



Intuitive Eating, Diet Composition, and the Meaning of Food in Healthy Weight Promotion

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ABSTRACT

Intuitive eating (an anti-dieting, hunger-based approach to eating) has been popularized as a viable approach to healthy weight management. The purpose of this study was to evaluate the relationship between intuitive eating, diet composition, and the meaning of food. The convenience sample included 343 students enrolled in a general education course at a Western university. Participants were given paper-and-pencil surveys containing the Intuitive Eating Scale and a variety of diet-related scales adapted from other studies. Each scale/subscale was evaluated for internal consistency and deemed acceptable. Those scoring high in intuitive eating had lower BMI scores ($r = -.327, p < .001$), less health-consciousness in relation to food ($r = -.209, p < .001$), and higher levels of pleasure associated with food and eating ($r = .484, p < .001$). No negative aspect of diet composition was correlated with intuitive eating or any of its sub-scales. Mean comparisons showed a significant difference between males and females in intuitive eating, dieting, health consciousness, and eating for pleasure ($p < .001$). In general, high intuitive eating scores were associated with an increase in the enjoyment and pleasure of food, lower BMI scores, and fewer dieting behaviors and food anxieties. The promotion of intuitive eating as one approach to healthy weight management should continue to be explored.

INTRODUCTION

As the prevalence of obesity, dieting, and eating disorders continues to increase,^{1,2} it becomes apparent that new approaches to healthy weight management that go beyond dietary restraint are needed, at least for some populations. A non-dieting, hunger-based approach to weight management represents one possible alternative that is increasingly being explored in the literature.³

Definition of Obesity

Obesity, which is clinically defined as a body mass index (BMI) above 30, is now referred to as an epidemic in American society.⁴ As defined by the Centers for Disease Control and Prevention (CDC), BMI, a calculation of height and weight, approximates health risks associated with excess weight. Overweight, a classification for those at risk for becoming obese, is defined as a BMI of

25–29.9. The CDC recommends that all persons who are obese or overweight should try not to gain any more weight, and those who have other risk factors for chronic diseases should consider losing weight.⁵ Health implications of having a high body weight include heart disease, diabetes, hypertension, some types of cancer, and other chronic diseases.⁶

The latest version of the National Health and Nutrition Examination Survey (NHANES) indicates that 30% of the United States adult population is obese, and another 34% are overweight.⁷ In addition to the adult obesity problem, there has also been an increase in the prevalence of overweight children and adolescents in recent decades.⁸

Public Health Response

In response to the obesity epidemic, the

public health and nutrition professions continue to focus on individual calorie counting and restriction as a way to promote weight maintenance and weight loss.^{9–11} At the same time, the commercial weight loss industry aggressively promotes restrictive dieting practices in spite of limited success.¹²

Consequences of Calorie Counting

Food-restrictive dieting, regardless of whether it is promoted by commercial weight-loss programs or by public health and nutrition professionals, may reduce

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weight temporarily, but it has been shown to be ineffective over time for most people.¹²⁻¹⁴ Even worse than lacking effectiveness, calorie counting seems to contribute to psychological and emotional harm for some groups.¹⁵⁻¹⁷

Eating disorders and poor body esteem. As obesity is increasingly portrayed in a negative light, and society continues to react favorably to the thin ideal, there is an increase in dieting among normal weight populations.^{18,19} Chronic dieting, independent of weight, is a precursor to eating disorder development for many women.²⁰ Unrealistic media images foster the distorted body images and low body esteem that initially prompt chronic dieting.²¹ In one prospective study of adolescents, negative body image and body esteem were found to be precursors to chronic dieting, eating-disordered behaviors, and weight gain over time.²²

Anxieties toward food and eating, as well as decreased pleasure, also seem to accompany chronic dieting. Dieters who describe less pleasure related to food are more likely to show signs of eating disorders, lower psychological well-being and more body-dissatisfaction.²³ One study found that Americans have an eating style that is low in pleasure and high in health consciousness. Even though Americans score higher on health consciousness, they are more likely to be overweight and less likely to describe themselves as healthy eaters.²⁴

Unintended consequences. The female college population, which is mostly normal weight, is especially susceptible to dieting and eating problems. Research shows that regardless of race/ethnicity, a substantial minority of college-aged women and a much smaller minority of college-aged men have major concerns about eating and food with respect to both weight and health.²⁵ The message of calorie restriction, intended for overweight individuals who are at risk for health problems, has been incorporated into the sociocultural drive for thinness and internalized by many who are not at risk for weight-related health problems—but who are at risk for poor body esteem, obsessive

dieting, the development of eating disorders, and diet-induced weight gain.

Intuitive Eating as an Alternative

Given these realities, it appears necessary that alternative approaches to healthy weight promotion be developed and evaluated. Anti-dieting approaches are one such possibility that should be considered for healthy weight promotion purposes.^{3, 26-28} One anti-dieting approach, intuitive eating, focuses on internal hunger and satiety cues to initiate food consumption and eating cessation.²⁹

Previous research has found intuitive eating to be significantly correlated with lower body mass index, lower triglyceride levels, higher levels of high-density lipoproteins, and improved cardiovascular risk.³⁰ An educational intervention to increase intuitive eating found that as individuals increased intuitive eating behaviors, they also increased anti-dieting and intrinsic eating styles, while decreasing emotional eating and dietary restraint. In addition, as intuitive eating increased, individuals gained in self-esteem and body esteem.³¹ Similar results have been found in other anti-dieting, hunger-based approaches to healthy weight management.³

One of the untested assumptions of intuitive eating suggests that as an individual responds to natural hunger mechanisms his or her body will prompt good nutrition and maintain a healthy weight.³² However, a primary argument against the promotion of intuitive eating is that individuals will likely consume diets that are nutritionally inferior if allowed to eat in accordance with personal cravings and desires. Some nutritionists believe that external control of food habits is necessary for dietary adequacy, and if individuals are allowed to eat what they desire their diets will include unhealthy levels of sugar, fat, and refined foods.³³

Research Objective

The purpose of this study was to evaluate the relationship between intuitive eating, diet composition, nutritional quality of diet, and certain meanings associated with food, including food anxieties and pleasure associated with eating.

METHODS

The research design for this study involved a cross-sectional assessment of attitudes, feelings, and behaviors in relation to food and eating behaviors among university students.

Sample

The convenience sample included 343 male and female students enrolled in a general health and physical education course at a Western university. While non-random, the sample was likely representative of the entire student population at this university as all incoming freshman are required to complete the course.

Procedures

Participation in this study was voluntary, reward-/penalty-free, confidential, and based on informed consent. All students in attendance on the day of the survey administration were given a paper-and-pencil survey containing several different instruments and all students completed the questionnaire. Trained research assistants collected and hand-entered scores into a Microsoft Excel file, which was then rechecked for accuracy. University Institutional Review Board approval was obtained prior to data collection.

Instruments

Instruments contained in the survey consisted of the Intuitive Eating Scale, nutrition and dieting questions from the Youth Risk Behavior Surveillance System, a survey on pleasure and health-consciousness concerning food, and other dietary behavior questions created or modified for use in this study.

Intuitive Eating Scale (IES). The IES is a 27-item self-report questionnaire that was developed to measure intuitive eating behaviors. The IES has four sub-scales that represent different constructs or assumptions in relation to intuitive eating, including: anti-dieting attitudes, internal hunger focus (intrinsic eating), limited levels of environmental and emotional eating (extrinsic eating), and a self-care orientation that is stronger than a fashion orientation. Question responses use a Likert scale of



strongly disagree, disagree, neutral, agree, and strongly agree to measure participants agreement with the question statements. Initial testing of the IES yielded acceptable alpha coefficients (.42–.93) and adequate test/retest reliability for each sub-scale (.56–.87). Higher scores on each sub-scale, and the total IES, indicate positive agreement with intuitive eating principles.³² For this study, intuitive eating levels are measured using the cumulative score based on the total IES score. Validity for this study was determined using the Cronbach's alpha score. This survey had a very good Cronbach's alpha of 0.90.

Youth Risk Behavior Surveillance System (YRBSS). The CDC developed the YRBSS to monitor six categories of priority health-risk behaviors among youth, one of which is the area of dietary behaviors, physical activity and overweight.³⁴ This survey has demonstrated adequate test-retest reliability. Approximately three fourths of the items were rated as having a substantial or higher reliability ($\kappa = 61\%–100\%$), and no statistically significant differences were observed between the prevalence estimates for the first and second times that the questionnaire was administered. For this study, seven demographic questions as well as seven dieting and four nutrition questions from the YRBSS were used.³⁵ Two variables, diet composition and BMI, were formed from these questions. The diet composition sub-scale is the combination of the dietary questions and indicates the nutritional quality of an individual's dietary composition. The validity of the sub-scale was acceptable, with a Cronbach's alpha of 0.62. The BMI variable was calculated using self-reported height and weight from the YRBSS questions.

Health consciousness and pleasure. This 25-item survey was constructed to explore the role of food in the life of different people. It was first conducted cross-culturally in the United States, France, Flemish Belgium, and Japan. The survey instrument was translated and back translated into each language prior to administration. Factor analysis was completed on the sub-scales of the survey with each item loading on its

principal factor at a level of 0.47 or higher.²⁴ For this study the two measures, health consciousness and pleasure, formed individual sub-scales.

The health consciousness variable is an indication of health consideration in food choices and eating habits, such as particular attention to the amount of fat or calories in foods. The sub-scale consists of nine items, with response formats varying with each question, including some true/false options, some frequency of behavior responses, and some scale-rating questions. The internal consistency for this sub-scale, as determined by the Cronbach's alpha, is acceptable with a value of 0.63.

The pleasure sub-scale reflects the amount of pleasure and satisfaction an individual takes in selecting and eating food. The pleasure sub-scale consists of 18 items, with responses varying, including frequency of behavior, true/false responses, and word association answers. The Cronbach's alpha for the sub-scale was 0.65.

Other items from the survey questions were combined to form additional sub-scales for analysis. The following list details the sub-scale formation.

Junk food. This variable comes from a single question asking respondents to estimate the percentage of their diet that comes from junk food, defined as food low in nutrients and high in fat and/or sugar.

Breakfast. This sub-scale is the combination of two questions asking about the frequency and quantity of breakfast habits. The validity measurement, as indicated by the Cronbach's alpha, was acceptable at 0.58, with each item loading on the factor at a value of 0.84.

Diversity. The diversity of diet sub-scale was created from questions developed by the primary investigators. Only two questions make up this sub-scale, both used a Likert scale to indicate how strongly the participants' personal behavior agrees with the items. The two questions asked were, "When I go to my favorite restaurant, I like to order new things I haven't tried before" and "On a day-to-day basis, there are a limited number of food choices in my diet."

While this two-item scale had a Cronbach's alpha of 0.23, the single-item loading value for each item was 0.75. The low Cronbach's alpha is a function of the low number of variables in the scale.

Data Analysis

Analysis of data were done using the Statistical Package for Social Sciences (SPSS) software, version 12.0, for personal computers.³⁶ Frequency distributions were used to summarize and describe the data. In addition, data were analyzed using crosstabs, correlations, t-tests, and factor analysis.

RESULTS

Participant Demographics

Of the 343 survey participants, 39.7% were female, and 59.8% were male. Almost half of the participants were in the age range of 18–20 years old, and approximately 98% were between 18 and 26 years old. Nearly 90% of those surveyed were Caucasian, with 4.1% Hispanic, 2.4% Asian, 1.8% American Indian, and less than one percent each of African-Americans and Native Hawaiians. This ethnic distribution is similar to statewide minority population percentages in the state of the participating university.³⁷ The majority of respondents were college Freshmen (56.5%), followed by Sophomores (26.8%), Juniors (11.8%), and Seniors (5%). Only 10.5% of participants identified their general health to be excellent, while 37.9% said their health was very good, and 44.1% said their health was good. Approximately 7.1% of respondents indicated their health as fair, and less than one percent identified their health as being poor.

Body Size and Personal Weight Goals

The majority of females in this study wanted to lose weight (54%), regardless of current body mass index (BMI), while male participants were more likely to want to gain or stay the same weight (48%) (Table 1). Nineteen percent of males wanted to gain weight, while only one female (less than 1%) wanted to gain weight. In direct contrast, 54% of females identified that they wanted to lose weight, while only 25.2% of males

**Table 1. BMI Classification Cross Tabulated with Personal Weight Goal**

Actual BMI Classification	Gender	Lose Weight	Gain Weight	Stay the Same Weight	Not trying to do anything	TOTAL
Underweight	Male	0	1	1	2	4
	Female	3	1	3	4	11
Normal Weight	Male	17	35	49	42	143
	Female	50	0	40	10	100
Overweight	Male	25	2	5	10	42
	Female	16	0	1	1	18
Obese	Male	8	0	1	0	9
	Female	3	0	0	0	3
TOTAL	Male	50	38	56	54	198
	Female	72	1	44	15	132

Table 2. BMI Classifications Cross Tabulated with Self-ratings of Body Size

Self-Ratings	Actual BMI				TOTAL
	Underweight	Normal	Overweight	Obese	
Very Underweight	1	6	0	0	7
Slightly Underweight	7	36	1	1	45
About the Right Weight	6	177	19	0	202
Slightly Overweight	1	25	39	5	70
Very Overweight	0	1	2	6	9
TOTAL	15	245	61	12	333

wanted to lose weight. This is ironic given the percentages of overweight and obese individuals according to gender. Approximately 25.7% of the males were either overweight or obese, while only 15.9% of females fell into that classification.

Another interesting construct of weight is the way in which individuals perceived their size in contrast to their actual BMI classification (Table 2). While most of the participants assessed their size as being similar to their BMI classification, of particular concern were the 35 individuals (10.5%) who estimated their weight status as higher than indicated by BMI.

Intuitive Eating and Diet-related Variables

Actual weight, as defined by BMI, was significantly correlated with total intuitive eating scores. Those scoring high in intuitive

eating had lower BMI values ($r = -.327$, $p < 0.001$). In addition, intuitive eating was significantly correlated with lower health-consciousness about food ($r = -.209$, $p < 0.001$) and higher levels of pleasure associated with food and eating ($r = .484$, $p < 0.001$). Similarly, higher health consciousness was associated with less pleasure in eating ($r = .34$, $p < 0.001$).

In addition to enjoying the pleasure of food, intuitive eating is mildly correlated with diversity of diet—a positive nutritional indicator ($r = .137$, $p = 0.019$). While breakfast eating was not correlated with intuitive eating, it was mildly correlated with diversity of diet ($r = .143$, $p = 0.008$).

There was no association between intuitive eating and the percentage of junk food consumed in the diet, and no other aspect of diet composition was significantly cor-

related with intuitive eating or any of its sub-scales.

Gender Differences in Diet-Related Variables

Significant differences were found between males and females in intuitive eating behaviors. Comparison of means (t-tests) demonstrated a significant difference between genders in intuitive eating, health consciousness, and pleasure eating scores ($p < .001$). Females had significantly higher scores on health-consciousness related to food consumption, while males were more likely to be intuitive eaters and to enjoy the pleasure of eating. Males scored significantly higher on the self-care sub-scale of the IES, meaning they have a self-care orientation that is stronger than a fashion orientation ($p < .001$). Males also scored significantly higher on the anti-dieting sub-scale

**Table 3. Mean Comparison (t-test) of Diet Related Variables by Gender**

	Gender	N	Mean	Std. Dev.	Range	P-value
Anti-dieting subscale of the IES	Female	128	44.29	9.46	(13-65)	< 0.001
	Male	185	51.85	8.67		
Self-care subscale of the IES	Female	134	14.08	2.90	(4-20)	< 0.001
	Male	189	15.16	2.68		
Health consciousness	Female	131	6.73	1.53	(0-9)	< 0.001
	Male	197	5.98	1.65		
Pleasure of eating	Female	127	9.58	2.80	(0-18)	< 0.001
	Male	193	11.47	2.83		
Total intuitive eating score	Female	124	89.00	12.19	(27-135)	< 0.001
	Male	173	97.53	12.31		

of the IES, indicating that they have fewer dieting attitudes and behaviors in relation to females ($p < .001$).

DISCUSSION

The concept of intuitive eating suggests that individuals can learn to identify subtle hunger and satiety cues and then respond by eating foods that will satisfy internal cravings in a nutritious way.^{29, 32, 33} Concern about the intuitive eating approach to weight management stems from the supposed nutritional inadequacy of a person's dietary intake if allowed to eat in a non-restrictive, non-regulated way. Critics maintain that external control of dietary intake is essential for nutritional adequacy.³³ In addition, they assert that restrained eaters are effective in reducing eating problems when they lose weight through dieting.⁴⁰ The purpose of this study was to assess the relationship between intuitive eating, diet quality, and the meaning of food.

Quality of Diet

Participants in this study were primarily normal weight male and female college students who rated their health as good, very good, or excellent. Males tended to eat more intuitively, diet less, take more pleasure in eating, and be less concerned with fashion. Females were more likely to desire weight loss, overestimate their weight category, and be health-conscious in their food selections. For both genders, intuitive

eating was associated with taking more pleasure in the selection and consumption of food, being less health-conscious in food choices, having a lower BMI, having a more diverse diet and eating breakfast (indirect association). No significant associations were found between intuitive eating and other measures of diet quality such as levels of junk food consumption.

While there was no indication from this study that intuitive eating is associated with worse nutritional quality than health-conscious eating, there were a few indications that intuitive eating may actually be related to healthier eating behaviors. For example, in this study intuitive eating was positively associated with greater diversity in the diet, a goal of U.S. dietary guidelines.¹¹ A diverse diet was further associated with eating breakfast. Previous research has shown that eating breakfast lowers fat intake and reduces snacking, thus contributing to healthy weight management.³⁹ While this study failed to support the contention that intuitive eating will lead to poor nutritional choices, findings from this study do raise concerns about the promotion of "health-conscious" calorie counting and food selection.

The Meaning of Food

While health consciousness in eating is seen as a positive trait in public health and nutrition literature, in the context of the present study health consciousness may be interpreted as a negative attribute. The

health-conscious individual may be more concerned about the nutritional attributes of food choices (fat content, caloric values, perceived likelihood of contributing to thinness, etc.), as opposed to making food selections based on the internal drive to consume the foods that best satisfy hunger sensations. The result may be less pleasure in eating, food anxieties, a sense of deprivation, and the possibility of overeating or bingeing on taboo foods.

The concept of intuitive eating presumes a level of internal awareness capable of identifying hunger sensations and satiety. This intuitiveness results in greater pleasure in eating, rather than mere food consumption. As intuitive eaters are allowed to eat in a non-prescriptive fashion, they eat in accordance to personal cravings and taste preferences. Because they are not focused on dietary aspects of nutrition, such as fat, carbohydrates or calories, they are not artificially constrained to consume "good" foods and avoid "bad" foods. This allows the intuitive eater to choose foods that are personally satisfying without any sense of deprivation, urge to binge, or desire to "go off the diet." The result may actually be less food consumption and a lower BMI as found in this study. The health-conscious eater (or dieter), on the other hand, may periodically respond to the deprivation that accompanies regulated eating by bingeing on "taboo foods," developing food fears,



becoming preoccupied with food and dieting anxieties, and ultimately gaining weight or developing an eating disorder.²⁶

Healthy Weight Promotion

The anti-dieting approach, which began in the 1980s, was founded on the premise that traditional food-restrictive approaches have been physically and psychologically detrimental to some populations.⁴⁰⁻⁴³ Indeed, increasing rates of weight-related problems and eating disorders in recent decades underscore the failure of current weight management messages and strategies and the importance of developing new approaches to healthy weight promotion.^{3, 13}

As in previous studies,³² this study found that intuitive eating is negatively correlated with body mass index. It seems possible that for some segments of the population, anti-dieting approaches to healthy weight management, like intuitive eating, may be more ethical, safe, and effective than focusing on calorie counting or other restraint-based eating formulas.^{3, 14} New models for relating to food and healthy weight management which are appearing in the popular literature, such as the French approach,⁴⁴ may offer avenues for meaningful investigation. Given the current culture of thinness, a model of eating that is based on internal hunger satisfaction, moderation and balance in food choices, and elimination of good and bad food stigmas may provide a more meaningful avenue for healthy weight promotion than the current approach of health-conscious (i.e., weight-conscious) calorie counting.

Limitations

The convenience sample used in this study was relatively homogeneous in terms of geographic location, age, and ethnicity. All participants were students, the majority of who were normal weight and in good health. Accordingly, results may not be generalizable to other populations. In addition, the surveys administered in this study relied on self-report measures that may introduce a social desirability bias. Some instruments used in this study relied on a limited number of survey items to

characterize complex variables. Future research should include a greater diversity of participants and utilize more robust measures for dependent variables.

CONCLUSION

Given the increasing rates of obesity, dieting, and eating disorders, it seems relevant to explore alternatives to the restriction-based, externally-controlled weight management strategies that are currently promoted by public health and nutrition professionals, as well as the commercial diet industry.^{3, 26, 44} As shown by previous research and the findings of this study, the problems of dieting, food anxiety, and guilt are a more pressing and prevalent problem for females. The majority of women in the current study desired weight loss even though most were already normal weight. Given these findings, it appears essential that female weight management approaches in particular de-emphasize the culturally dominant beliefs about thinness, restrictive dieting, and exercise in a way that minimizes guilt for nonconformance and that leads to normalized relationships with food and exercise.^{14, 26} Traditional approaches to weight management that rely on external restraint may continue to be relevant for some populations, especially males who do not have body image distortions or a strong drive for thinness.³⁸

As shown in this study, intuitive eating behaviors do not seem to compromise the nutritional quality of dietary choices. Further, intuitive eating is associated with fewer food anxieties and dieting behaviors, and greater pleasure associated with food. This study found that intuitive eating was associated with lower body mass index, diversification of diet, and, by extension, eating breakfast for both males and females. Our findings indicate that intuitive eating, an anti-dieting hunger-based approach to dietary intake, shows promise as a potentially effective approach for de-emphasizing culturally dominant beliefs about eating and thinness, normalizing a pleasurable relationship with food, and promoting healthy weight management (without compromis-

ing dietary quality) among college students.

As health educators in a variety of settings continue to formulate messages and strategies for addressing the growing epidemic of overweight and obesity, there is an opportunity to develop, implement, and evaluate new models and methods for healthy weight promotion. Anti-dieting approaches, such as intuitive eating, represent one promising direction.

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