alpha < .017$ was used as the cutoff for the comparisons involving the three measures of mood, Depression-dejection,

Tension-anxiety, and Anger-hostility. This number was obtained by dividing .05 by three, the number of dependent variables. This procedure is described by Dar, Serlin, and Omer (1994) as "controlling for error rate at the level of families of hypotheses". These researchers suggest selecting families of hypotheses based on the questions one is asking in one's study. Using this procedure provides an acceptable balance between risk of Type I and II error.

All data were analyzed used SPSS for Windows 3.1.

Mood and Condition

Hypothesis 1 stated that restrained eaters would have higher POMS scores on three submeasures (Depression-dejection, Anxiety-tension, and Anger-hostility) following exposure to photographs of thin fashion models, as compared to restrained eaters who viewed photographs of either larger-sized models or scenery photographs. Thus, this hypothesis involves six separate comparisons, probing simple-main effects: three types of mood comparison between the thin model group and larger-model group; and three types of mood comparison between the thin model group and the scenery group. As illustrated in Table 2, there was a trend towards dysphoric affect, as measured by the POMS subscales, in restrained eaters based on photo condition. This trend did not emerge for unrestrained eaters. However, only one of the *a priori* planned comparisons was statistically significant. Results indicated that restrained eaters who saw photographs of thin fashion models were significantly more anxious than restrained eaters who saw photographs of scenery, $F(1, 54) = 13.05$, $p < .017$. Comparison between mood of restrained eaters who viewed photographs of thin vs. larger-sized models approached significance on both the Anger ($F(1,54) = 4.52$, $p < .04$) and Anxiety ($F(1,54) = 4.63$, $p < .04$) dimensions.

Effects of Photo-Exposure Condition and Restraint on Eating

Means and standard deviations of amount eaten by restrained and unrestrained eaters based on photo group are reported in Table 3. Hypothesis 2 predicted that restrained eaters exposed to photographs of thin fashion models would eat significantly more potato chips ($\alpha < .05$) than unrestrained eaters exposed to these photographs. Contrary to this prediction, a significant difference was not found. The prediction stated in Hypothesis 3 was that restrained eaters who saw photographs of thin models would eat significantly more ($\alpha < .05$) than restrained eaters who saw photographs of scenery. This hypothesis was not supported by the results of this study. The prediction stated in Hypothesis 4 was that restrained eaters who viewed photographs of thin fashion models would eat significantly ($\alpha < .05$) more potato chips than restrained eaters who saw photographs of larger-sized fashion models. This prediction was supported by data from this study, $F(1, 54) = 6.03, p < .05$.

Additional Findings

Participants' self-reported weight was compared to their actual weight for a subsample (20 of 60) participants. The mean difference score of actual vs. reported weight was 5.65 pounds, $SD = 4.59$. See Table 4 for participant's weight and height, untransformed scores. Actual weight was used when computing body mass index (BMI) for the randomly selected subsample of 20 participants who were weighed; self-reported weight was used to compute body mass index for the remaining 40 participants.

BMI was computed for all participants using the formula:

$$\text{Body Mass} = \frac{W}{H^2}$$

Where W = weight in kilograms and H = height in metres. BMI was used as an index of body size opposed to weight alone, as BMI takes both height and weight into account in the computation. Mean BMI for restrained eaters was 27.03, $SD = 7.68$, with a range of 16.95 to 55.54. Mean BMI for

unrestrained eaters was 20.37, $SD=2.18$, with a range of 16.75 to 26.02. Although there is not a generally accepted cutoff as to what BMI constitutes overweight or obesity (see LeBow, 1989), many researchers consider a BMI of 27 as overweight (e.g., Bray, 1985; Van Itallie, 1985). Therefore, one may conclude from the data that many of the restrained women in this study were overweight. This was expected, based on previous research which has indicated that the Revised Restraint Scale may generally identify unsuccessful dieters as opposed to people who are effective in controlling their weight. People with high scores on the Revised Restraint Scale tend to be overweight, and the data collected in this research supports this statement.

As expected based on previous research, and based on the high correlations between the Restraint scale and the BULIT-R, mean BULIT-R scores for restrained eaters ($M = 81.90$, $SD = 19.08$) were significantly higher than BULIT-R scores of unrestrained eaters ($M = 36.23$, $SD = 6.26$). These data were analyzed using a oneway ANOVA, $F(1,58)=151.40$, $p<.001$. Four of the 60 participants could be categorized as bulimic based on their BULIT-R score, using the cutoff score of 104 suggested by Thelen et al., (1991).

Ratings of models' attractiveness and weight were analyzed for the thin model condition and the large model condition (Table 5). As previously mentioned, participants did perceive the larger sized fashion models as significantly heavier than the thin fashion models. However, there was no difference in perceived attractiveness between the groups; both had a mean score of 3.85, which from the Likert scale, translates to a rating between "attractive" and the mid-point of the scale (neither attractive nor unattractive).

Pearson's r correlational analyses were conducted to determine whether BULIT-R scores or body mass index (BMI) were related to participant's perceptions of model weight or model

attractiveness (Table 6). For restrained eaters who viewed photographs of larger-sized fashion models, there was a significant correlation between BULIT-R score and perception of model weight, $r=.69$, $p<.05$, two-tailed significance level; that is, as BULIT-R scores increased, participants perceived models as heavier. In addition, there was a significant correlation between perceptions of model weight and attractiveness for restrained eaters who viewed larger sized fashion models. As perception of model weight increased, attractiveness ratings decreased, $r=.74$, $p<.05$ two tailed significance. No such correlation emerged for unrestrained eaters who viewed these same photographs.

For unrestrained eaters who viewed photographs of thin fashion models, there was a significant negative correlation between BMI and perception of model weight; that is, as weight of participants decreased, their perception of model weight increased, $r=-.83$, $p<.01$ two tailed. In addition, for these same participants, there was a significant correlation between BULIT-R score and perception of model weight. As BULIT-R scores increased, perceptions of models weight increased, $r=.85$, $p<.01$ two tailed significance. However, significant correlations did not emerge on these dimensions for restrained eaters who viewed photographs of thin models.

Discussion

Effect on Mood by Photograph Condition

Based on the results of previous research (e.g., Stice and Shaw, 1994), it was suggested that there may be a relationship between viewing photographs of thin female models and negative mood, particularly among women with body image dissatisfaction. Some of the results from the present investigation support these previous research results. Restrained women who viewed photographs of thin fashion models exhibited higher levels of anxiety than restrained eaters who viewed photographs of scenery. This increase in anxiety parallels the results found by Kalodner (1997); however, this

researcher found an increase in anxiety for a general sample of women who viewed photographs of thin models, not only restrained women. This more generalized increase in anxiety, which occurred among women who were not measured on level of restraint, could be attributed to the high level of restraint present in many women in the general population. Recall from a previously reported large-scale study (Rand & Kulda, 1991) that 20.7% of women in the general population may be classified as restrained based on their scores on the Restraint Scale. In addition, there was a non-statistically significant trend for restrained women to experience greater dysphoric affect based on their responses on all three scored POMS dimensions (Tension-anxiety, Anger, Depression-dejection) as a function of photo condition, with the highest scores occurring in the thin model condition, the lowest scores occurring in the scenery condition, and intermediate scores occurring in the larger-model condition. In contrast to the results of some researchers (e.g., Irving, 1990), no such effect emerged for the unrestrained women.

Using the POMS, it is not feasible to compare mood between restrained and unrestrained eaters. This is because POMS scores of restrained eaters were much higher than those of unrestrained eaters, even in the control condition, which would certainly limit their direct comparability. Even in the absence of an experimental manipulation, restrained eaters have higher scores than unrestrained eaters on the POMS; therefore, doing a direct comparison between the scores of restrained eaters and unrestrained eaters without taking this into consideration would be inappropriate. According to the results of the present study, highly restrained women generally have higher negative-affect scores as compared to unrestrained women, even without the influence of mood-changing stimuli. Therefore, in the present study, all planned comparisons involving mood were done within the population of restrained eaters, and did not involve unrestrained eaters. Effect on Eating by Photograph Condition

Overall, the amount of potato chips eaten by each participant was quite low, consistent with the results of previous research (e.g., Schotte, Cools & McNally, 1990). Restrained eaters ate an average of 26.03g of chips, and unrestrained eaters ate an average of 30.52g.

Restrained eaters who viewed photographs of thin fashion models ate significantly more potato chips than restrained eaters who viewed photographs of larger-sized fashion models. However, none of the other predictions were significant. This may be attributed to a number of factors. First, some participants guessed that the amount of chips that they were eating was being monitored, and others may have been suspicious. Second, the artificiality of the situation may have influenced eating; although taste-tests are often used as an experimental analogue for binge-eating, the quantity of the binge will almost certainly be modified by the experimental situation. Further, participants tend to consume a relatively small amount of food in this situation, which again reduces inter-individual variation. As a possible way of reducing the effects of the experimental situation, future researchers could assess binge eating in a more naturalistic setting, and could possibly use self-report measures of binge-eating following exposure to media images. However, although it would be desirable to use a more naturalistic setting, in that external validity would be increased, problems with reliability would compromise the integrity of naturalistic observations.

Thirdly, viewing photographs of thin fashion models may only influence mood, but may not consistently influence eating behaviour in women. That is, there may be considerable inter-individual variation in the way these images actually influence eating, if at all, which may obscure experimental results.

Post-Hoc Analyses

It is interesting to note that, overall, there was no difference in participants' perceptions of

attractiveness of the thin compared to the larger-sized models. This was the intention of the manipulation. Using photographs of fashion models for both the thin and the large conditions helped to ensure that any differences noted between the groups were a result of the models' weight, as opposed to their general attractiveness. It is thus interesting that, for both restrained and unrestrained eaters, a significant positive correlation was found between BULIT-R scores and perceptions of models' weight. Within each subgroup of restrained or unrestrained eaters, persons with higher BULIT-R scores perceived the models as heavier than did persons with lower BULIT-R scores. One may tentatively conclude that higher levels of eating disorder symptomatology are associated with higher standards of "thinness" being placed not only on the self, but on other women as well. This is further supported by the significant correlation between perceived model attractiveness and perceived model weight within the population of restrained eaters who were in the large-model condition; for this subgroup, as perceived model weight increased, perceived model attractiveness decreased.

The mean Body Mass Index of the Restrained eaters in this study was considerably greater than the mean BMI of the Unrestrained eaters. Indeed, the Restrained eaters in this study would be classified by most researchers as obese, on average. This is a problem which tends to occur within this type of research. The variable of weight is intertwined with that of Restraint as measured by the Revised Restraint Scale. If participants are not pre-screened as to weight to ensure that Restrained and Unrestrained participants are relatively matched as to BMI, the possibility exists that some observed differences between Restrained and Unrestrained groups are due to the effects of obesity as opposed to Restraint. However, eliminating persons from research based on BMI makes the selection of participants even more specific and less representative of the population than it already is, and this factor should also be weighed when one decides to take such action.

Limitations

One limitation of this research was the relatively small number (60) of participants, which can negatively influence power and increase the chance of making a Type II error, failing to reject the null hypothesis when in fact one should have done so. In an effort to increase power, planned comparisons were used for the primary data analyses in this experiment. Some trends in the data were observed, and it is possible that more statistically significant results would have been obtained if more data points were available.

Five of the 60 participants in this research guessed that the amount of potato chips they were consuming was monitored. This may have affected the amount of potato chips they consumed, which may in turn have affected overall results. A more elaborate deception could be used in future experiments in order to prevent any participant from guessing the hypotheses; however, it is likely that some will guess, due in part to the artificiality of experimental analogues to binge-eating. Some participants spontaneously reported that they had felt "weird" while in the room where the taste test was conducted. One could posit that being left alone in an unfamiliar, quiet room with several bowls of chips might make some people feel uncomfortable, which could influence their eating.

Conclusions

Conclusions drawn from this research are as follows: (1) Exposure to photographs of thin female fashion models increases anxiety level in restrained eaters as compared to viewing photographs of scenery. (2) Restrained eaters exposed to photographs of thin fashion models may eat more than restrained eaters exposed to photographs of larger-sized fashion models. (3) Higher levels of eating symptomatology are related to perceptions of increased weight in larger women, and decreased perceptions of attractiveness as perceived weight increases.

Directions for Future Researchers

One direction recommended for future research is to focus on developing more naturalistic analogues of binge-eating for experimental purposes. This could enable researchers to more accurately and consistently identify fluctuations in eating. The taste-test paradigm is an adequate model, but the overall amount of food consumed tends to be quite low with little variation between individuals. Therefore, it is difficult to determine if between group differences are merely due to chance or if they represent an effect of the independent variable.

Another interesting direction for future research would be to study women's cognitions, perhaps using protocol analysis, as they view photographs from the media. Researchers who use protocol analysis have participants talk aloud as they are engaged in an experimental task, and hypothesize that by doing this they may tap into the cognitive processes occurring in that moment. This could provide a richer picture of what thoughts may co-exist with women's affective responses to media images.

Although one must be cautious when inferring causality between environmental influences such as the media and pathology such as eating disorders, the present research provides support for other data which suggest a linkage between media images of thin fashion models and dysphoric affect, particularly among women who habitually diet. Further study into this link may both reveal the underlying mechanisms at work, and provide us with a theoretical basis for insisting that the media provide us with images that are a reflection of the body-shape diversity which exists among real women.

References

Abramson, E., and Valene, P. (1991). Media use, dietary restraint, bulimia, and attitudes towards obesity: A preliminary study. British Review of Bulimia and Anorexia Nervosa, *5*(2), 73-76.

Boyle, G. J. (1987). A cross-validation of the factor structure of the profile of mood states: Were the factors correctly identified in the first instance? Psychological Reports, *60*, 343-354.

Bray, G. A. (1985). Obesity: Definition, diagnosis, and disadvantages. The Medical Journal of Australia, *142*, 52-58.

Brelsford, T. N., Hummel, R. M., and Barrios, B. A. (1992). The Bulimia Test-Revised: A psychometric investigation. Psychological Assessment, *4*(3), 399-401.

Copeland, C. S., Woods, D. J., and Hursey, K. G. (1995). Social interaction effects on restrained eating. International Journal of Eating Disorders, *17*(1), 97-100.

Dar, R., Serlin, R. C., and Omer, H. (1994). Misuse of statistical tests in three decades of psychotherapy research. Journal of Counselling and Clinical Psychology, *62*(1), 75-82.

Dewberry, C., and Ussher, J.M. (1994). Restraint and perception of body weight among British adults. The Journal of Social Psychology, *134*(5), 609-619.

Garner, D. M., and Garfinkel, P. E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. Psychological Medicine, *9*, 273-279.

Garner, D. M., Olmstead, M. P., Bohr, and Garfinkel, P. E. (1982). The eating attitudes test: psychometric features and clinical correlates. Psychological Medicine, *12*(4), 871-878.

Garner, D. M., Olmstead, M. P., and Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. International Journal of Eating Disorders, *2*, 15-34.

Green, B. L., and Saenz, D. S. (1995). Tests of a mediational model of restrained eating: The role of dieting self-efficacy and social comparisons. Journal of Social and Clinical Psychology, 14(1), 1-22.

Halmi, K. A., Falk, J. R., and Schwartz, E. (1981). Binge-eating and vomiting: survey of a college population. Psychological Medicine, 11, 697-706.

Hamilton, K., and Waller, G. (1993). Media influences on body size estimation in anorexia and bulimia: An experimental study. British Journal of Psychiatry, 162(6), 837-840.

Heatherton, T. F., Polivy, J., and Herman, C. P. (1990). Dietary restraint: Some current findings and speculations. Psychology of Addictive Behaviours, 4(2), 100-106.

Heatherton, T. F., Polivy, J., Herman, C. P., and Baumeister, R. F. (1993). Self-awareness, task failure, and disinhibition: How attentional focus affects eating. Journal of Personality, 61(1), 49-61.

Herman, C. P., and Mack, D. (1975). Restrained and unrestrained eating. Journal of Personality, 43, 657-660.

Herman, C. P., and Polivy, J. (1980). Restrained eating. In A. Stunkard (Ed.), Obesity (pp. 208-225). Philadelphia: W. B. Saunders.

Herman, C. P., Polivy, J., Lank, C. N., and Heatherton, T. F. (1987). Anxiety, Hunger, and eating behaviour. Journal of Abnormal Behaviour, 96, 264-269.

Irving, L. M. (1990). Mirror images: Effects of the standard of beauty on the self- and body-esteem of women exhibiting varying levels of bulimic symptoms. Journal of Social and Clinical Psychology, 9(2), 230-242.

Kalodner, C. R. (1997). Media influences on male and female non-eating disordered college students: A significant issue. Eating Disorders: The Journal of Treatment and Prevention, 5(1), 47-57.

Knight, L., and Boland, F. (1989). Restrained eating: An experimental disentanglement of the disinhibiting variables of calories and food type. Journal of Abnormal Psychology, 98, 412-420.

Laessle, R. G., Tuschl, R. J., Kotthaus, B. C., and Pirke, K. M. (1989). A comparison of the validity of three scales for the assessment of dietary restraint. Journal of Abnormal Psychology, 98(4), 504-507.

LeBow, M. D. (1989). Adult Obesity Therapy. Pergamon Press.

Lowe, M. R. (1993). The effects of dieting on eating: A three-factor model. Psychological Bulletin, 114(1), 100-121.

McNair, D. M., Lorr, M., and Droppleman, L. F. (1971). Profile of Mood States: Manual. San Diego, CA: Educational and Industrial Testing Service.

Merola, G. T., Stein, D. M., and Beckwith, B. E. (1992). Restrained eaters: Body weight, preloads, and private settings. Psychology of Addictive Behaviours, 6(1), 28-33.

Ogden, J. (1993). The measurement of restraint: confounding success and failure? International Journal of Eating Disorders, 13(1), 69-76.

Polivy, J., and Herman, C. P. (1987). Diagnosis and treatment of normal eating. Special Issue: eating disorders. Journal of Consulting and Clinical Psychology, 55(5), 635-644.

Rand, C. S. W., and Kuldau, J. M. (1991). Restrained eating (weight concerns) in the general population and among students. International Journal of Eating Disorders, 10(6), 699-708.

Ruderman, A. J. (1985). Dysphoric mood and overeating: A test of restraint theory's disinhibition hypothesis. Journal of Abnormal Psychology, 94(1), 78-85.

Ruderman, A. J. (1983). The Restraint Scale: A psychometric investigation. Behaviour Research and Therapy, 21(3), 253-258.

Stice, E., Schupak-Neuberg, E., Shaw, H. E., and Stein, R. I. (1994). Relation of a media exposure to eating disorder symptomatology: An examination of mediating mechanisms. Journal of Abnormal Psychology, 103(4), 836-840.

Smith, M. C., and Thelen, M. H. (1984). Development and validation of a test for bulimia. Journal of Consulting and Clinical Psychology, 52(5), 862-872.

Tabachnick, B. G., and Fidell, L. S. (1983). Using Multivariate Statistics. Harper & Row: New York.

Thelen, M. H., Farmer, J., Wonderlich, S., and Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. Psychological Assessment, 3, 119-124.

Tiggemann, M. (1994). Dietary restraint as a predictor of reported weight loss and affect. Psychological Reports, 75, 1679-1682.

Schotte, D. E., Cools, J., and McNally, R. J. (1990). Film induced negative affect triggers overeating in restrained eaters. Journal of Abnormal Psychology, 99(3), 317-325.

Stephens, G. C., Prentice-Dunn, S., and Spruill, J. C. (1994). Public self-awareness and success-failure feedback as disinhibitors of restrained eating. Basic and Applied Social Psychology, 15(4), 509-521.

Stice, E., and Shaw, H. E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. Journal of Social and Clinical Psychology, 13(3), 288-308.

Van Itallie, T. B. (1985). Health implications of overweight and obesity in the United States. Annals of Internal Medicine, 103, 983-988.

Van Strein, T., Frijters, J. E., Bergers, G. P., and Defares, P. B. (1986). Dutch Eating

Behaviour Questionnaire for the assessment of restrained, emotional, and external eating behaviour.

International Journal of Eating Disorders, 5, 295-315.

Waller, G., Hamilton, K., and Shaw, J. (1992). Media influences on body size estimation in eating disordered and comparison subjects. *British Review of Bulimia and Anorexia Nervosa*, 6(2), 81-87.

Welch, G., Thompson, L., and Hall, A. (1993). The BULIT-R: Its reliability and clinical validity as a screening tool for DSM-III-R bulimia nervosa in a female tertiary education population. International Journal of Eating Disorders, 14(1), 95-105.

Wertheim, E. H. (1991). Examination of the concurrent and construct validities of the bulimia test using normal and bulimic samples. International Journal of Eating Disorders, 10(3), 361-368.

Westenhoefer, J., Broeckmann, P., Munch, A. K., and Pudel, V. (1994). Cognitive control of eating behaviour and the disinhibition effect. Appetite, 23, 27-41.

Appendix A

Bulimia Test-Revised

Bulimia Test-Revised (BULIT-R)

1. I am satisfied with my eating patterns

- a) agree
- b) neutral
- c) disagree a little
- d) disagree
- e) disagree a lot

2. Would you presently call yourself a "binge eater"?

- a) yes, absolutely
- b) yes
- c) yes, probably
- d) yes, possibly
- e) no, probably not

3. Do you feel you have control over the amount of food you consume?

- a) most or all of the time
- b) a lot of the time
- c) occasionally

- d) rarely
- e) never

4. I am satisfied with the shape and size of my body

- a) frequently or always
- b) sometimes
- c) occasionally
- d) rarely
- e) seldom or never

5. When I feel that my eating behaviour is out of control, I try to take rather extreme measures to get back on course (strict dieting, fasting, laxatives, diuretics, self-induced vomiting, or vigorous exercise).

- a) always
- b) almost always
- c) frequently
- d) sometimes
- e) never or my eating behaviour is never out of control

6. I use laxatives or suppositories to help control my weight

- a) once a day or more
- b) 3-6 times a week
- c) once or twice a week

- d) 2-3 times a month
- e) once a month or less (or never)

7. I am obsessed about the size and shape of my body

- a) always
- b) almost always
- c) frequently
- d) sometimes
- e) seldom or never

8. There are times when I rapidly eat a very large amount of food

- a) more than twice a week
- b) twice a week
- c) once a week
- d) 2-3 times a month
- e) once a month or less (or never)

9. How long have you been binge eating (eating uncontrollably to the point of stuffing yourself)?

- a) not applicable; I don't binge eat
- b) less than 3 months
- c) 3 months-1 year
- d) 1-3 years
- e) 3 or more years

10. Most people I know would be amazed if they knew how much food I can consume at one sitting.

- a) without a doubt
- b) very probably
- c) probably
- d) possibly
- e) no

11. I exercise in order to burn calories.

- a) more than 2 hours per day
- b) about 2 hours per day
- c) more than 1 but less than 2 hours per day
- d) one hour or less per day
- e) I exercise but not to burn calories or I don't exercise

12. Compared with women your age, how preoccupied are you about your weight and body shape?

- a) a great deal more than average
- b) much more than average
- c) more than average
- d) a little more than average
- e) average or less than average

13. I am afraid to eat anything for fear that I won't be able to stop

- a) almost
- b) almost always
- c) frequently
- d) sometimes
- e) seldom or never

14. I feel tormented by the idea that I am fat or might gain weight

- a) always
- b) almost always
- c) frequently
- d) sometimes
- e) seldom or never

15. How often do you intentionally vomit after eating?

- a) 2 or more times a week
- b) once a week
- c) 2-3 times a month
- d) once a month
- e) less than once a month or never

16. I eat a lot of food when I'm not even hungry

- a) very frequently
- b) frequently
- c) occasionally
- d) sometimes
- e) seldom or never

17. My eating patterns are different from the eating patterns of most people

- a) always
- b) almost always
- c) frequently
- d) sometimes
- e) seldom or never

18. After I binge eat I turn to one of several strict methods to try to keep from gaining weight

(vigorous exercise, strict dieting, fasting, self-induced vomiting, laxatives, or diuretics).

- a) never or I don't binge eat
- b) rarely
- c) occasionally
- d) a lot of the time
- e) most of the time

19. I have tried to lose weight by fasting or going on strict diets

- a) not in the past year
- b) once in the past year
- c) 2-3 times in the past year
- d) 4-5 times in the past year
- e) more than 5 times in the past year

20. I exercise vigorously and for long periods of time in order to burn calories

- a) average or less than average
- b) a little more than average
- c) more than average
- d) much more than average
- e) a great deal more than average

21. When engaged in an eating binge, I tend to eat foods that are high in carbohydrates (sweets and starches)

- a) always
- b) almost always
- c) frequently
- d) sometimes
- e) seldom or I don't binge

22. Compared to most people, my ability to control my eating behaviour seems to be:

- a) greater than others' ability
- b) about the same
- c) less
- d) much less
- e) I have absolutely no control

23. I would presently label myself a "compulsive eater" (one who engages in episodes of uncontrolled eating)

- a) absolutely
- b) yes
- c) yes, probably
- d) es, possibly
- e) no, probably not

24. I hate the way my body looks after I eat too much

- a) seldom or never
- b) sometimes
- c) frequently
- d) almost always
- e) always

25. When I am trying to keep from gaining weight, I feel that I have to resort to vigorous exercise, strict dieting, fasting, self-induced vomiting, laxatives, or diuretics.

- a) never
- b) rarely
- c) occasionally
- d) a lot of the time
- e) most or all of the time

26. Do you believe that it is easier for you to vomit than it is for most people

- a) yes, it's not a problem at all for me
- b) yes, it's easier
- c) yes, it's a little easier
- d) about the same
- e) no, it's less easy

27. I use diuretics (water pills) to help control my weight

- a) never
- b) seldom
- c) sometimes
- d) frequently
- e) very frequently

28. I feel that food controls my life

- a) always
- b) almost always
- c) frequently
- d) sometimes
- e) seldom or never

29. I try to control my weight by eating little or no food for a day or longer

- a) never
- b) seldom
- c) sometimes
- d) frequently
- e) very frequently

30. When consuming a large quantity of food, at what rate of speed do you usually eat?

- a) more rapidly than most people have ever eaten in their lives
- b) a lot more rapidly than most people
- c) a little more rapidly than most people
- d) about the same rate as most people
- e) more slowly than most people (or not applicable)

31. I use laxatives or suppositories to help control my weight

- a) never
- b) seldom
- c) sometimes
- d) frequently
- e) very frequently

32. Right after I binge eat I feel:

- a) so fat and bloated I can't stand it
- b) extremely fat
- c) fat
- d) a little fat
- e) ok about how my body looks or I never binge eat

33. Compared to other people of my sex, my ability to always feel in control of how much I eat is:

- a) about the same or greater
- b) a little less
- c) less
- d) much less
- e) a great deal less

34. In the last 3 months, on the average how often did you binge eat (eat uncontrollably to the point of stuffing yourself)?

- a) once a month or less (or never)
- b) 2-3 times a month
- c) once a week
- d) twice a week
- e) more than twice a week

35. Most people I know would be surprised at how fat I look after I eat a lot of food.

- a) yes, definitely
- b) yes
- c) yes, probably
- d) yes, possibly
- e) no, probably not or I never eat a lot of food

36. I use diuretics (water pills) to help control my weight.

- a) 3 times a week or more
- b) once or twice a week
- c) 2-3 times a month
- d) once a month
- e) never

Appendix B

Restraint Scale

1. How often are you dieting?

- a) never
- b) rarely
- c) sometimes
- d) usually
- e) always

2. What is the maximum amount of weight (in pounds) you have ever lost in one month?

- a) 0-4 lbs
- b) 5-9 lbs
- c) 10-14 lbs
- d) 15-19 lbs
- e) + 20 lbs

3. What is your maximum weight gain within a week?

- a) 0-1 lbs
- b) 1.1-2 lbs
- c) 2.1-3 lbs
- d) 3.1-5 lbs
- e) + 5.1 lbs

4. In a typical week, how much does your weight fluctuate?

- a) 0-4 lbs
- b) 5-9 lbs
- c) 10-14 lbs
- d) 15-19 lbs
- e) + 20 lbs

5. Would a weight fluctuation of 5 lbs. affect the way you live your life?

- a) not at all
- b) slightly
- c) moderately
- d) very much

6. Do you eat sensibly in front of others and splurge alone?

- a) never
- b) rarely
- c) often
- d) always

7. Do you give too much time and thought to food?

- a) never
- b) rarely
- c) often
- d) always

8. Do you have feelings of guilt after overeating?

- a) never
- b) rarely
- c) often
- d) always

9. How conscious are you of what you're eating?

- a) not at all
- b) slightly
- c) moderately
- d) extremely

10. How many pounds over your desired weight were you at your maximum weight?

- a) 0
- b) 1-5
- c) 6-10
- d) 11-20
- e) +20

Appendix C

Profile of Mood States

Each adjective is rated on a 0-4 scale.

0=not at all

1=a little

2=moderately

3=quite a bit

4=extremely

- | | |
|---------------------------|----------------------------|
| 1. Friendly | 36. Miserable |
| 2. Tense | 37. Muddled |
| 3. Angry | 38. Cheerful |
| 4. Worn out | 39. Bitter |
| 5. Unhappy | 40. Exhausted |
| 6. Clear-headed | 41. Anxious |
| 7. Lively | 42. Ready to fight |
| 8. Confused | 43. Good natured |
| 9. Sorry for things done | 44. Gloomy |
| 10. Shaky | 45. Desperate |
| 11. Listless | 46. Sluggish |
| 12. Peeved | 47. Rebellious |
| 13. Considerate | 49. weary |
| 14. Sad | 50. Bewildered |
| 15. Active | 51. Alert |
| 16. On edge | 52. Deceived |
| 17. Grouchy | 53. Furious |
| 18. Blue | 54. Efficient |
| 19. Energetic | 55. Trusting |
| 20. Panicky | 56. Full of pep |
| 21. Hopeless | 57. Bad-tempered |
| 22. Relaxed | 58. Worthless |
| 23. Unworthy | 59. Forgetful |
| 24. Spiteful | 60. Carefree |
| 25. Sympathetic | 61. Terrified |
| 26. Uneasy | 62. Guilty |
| 27. Restless | 63. Vigorous |
| 28. Unable to concentrate | 64. Uncertain about things |
| 29. Fatigued | 65. Bushed |
| 30. Helpful | |
| 31. Annoyed | |
| 32. Discouraged | |

- 33. Resentful
- 34. Nervous
- 35. Lonely

Appendix D

Consent Forms for University Participants

I am a Graduate student in the University of Manitoba's Department of Psychology. I am conducting a number of studies, and am interested in your thoughts about various pictures, some of your feelings, and your taste-perceptions. The studies will last approximately 45 minutes in total. I will be asking for your name, address, and telephone number. However, please be assured that all of your responses will be kept confidential, and all information regarding your name, address, and phone number will be kept in a locked cabinet and shredded when it is no longer needed. I need your address so that I can mail you information about the purpose of the study when all of the data has been collected. For data analysis, all participants will be represented by number; that is, your name will not be attached to the data, so no one will know how you responded.

Please answer all questions as honestly as possible. You may withdraw from the study at any time without losing experimental credit. When all data has been collected, I will mail you an explanation of the study.

Consent

I, _____, have read the participant information and understand what is expected of me. I understand that I may decline to respond to questions and may withdraw from the study at any time without loss of experimental credit.

Signature

Date

Appendix E

Ratings

Attractiveness

Please rate the physical attractiveness of each woman. Use the following scale:

1-----2-----3-----4-----5-----6-----7

1=extremely attractive

3=attractive

5=unattractive

7=extremely unattractive

Photo number:

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

-Please add your ratings on the lines provided.

Appendix E cont'd

Weight

Please rate the weight of each woman. Use the following scale:

1-----2-----3-----4-----5-----6-----7

1=extremely underweight

3=mildly underweight

5=mildly overweight

7=extremely overweight

Photo number:

1 _____

-Please add your ratings on the lines provided.

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

Appendix F

Information Sheet

Name:

Age:

Mailing Address:

Current Weight:

Current Height:

Appendix G

California Psychological Inventory, Page 1

1. I enjoy social gatherings just to be with people.
2. The only interesting part of the newspaper is the "funnies".
3. I looked up to my father as an ideal man.
4. A person needs to "show off" a little now and then.
5. Our thinking would be a lot better off if we would just forget about words like "probably", "approximately", and "perhaps".
6. I have a very strong desire to be a success in the world.
7. When in a group of people I usually do what the others want rather than make suggestions.
8. I liked *Alice in Wonderland* by Lewis Carroll.
9. I usually go to the movies more than once a week.
10. Some people exaggerate their troubles in order to get sympathy.
11. People can pretty easily change me even though I thought that my mind was already made up on a subject.
12. I often feel that I made a wrong choice in my occupation.
13. I am very slow in making up my mind.
14. I always follow the rule: business before pleasure.
15. Several times a week I feel as if something dreadful is about to happen.
16. There's no use in doing things for people; you only find that you get it in the neck in the long run.
17. I would like to be a journalist.
18. A person who doesn't vote is not a good citizen.
19. I think I would like the work of a building contractor.
20. I have had very peculiar and strange experiences.
21. My daily life is full of things that keep me interested.
22. When a person "pads" an income tax report so as to get out of some taxes, it is just as bad as stealing money from the government.
23. In most ways, a poor person is better off than a rich one.
24. I always like to keep my things neat and tidy and in good order.
25. Clever, sarcastic people make me feel very uncomfortable.
26. It's a good thing to know people in the right places so you can get traffic tags, and such things, taken care of.
27. It makes me feel like a failure when I hear of the success of someone I know well.
28. I think I would like the work of a dress designer.
29. I am often said to be hotheaded.
30. I gossip a little at times.
31. I doubt whether I would make a good leader.
32. I tend to be on my guard with people who are somewhat more friendly than I had expected.
33. Usually I would prefer to work with women.
34. There are a few people who just cannot be trusted.

35. I become quite irritated when I see someone spit on the sidewalk.
36. When I was going to school I played hooky quite often.
37. I have very few fears compared to my friends.
38. It is hard for me to start a conversation with strangers.
39. I must admit that I enjoy playing practical jokes on people.
40. I get very nervous if I think that someone is watching me.
41. For most questions there is just one right answer, once a person is able to get all the facts.
42. I sometimes pretend to know more than I really do.
43. It's no use worrying y head about public affairs; I can't do anything about them anyhow.
44. Sometimes I feel like smashing things.
45. As a child I used to be able to go to my parents with my problems.
46. I think I would like the work of a school teacher.
47. Women should not be allowed to drink in cocktail bars.
48. Most people would tell a lie if they could gain by it.

Appendix H

Attractiveness

Please rate the attractiveness of the following photographs. Use the following rating scale:

1-----2-----3-----4-----5-----6-----7

1=very unattractive

3=mildly unattractive

5=mildly attractive

7=very attractive

Photo number:

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

-Please add your ratings on the lines provided.

Appendix H cont'd

Similarity

Please rate the following photographs based on how similar they are to the scenery around
Winnipeg. Use the following scale:

1-----2-----3-----4-----5-----6-----7

1=very similar

3=somewhat similar

5=few similarities

7=completely unlike Winnipeg

Photo number:

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

7 _____

8 _____

9 _____

10 _____

-Please add your ratings on the lines provided.

Appendix I

Taste-Test Ratings

Please rate the following snack foods according to the following criteria:

1=very

2=somewhat

3=not at all

ITEM 1. saltiness:

sweetness:

sour taste:

crunchiness:

ITEM 2. saltiness:

sweetness:

sour taste:

crunchiness:

ITEM 3. saltiness:

sweetness:

sour taste:

crunchiness:

Appendix J

Debriefing Protocol: Immediately Post-Experiment

Thank you for participating in the study entitled "Media Images and Women". At this time, I will provide you with some general information about this study. Please do not share this information with your friends, as I am still collecting data, and other participants may respond differently if they have this information. Thank you for your consideration. More detailed information will be mailed to you in about 3 weeks.

The first part of the study explored the relationship between photographs and personality factors such as mood. Mood can sometimes affect other aspects of a person's experience, such as taste-perception.

This is all that I can tell you about the study at this point. A more complete explanation will be provided when data collection is complete.

For some of you, the experience you have had participating in this study may have left you feeling upset. If you would like to further talk about your feelings, the following resources are available to you.

Psychological Service Centre (on campus): 474-9222

University of Manitoba Counselling Centre (on campus): 474-8592

Klinic Crisis Line: 786-6836

Or myself: 474-9338--where you can leave a message, and I will return your call as soon as possible.

Thank you for your participation!

Karina Vanstone

Appendix K

Debriefing Protocol: Sent By Mail

Thank you for participating in the study entitled "Media Images and Women". All data has been collected, and I would like to provide you with feedback regarding the nature of the study.

This study explored the relationship between various media images (thin fashion models, larger-sized fashion models, and scenery photographs) and their respective effects on mood and eating behaviour. Previous research indicates that some women are affected by images of thin women. These images may affect how they feel about themselves (i.e., their mood and body image), which can also influence their eating habits. This study will compare the effects of the "thin-model" photographs with the larger model and scenery photographs. You were in one of the three conditions. The "taste-test" was actually related to the photograph study. It was used to determine if people would eat more or less depending on which photographs they saw.

For some of you, some of the material you were presented with in this study may have left you feeling upset or confused. Others may not have been affected. When you completed this study, you were given the telephone numbers of various resources to help you deal with these feelings. Please feel free to contact them.

If you would like more information about the results of this research, or about resource agencies, please leave a message for me at 474-9338, and I will return your call as soon as possible.

Thank you

Karina Vanstone

Table 1

Mean Weight Ratings of Models, by Group and Level of Restraint

Restrained		Unrestrained	
Thin	Large	Thin	Large
3.7	4.4	3.0	4.9
2.9	4.8	3.2	5.2
2.9	5.2	2.7	4.9
2.9	4.8	3.9	5.5
2.4	6.1	2.8	4.1
2.6	4.7	2.8	4.2
3.2	5.4	3.2	5.1
4.0	5.1	3.0	4.4
3.4	5.9	3.0	4.3
4.0	5.5	3.2	4.9
3.2	5.2	3.1	4.8

Thin \bar{M} = 3.14

Large \bar{M} = 4.97

* $t(38)=-11.53, p<.001$

*t-test for independent means run on SPSS for Windows Version 3.1.

Note: Means are based on ratings made on a 7 point Likert scale, where 1=extremely underweight and 7=extremely overweight.

Table 2 : Weight and Height of Participants: Self-Report, Actual, and Difference

Group				
Restrained	Height	Weight-SR*	Weight**	Difference
1	66	121	121	0
2	62	168	168	0
3	66	160		
4	66	150		
5	65	145		
6	64	325		
7	60	92		
8	67	165		
9	66	118		
10	63	124		
11	66	145		
12	64	220		
13	64	150		
14	63	95		
15	70	140		
16	62	190		
17	68	155		
18	66	187		
19	72	160	167	7
20	66	210		
21	64	127		
22	64	140	151	11
23	66	190	193	3
24	66.5	150	159	9
25	65	200		
26	68	170		
27	65	135		

28	63	165		
29	61.5	200		
30	63	150	155	5
	<u>M</u> = 65.07	<u>M</u> = 161.57	M =	M =
Unrestrained	Height	Weight-SR*	Weight**	Difference
1	62	115		
2	68	125	131	6
3	70	160	170	10
4	63	111	117	6
5	64.5	130		
6	65	120		
7	70	145		
8	64	115	123.5	8.5
9	63	97		
10	64	106	109	3
11	60	92	93	1
12	64	110	113	3
13	65	110		
14	66	115	117	2
15	69	160	175.5	15.5
16	66	115	117	2
17	63	115		
18	66.5	135		
19	63	105	105	0
20	64	98		
21	64	110		
22	72	170		
23	64	104		
24	68.5	130		
25	65	121	121	0

26	66	120	128	7
27	62	115	127	12
28	65	135		
29	65	140		
30	69	130		
	$\bar{M} = 65.35$	$\bar{M} = 121.80$		

Note. Height is reported in inches; weight is reported in pounds.

*Refers to self-reported weight.

**Refers to measured weight.

Table 3

	Group			
	Thin Model		Large Model	
	Restrained	Unrestrained	Restrained	Unrestrained
	BMI			
Weight	n.s.	-0.83**	n.s.	n.s.
Attractive	n.s.	n.s.	n.s.	n.s.
	BULIT-R			
Weight	n.s.	0.85**	0.69*	n.s.
Attractive	n.s.	n.s.	n.s.	n.s.

Note. * $p < .05$. ** $p < .001$. n.s. = non-significant.

Perceptions of Model Weight and Attractiveness

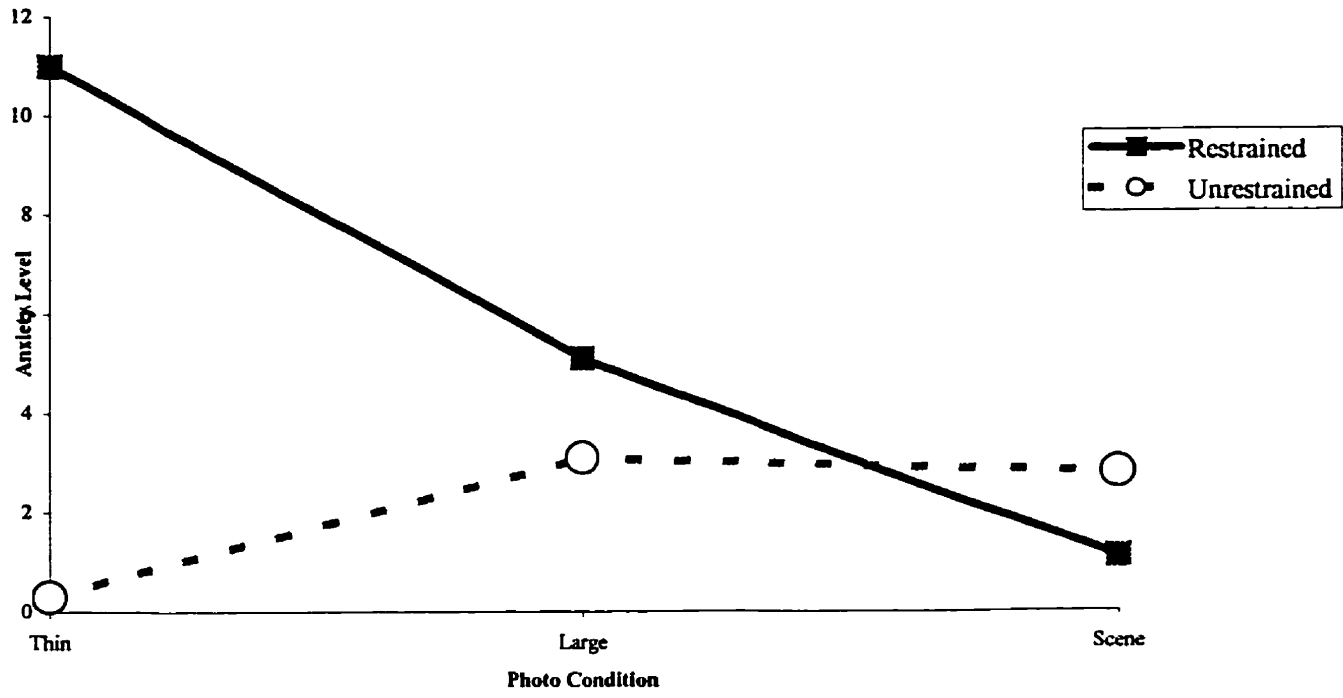
Group	Thin		Large	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Weight	3.14	.46	4.97	.54
Attractiveness	3.85	.54	3.85	1.00

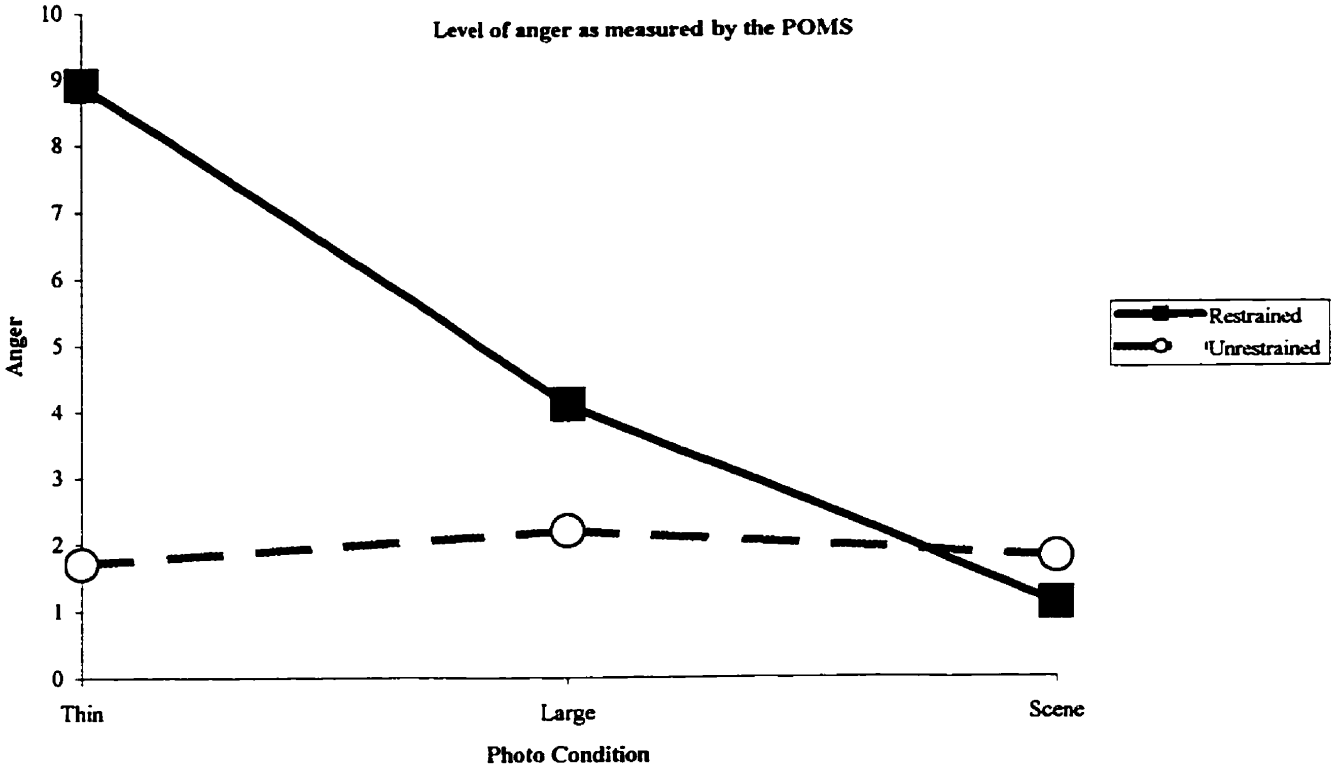
Note: Ratings made on 7-point Likert scale.

weight: 1=extremely underweight, 7=extremely overweight;

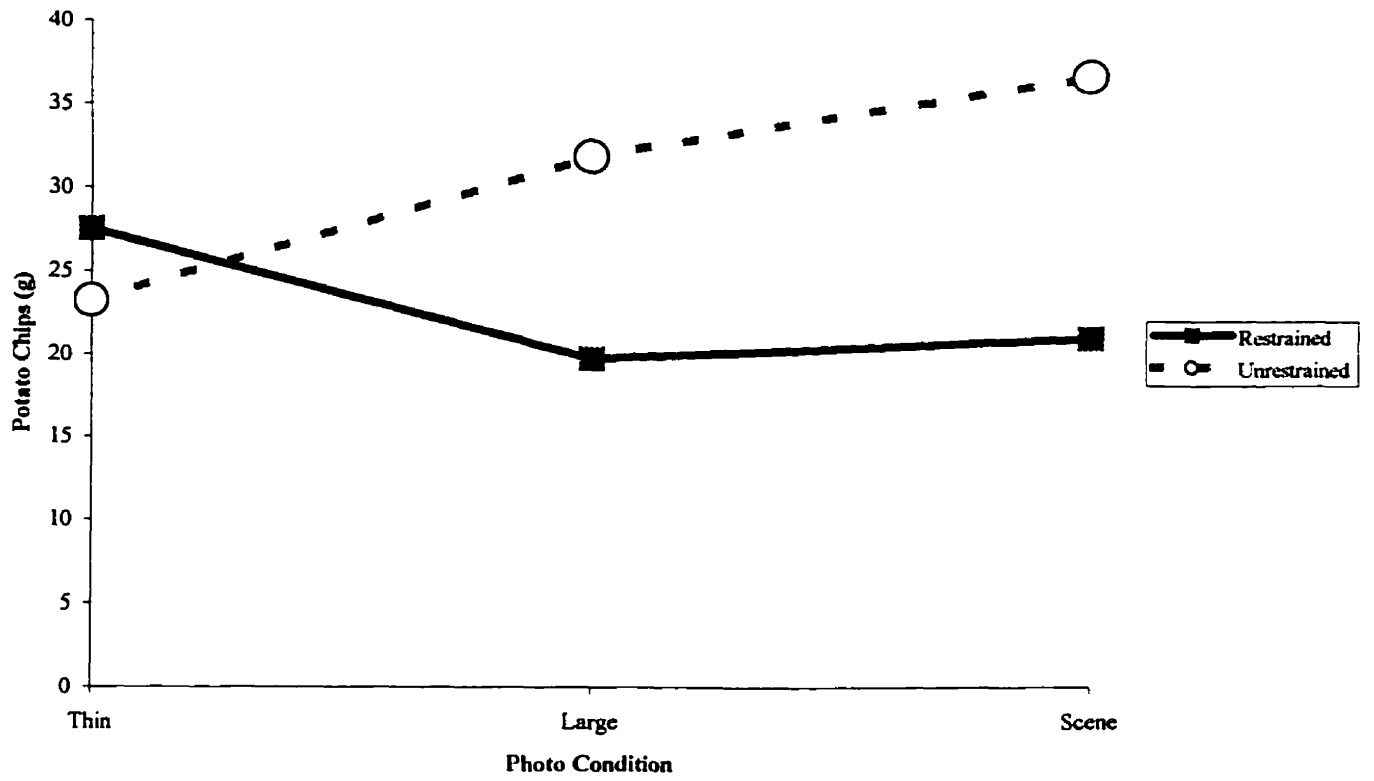
attractiveness: 1=extremely attractive, 7=extremely unattractive.

Anxiety





Amount of potato chips consumed.



Level of depression as measured by the POMS

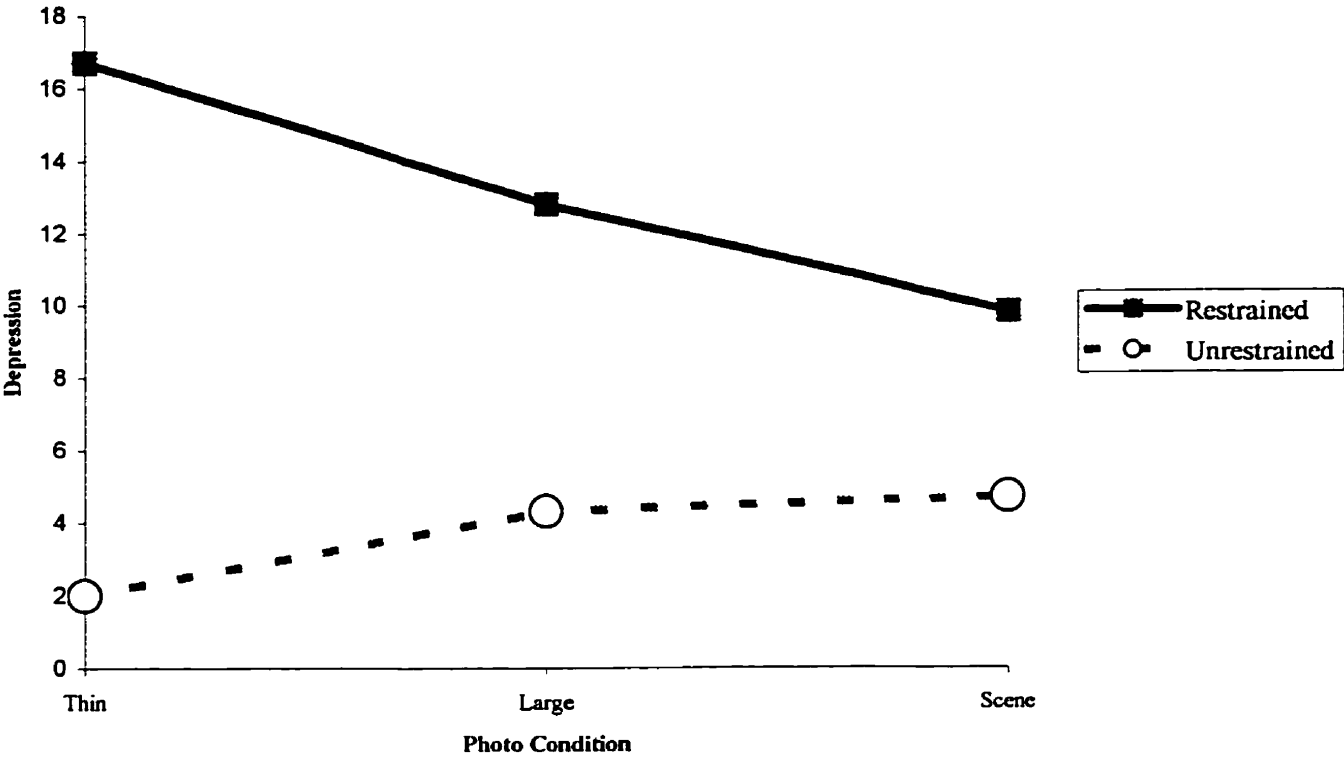
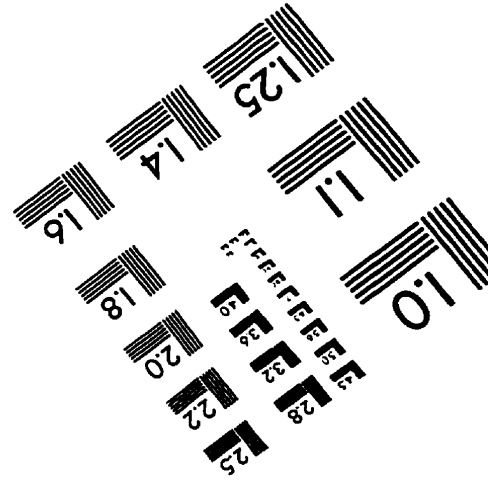
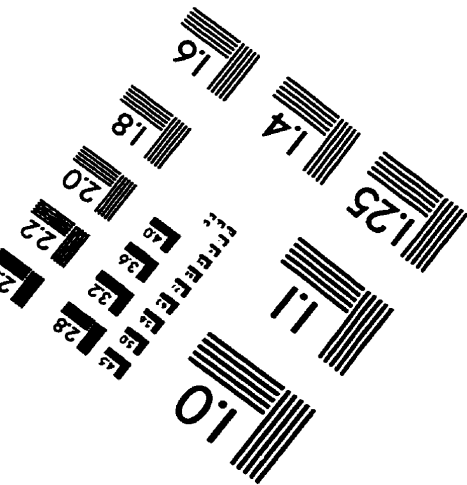
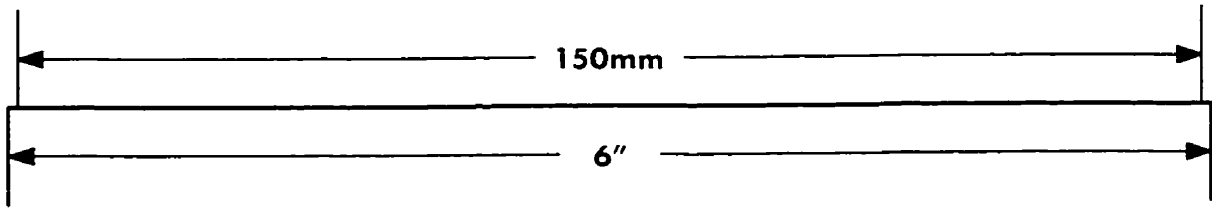
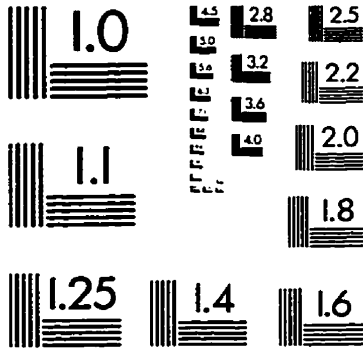
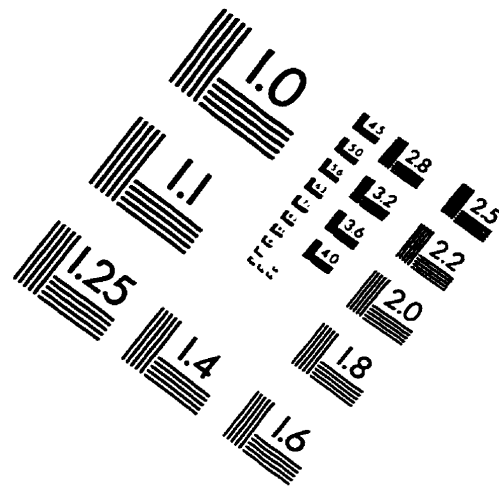
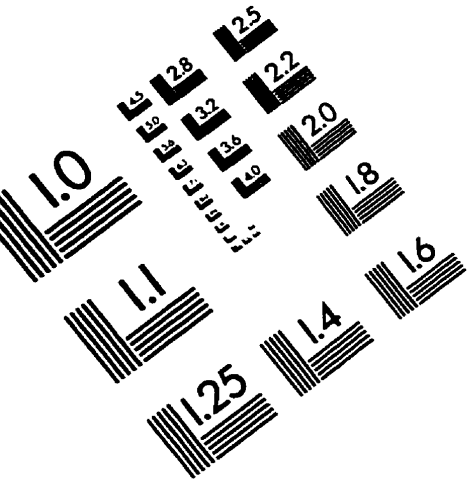


IMAGE EVALUATION TEST TARGET (QA-3)



APPLIED IMAGE . Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989

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