# Primary Care Patients' Preferences for Very Low Calorie vs. Low Calorie Diets

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# INTRODUCTION

Among the options for treating obesity are low-calorie (LCD) and very-low-calorie (VLCD) diets. Numerous studies have documented the short- and long-term results with these approaches. It appears that VLCDs lead to faster weight loss than LCDs, but the evidence for differences between diets over the long-term is conflicting and generally negative. Given the similarity of long-term results, there is no strong reason to recommend one diet versus another.

One factor that has not been considered in diet recommendations is the patient's preference for a specific diet. In most previous research, subjects have been assigned to a particular type of diet. Thus we know relatively little about patients' preferences for VLCDs vs. LCDs. Consequently, there is also currently no information about why a patient in weight control therapy would choose one diet over another. For example, are there certain patient' characteristics that are associated with diet preference?

The present study explored these questions, among 1400 patients treated for obesity by primary care physicians. Patients were offered a choice of six different diets, including three very low-calorie and three low-calorie diets. The study offered a unique opportunity to examine patients' preferences for a large variety of diet options, because the diets were used in a standardized clinical approach, in a large sample of women and men.

# Method

## Subjects

Participants were 2346 patients presenting for weight control therapy with a Body Mass Index (BMI) of at least 25, including 2020 women and 326 men. Subjects ranged in age from 18 to 70. All subjects were beginning treatment for obesity with a primary care physician.

Patients were classified into four weight groups based on BMI: 25-29.9, 30-34.9, 35-39.9, 40+, which have been referred to as 'overweight,' obese class I,' 'obese class II,' and 'obese class III.' (Health Canada, 2003; NIH, 1998).

Procedure

Subjects saw physicians for dietary and behavioral intervention, with weekly meetings and an open-ended schedule. Diets and specific behavioral strategies (e.g. record keeping) were used as appropriate and desired by the individual patient. The choice of diet was made by the patient after consultation with the physician, concerning the expected weight loss and pros and cons of each diet. The six diet options are presented in Table 1[1].

All subjects were weighed and completed a psychological assessment at the pretreatment assessment. The psychological assessment was conducted using the Larocque Obesity Questionnaire (LOQ; Larocque & Stotland, 2000; Stotland & Larocque, 2003), measuring depression (LOQ-D), stress reactions (LOQ-SR), perfectionism (LOQ-P) and uncontrolled eating (LOQ-UE). Patients were also asked about their desired weight loss, which was calculated in kilograms and as a percentage of starting weight.

Depression was assessed with 7 items, which demonstrated a fairly high level of internal consistency (alpha = .81). Items measured feelings of hopelessness, sadness, inferiority, worthlessness, and crying.

Stress Reactions comprised 6 items describing various symptoms commonly associated with stress (e.g., headaches, gastrointestinal complaints, difficulty concentrating, dizziness, trembling, profuse sweating and unusual fatigue). This scale had an alpha of .67.

[1] Options 2 and 4 were not offered for men.

Perfectionism was assessed with 7 items measuring general tendencies towards perfectionsm (e.g. I demand a lot from myself and everything I do must be perfect). Cronbach's alpha in this sample was .74.

Uncontrolled Eating was assessed with 11 items measuring a variety of eating behaviors, including rapid eating, eating in front of television, eating impulsively, emotional eating, eating to relax, and eating sweet and fatty foods. Alpha was .75.

Statistical Analysis

We studied diet preference in relation to sex, BMI, age, desired weight loss, and the four psychological variables.

Frequency statistics were examined to compare diet preference across sex and BMI groups. Diet groups were compared at pretreatment, using analysis of variance (ANOVA) on age, BMI, weight loss goals, depression, stress, perfectionism and eating habits.

## Results

### Diet Preferences, Gender and BMI

Table 1 presents patient preferences for type of diet according to gender. In order to compare frequencies across gender, two diet groups were formed – diets 1 to 3 were labeled VLCD, and diets 4 – 6 were labeled LCD. The overall rate of selection of VLCDs and LCDs was slightly higher for females than for males - 63.2% of women and 54.6% of men chose a VLCD ($\chi 2= 8.85$, $p < .005$).

Table 2 shows diet preferences according to gender and BMI category. BMI category appears to be a more important factor in the choice of diet for men than for women. Among male subjects, there is a large difference in the selection frequency between the thinnest (VLCD-50.0%) and the heaviest (VLCD-87.2%) groups ($\chi 2=28.8$, $df=3$, $p<.0001$). BMI category was not significantly related to diet selection among women ($\chi 2=4.7$, $df=3$, $p>.19$). The gender difference

in diet selection was more clearly apparent when subjects in obese class III were excluded (females – 62.5% vs. males – 48.1%; $\chi 2=19.9$, df=3, $p<.0001$).

Diet Choice and Pretreatment Patient Characteristics

Table 3 presents means for pretreatment variables according to gender, BMI category and Diet Group. Variables included age, starting BMI, weight loss goal (KGgoal), weight loss goal as a percentage of starting weight (KGgoal %), LOQ-SR, LOQ-D, LOQ-P and LOQ-UE. Analysis of variance was used to examine these variables in relation to Gender, BMI category, Diet Group, and their two- and three-way interactions. Diet Group was significantly related to LOQ-UE ($F_{1,2344} = 6.73$, $p < .01$) and weight loss goal (KGgoal %) ($F_{1,2344} = 4.97$, $p < .05$). Post-hoc comparisons using Duncan tests indicated that VLCD groups had significantly more uncontrolled eating and larger diet goals. The main effect for Diet Group was not significant for age, depression, stress reactions, or perfectionism.

## Discussion

The present study examined patients' preferences for different diets in medically-monitored weight loss. Diet choices ranged from 500 to 1200 calories for women and 700 to 1400 for men. We observed a slight preference for VLCDs vs. LCDs in both sexes, with women showing a slightly greater preference than men for VLCDs. In women, the proportion of patients choosing a VLCD was the same across BMI categories, but for men there was a clear relationship between diet choice and BMI category, with obesity class III men showing a very strong preference for VLCDs. Diet preference was, not surprisingly, related to the size of the diet goal, for both men and women. Subjects selecting a VLCD reported higher scores on a measure of uncontrolled eating.

These results indicate that the choice of VLCD vs. LCD was related to current BMI (in men), weight loss goal and the degree of eating dyscontrol. No relationship was found, however,

between diet preference and depression, physical stress reactions or perfectionism. Therefore, preference for VLCDs does not appear to be a function of elevated psychological needs. The strongest influence on diet selection appeared to be gender, with women in all weight categories showing a preference for VLCD, while this was apparent only among men in the heaviest group. This result may be explained by the parallel finding of greater weight loss goals (desired weight loss as a percentage of starting weight) for women vs. men, in all weight categories, which is presumably related to the greater pressures that women feel to lose weight and achieve the "thin ideal."

Given the evidence suggesting equivalent long-term outcomes for VLCDs vs. LCDs, and with no clear counter-indications to medically-monitored VLCDs in most cases, physicians may offer their patients information (e.g. expected weight loss and physical reactions on different diets), and leave the choice of diet to the patient. The advantage of allowing the patient a free choice of diets, thereby providing "autonomy support," is that the patient will feel a greater sense of "autonomous motivation," a positive factor predicting the persistence of behavior change and weight loss maintenance. The present findings suggest that, given a choice, overweight and obese women, and severely obese men, show a preference for VLCDs, presumably due to their expectation of faster weight loss. Our results did not indicate that selection of VLCDs was a function of emotional disturbance. Previous research examining VLCDs vs. LCDs have not considered the impact on short- and long-term treatment outcome of allowing the patient a free choice of diet, and this should be looked at in future studies.

Table 1 – Very low-calorie (VLCD) and low-calorie (LCD) diet options and selection frequencies for females and males

| TYPE OF DIET | | FEMALE | | MALE | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| VLCD | Diet 1 – 500 kcals/day - women, 700 kcals/day- men | 241 | 11.9 | 54 | 16.6 |
| | Diet 2 – 600 kcals/day – women, 800 kcals/day – men | 292 | 14.5 | --- | --- |
| | Diet 3 – 700 kcals/day – women, 900 kcals/day – men | 744 | 36.8 | 124 | 38.0 |
| LCD | Diet 4 – 1000 kcals/day | 361 | 17.9 | --- | --- |
| | Diet 5 – 1100 kcals/day | 254 | 12.6 | 38 | 11.7 |
| | Diet 6 – 1200 kcals/day – women, 1400 kcals/day – men | 128 | 6.3 | 110 | 33.7 |

Table 2 – Choice of VLCD vs. LCD according to gender and BMI category

| Gender | Weight Category | VLCD | | LCD | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| FEMALE | Overweight | 452 | 60.8 | 291 | 39.2 |
| | Obese I | 405 | 64.6 | 222 | 35.4 |
| | Obese II | 234 | 62.4 | 141 | 37.6 |
| | Obese III | 186 | 67.6 | 89 | 32.4 |
| MALE | Overweight | 26 | 44.1 | 33 | 55.9 |
| | Obese I | 54 | 42.9 | 72 | 57.1 |
| | Obese II | 46 | 59.7 | 31 | 40.3 |
| | Obese III | 52 | 81.3 | 12 | 18.7 |

Table 3 – Choice of diet and pretreatment characteristics – mean (SD)

| Gender | BMI Category | Diet Group | N | Pretreatment Variable | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Age | Starting BMI | KGgoal | KGgoal % | LOQ-UE | LOQ-D | LOQ-S | LOQ-P |
| Female | Overweight | VLCD | 452 | 40.6 (11.3) | 27.2 (1.4) | 13.3 (4.4) | 17.7 (5.1) | 32.2 (5.0) | 11.2 (3.1) | 11.6 (3.4) | 17.5 (3.6) |
| | | LCD | 291 | 44.0 (11.6) | 27.6 (1.4) | 12.7 (4.5) | 16.9 (5.1) | 31.8 (5.1) | 11.5 (3.5) | 11.8 (3.3) | 17.3 (3.8) |
| | Obese I | VLCD | 405 | 42.3 (11.2) | 32.2 (1.4) | 22.0 (6.6) | 25.4 (6.5) | 33.3 (5.1) | 11.7 (3.1) | 12.2 (3.3) | 18.0 (3.7) |
| | | LCD | 222 | 45.1 (11.6) | 32.4 (1.4) | 20.8 (6.7) | 24.2 (6.7) | 33.2 (5.4) | 12.0 (3.4) | 12.6 (3.5) | 17.5 (3.8) |
| | Obese II | VLCD | 234 | 42.9 (10.8) | 37.2 (1.5) | 31.8 (8.7) | 32.0 (7.6) | 33.9 (5.2) | 12.2 (3.4) | 12.9 (3.7) | 18.4 (3.5) |
| | | LCD | 141 | 43.0 (12.2) | 37.1 (1.4) | 30.5 (8.5) | 30.7 (7.5) | 32.6 (5.8) | 12.5 (3.6) | 12.7 (3.5) | 17.3 (3.9) |
| | Obese III | VLCD | 186 | 43.4 (11.0) | 44.9 (4.7) | 47.1 (16.8) | 38.7 (10.3) | 35.1 (5.7) | 13.0 (3.9) | 13.2 (3.3) | 17.7 (3.8) |
| | | LCD | 89 | 43.6 (12.1) | 46.5 (5.8) | 51.0 (19.8) | 40.6 (11.2) | 33.3 (4.3) | 12.9 (3.4) | 12.9 (3.7) | 18.1 (3.8) |
| Male | Overweight | VLCD | 26 | 46.8 (10.8) | 28.2 (1.4) | 10.8 (3.4) | 12.4 (3.9) | 32.0 (4.1) | 10.2 (2.9) | 11.3 (3.5) | 17.2 (3.8) |
| | | LCD | 33 | 43.6 (12.6) | 28.3 (1.3) | 10.5 (4.2) | 12.1 (4.5) | 31.8 (4.8) | 11.0 (3.4) | 10.8 (3.5) | 17.6 (2.2) |
| | Obese I | VLCD | 54 | 46.5 (10.3) | 32.7 (1.4) | 18.2 (5.6) | 18.1 (5.3) | 33.4 (4.4) | 10.5 (2.9) | 11.3 (3.7) | 17.6 (3.5) |
| | | LCD | 72 | 45.7 (12.2) | 32.3 (1.5) | 17.3 (5.6) | 16.9 (4.9) | 32.4 (4.4) | 10.6 (2.7) | 11.8 (3.6) | 17.4 (3.7) |
| | Obese II | VLCD | 46 | 44.0 (10.8) | 37.2 (1.4) | 28.9 (9.3) | 24.3 (6.5) | 33.4 (5.3) | 10.9 (3.1) | 12.6 (3.7) | 18.2 (4.1) |
| | | LCD | 31 | 44.2 (13.7) | 37.2 (1.4) | 26.7 (6.5) | 23.4 (5.6) | 32.9 (4.8) | 10.5 (2.2) | 11.3 (3.6) | 17.4 (2.6) |
| | Obese III | VLCD | 52 | 42.8 (10.2) | 46.8 (5.7) | 55.5 (19.9) | 36.9 (8.2) | 33.6 (5.4) | 11.8 (3.1) | 12.8 (3.9) | 17.3 (3.9) |
| | | LCD | 12 | 45.0 (14.2) | 44.8 (5.2) | 46.6 (18.1) | 32.3 (10.5) | 31.4 (6.4) | 12.4 (4.4) | 11.4 (2.1) | 17.3 (3.5) |