Identifying low-carb dieter's characteristics and their diet practices during business travels

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IDENTIFYING LOW-CARB DIETERS' CHARACTERISTICS AND THEIR DIET PRACTICES DURING BUSINESS TRAVELS

by

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Bachelor of Science
Yonsei University
1999

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Science in Hotel Administration
William F. Harrah College of Hotel Administration

Graduate College
University of Nevada, Las Vegas
August 2005

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IDENTIFYING LOW CARB DIETERS CHARACTERISTICS
AND THEIR DIET PRACTICES DURING BUSINESS TRAVELS

is approved in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN HOTEL ADMINISTRATION

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10/17/05
ABSTRACT

Identifying low-carb dieters’ characteristics and their diet practices during business travels

by

So Jung Lee

Dr. Audrey McCool, Examination Committee Chair
Professor of Hotel Administration
University of Nevada, Las Vegas

The low carbohydrate diet phenomenon has recently evolved to such an extent that there is now extensive consumer demand for carbohydrate conscious dining options. The power of the recent movement is impacting all facets of the hospitality industry including restaurants, hotels, airlines and conventions. The purpose of this study is to identify business travelers’ low carbohydrate diet practices and to understand their experiences with low-carbohydrate menus during business trips.

This research identified low-carb dieters’ characteristics and their diet practices during business trips. Results indicated that, compared to other dieters, low-carb dieters are older, more likely to be overweight or obese, more concerned with weight loss as a reason for dieting, and more likely to follow their diets and seek high quality low-carb foods when traveling. In addition, the findings indicate that the respondents’ experiences with low-carb foods during their business trips are influential in predicting their behavior regarding following a diet in the future. This study suggests that the food, restaurant, and hotel industry should understand business travelers’ diet practices and
food preferences at meetings. The findings imply that all facets of the hospitality industry
interfacing with business travelers need to continue development of low-carb menu
offerings if they are to meet business travelers’ needs.
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CHAPTER 1

INTRODUCTION

The year 2004 was the year of great emphasis on the low carbohydrate (low-carb) phenomenon. Mintel's Global New Products Database reported that dieters in 2004 witnessed either the launch, reformulation or repositioning of roughly 1,300 low-carb products on the market, more than ten times compared to 2003 in the same timeframe (as cited in “The year of low-carb”, 2004). Trends generally take time to have a measurable effect, as people slowly change their habits, behaviors and lifestyles. In a relatively short period of time, however, a dramatic change occurred in the hospitality industry as a result of the low-carb diet movement. Low-carb diets, in particular, have seen a remarkable increase in popularity over the past two years, and have had numerous impacts on the food, restaurant, hotel, airline, and convention industry.

There are 59 million people, or 28.3 percent of United States (U.S.) adults, currently controlling their carbohydrate intake (LowCarbiz, 2004). In addition, more than 63 percent of Americans are interested in reducing their carbohydrates, according to the National Bread Leadership Council (“Sheraton Hotels,” 2004). The low-carb phenomenon has recently evolved to such an extent that there is now enormous consumer demand for carbohydrate conscious (carb-conscious) dining options and specific carbohydrate count information.
A long standing philosophy in diet circles is that eating plans low in carbohydrates are expected to follow the path of the oat bran trend of the 1980s and the low-fat trend of the 1990s (Clements & Edwards, 2004). The current low-carb diet has changed consumers’ attitudes and altered the landscape where those purchases are made. The food industry has rapidly developed new commodities in response to consumers’ growing demands for low-carb foods. Specialty food stores, supermarkets and even drugstores are selling low-carb foods, including pricey Atkins diet products. Restaurants and fast food outlets have begun to create low-carb menu items. In addition, the travel industry, including airlines, hotels, and conventions have begun adapting to the diet trend in response to the explosive growth in low-carb diet popularity. As a number of hotel chains are updating their menus to reflect their guests’ low-carb dietary preferences, it is expected to become easier for travelers to stay on their diets during their vacations or business trips.

Problem Statement

While much is known about the effects of socioeconomic status on health and nutrition, research is just beginning on how social networks help people maintain a healthy diet and avoid nutritional risk (McIntosh & Kubena, 1996). Obesity has reached epidemic proportions. By 2001, over 60 percent of Americans were overweight; a third of those were obese; and 15 percent of U.S. children were overweight or obese (Satcher, 2001). With respect to the explosive growth in obesity, health and nutrition concerns are not just for dietitians or experts any more. Weight loss and weight maintenance are common concerns for U.S. men and women. A number of weight loss programs have
been developed, and millions of Americans enroll in commercial or self-help weight loss programs. Additionally, they try to follow their diets, not just at home, but also during their vacations or business trips. An increasing number of business travelers, for example, are requesting low-carb meals on airplanes or in business hotels.

As the overall awareness of nutrition has grown over the past decade, a related distress has grown over the nutritionally flawed foods that most business travelers are subjected to while traveling (Protica Research, 2005). Hotel restaurant managers, catering service managers and meeting planners need to better understand the low-carb diet movement and the implications for their business. They need to better tailor their menu offerings and marketing strategies to meet the menu item preferences of their customers. This research will attempt to understand the diet practices of business travelers who are on low-carb diets and will examine their experiences with low-carb offerings at restaurants in hotels during their business travels.

**Purpose of the Study**

The purpose of this study is to identify business travelers’ low-carbohydrate diet practices and to understand their experiences with low-carb menus during their business trips. This research focuses on business travelers who are attending meetings in hotels which are currently offering low-carb menu items in their restaurants or on their catering menus. This study examines the prevalence of dieting in a sample of business travelers according to diet practices and demographic information. In addition, this research investigates consumers' experiences with low-carb menu items during business trips and predicts their behaviors regarding following their diets in the future.
**Research Questions**

Four primary research questions were developed to indicate the characteristics of business travelers on low-carb diets and the relationship between the diet practices during their business travels and their future behaviors regarding following their diets.

These research questions were:

1) What are the characteristics of low-carb dieters who are business travelers?

2) How likely is it that business travelers who are on low-carb diets try to stay on their diets while traveling?

3) What are critical factors that affect low-carb dieters’ overall satisfaction with low-carb menu items while traveling?

4) How likely is it that business travelers will follow a low-carb diet in the future?

On the basis of these research questions, twelve hypotheses and their sub-hypotheses were established to evaluate low-carb dieters’ significant diet practice characteristics and the relationship between their experiences with low-carb foods and their future diet practices. Figure 1 is a diagram that shows the characteristics of low-carb diet practices and the relationships of business travelers’ diet practices during their travels.

**Research Question One:**

1. What are the characteristics of low-carb dieters traveling for business?

Four hypotheses and their sub-hypotheses were established to understand low-carb dieters’ characteristics in regard to demographics, diet practices, reasons for dieting, and reasons for staying on a diet.
Figure 1 Diagram of low-carb diet practices during business travels

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The first hypothesis was proposed to determine if significant demographic differences existed between low-carb dieters and the others who are not on a low-carb diet. The differences between the two groups in regard to gender, age, income level, education level, ethnicity, weight status, and weight satisfaction were assessed according to a set of seven sub-hypotheses.

H1: There is no difference between low-carb dieters and the others in regard to demographic characteristics.

H1-1: There is no difference between low-carb dieters and the others in gender.

H1-2: There is no difference between low-carb dieters and the others in age.

H1-3: There is no difference between low-carb dieters and the others in the highest level of completed education.

H1-4: There is no difference between low-carb dieters and the others in annual income level.

H1-5: There is no difference between low-carb dieters and the others in ethnicity.

H1-6: There is no difference between low-carb dieters and the others in weight status.

H1-7: There is no difference between low-carb dieters and the others in weight satisfaction.

The second hypothesis was proposed to determine if significant differences existed between low-carb dieters and non-carb dieters in regard to their diet practices. Diet practices were assessed with respect to the number of diets in the dieters’ lifetime, the length of time that they have followed their most recent diets, their satisfaction with their most recent diets, and their monthly diet expenses. A set of four sub-hypotheses was established to test for the significance of their diet practices.
H2: There is no difference between low-carb dieters and non-carb dieters in regard to diet practices.

H2-1: There is no difference between low-carb dieters and non-carb dieters in the number of times that they have followed a diet(s) in their lifetimes.

H2-2: There is no difference between low-carb dieters and non-carb dieters in the length of time that they have followed their most recent diets.

H2-3: There is no difference between low-carb dieters and non-carb dieters in their monthly diet expenses.

H2-4: There is no difference between low-carb dieters and non-carb dieters in their satisfaction with their diets.

The third hypothesis was developed to determine if significant differences existed between low-carb dieters and non-carb dieters in regard to five common reasons for dieting. A set of five sub-hypotheses was composed to test for the significance of these reasons for dieting: health concern, weight loss, a health professional’s advice, following the lead of someone else, and their concern for their appearance.

H3: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of common reasons for dieting.

H3-1: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of health concern as a reason for dieting.

H3-2: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of weight loss as a reason for dieting.

H3-3: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of a health professional’s advice as a reason for dieting.
H3-4: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of following the lead of someone else as a reason for dieting.

H3-5: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of appearance concern as a reason for dieting.

The fourth hypothesis was developed to determine if significant differences existed between low-carb dieters and non-carb dieters in these reasons for staying on their diets. A set of five sub-hypotheses was composed to test for the significance of their diet reasons for staying on their diets: health concern, weight loss, ease of following a diet, ease of finding products and food taste.

H4: There is no difference between low-carb dieters and non-carb dieters in regard to their reasons for staying on their diets.

H4-1: There is no difference between low-carb dieters and non-carb dieters in the importance of health concern as a reason for staying on their diets.

H4-2: There is no difference between low-carb dieters and non-carb dieters in the importance of achieving weigh loss as a reason for staying on their diets.

H4-3: There is no difference between low-carb dieters and non-carb dieters in the importance of the ease of following their diets as a reason for staying on their diets.

H4-4: There is no difference between low-carb dieters and non-carb dieters in the importance of the ease of finding products or foods as a reason for staying on their diets.

H4-5: There is no difference between low-carb dieters and non-carb dieters in the importance of food taste as a reason for staying on their diets.
Research Question Two:

2. How likely is it that business travelers who are on low-carb diets try to stay on their diets while traveling?

Hypotheses five and six were established to understand low-carb dieters’ diet practices during their business trips. Hypothesis five was developed to determine if there was a relationship between low-carb dieters’ satisfaction with their diets and the likelihood of their staying on their diets during business trips. This hypothesis would test if the more satisfied people are with their low-carb diets, the more likely it is that they will try to stay on their diets during business trips.

H5: There is no relationship between low-carb dieters’ satisfaction with their diets and the likelihood of staying on their diets during business trips.

Hypothesis six was proposed to test if there was a relationship between the frequency of low-carb dieters’ traveling and the likelihood of their staying on their low-carb diets during business trips. This hypothesis would evaluate whether the more frequently low-carb dieters travel on business, the more likely it is that they will try to stay on their diets while traveling.

H6: There is no relationship between the frequency of traveling and the likelihood of low-carb dieters’ staying on their diets during business trips.

Research Question Three:

3. What are critical factors that affect low-carb dieters’ overall satisfaction with low-carb menu items while traveling?

Hypotheses seven and eight were established to understand low-carb dieters’ experiences with low-carb foods. Hypothesis seven was developed to determine if there...
was a relationship between the likelihood of dieters’ staying on low-carb diets during business trips and the extent to which they ate low-carb menu items while attending their most recent meetings. In other words, this hypothesis would investigate if there was a difference between those who ate low-carb food items and those who did not eat them in regard to the likelihood of their staying on their diets during business trips; therefore, this hypothesis would assess if dieters who ate low-carb foods at their most recent meetings were more likely to stay on their diets than those who did not eat these foods.

H7: There is no relationship between the likelihood of low-carb dieters’ staying on their diets during business trips and the extent to which they ate low-carb menu items while attending their most recent meetings.

Hypothesis eight was established to evaluate if a relationship existed between dieters’ overall satisfaction with low-carb menu items and their satisfaction with five food factors: taste, nutritional value, quantity, quality and price value. To examine this hypothesis, the extent to which they ate foods appropriate for their diets during business trips and the place they ate the foods was asked.

H8: There is no relationship between business travelers’ overall satisfaction with low-carb menu items and their satisfaction with five food factors: taste, nutrition, quality, quantity, price value.

Research Question Four:

4. How likely is it that business travelers will follow a low-carb diet in the future?

Hypothesis nine through hypothesis twelve were established to identify low-carb dieters’ future behavior regarding following a diet. Hypothesis nine was developed to determine if there was a relationship between low-carb dieters’ overall satisfaction with
low-carb foods and their likelihood of eating low-carb foods on their next business trips. This hypothesis sought to determine whether the more satisfied people were with low-carb foods at their most recent meeting, the more likely it was that they would try to eat low-carb foods on their next business trips.

H9: There is no relationship between low-carb dieters’ overall satisfaction with low-carb foods and the likelihood of eating low-carb foods on their next business trips.

Hypothesis ten was established to determine if there was a relationship between low-carb dieters’ satisfaction with their diets and their likelihood of eating low-carb foods on their next business trips. This hypothesis would investigate if the more satisfied dieters are with low-carb diets, the more likely it is that they will try to eat low-carb foods on their next business trips.

H10: There is no relationship between low-carb dieters’ satisfaction with their low-carb diets and the likelihood of their eating low-carb foods in their next business trips.

Hypothesis eleven was established to assess the relationship between low-carb dieters’ satisfaction with their diets and their future behavior regarding following a diet when traveling for business. This hypothesis investigated if the more satisfied low-carb dieters are with their diets, the more likely it is that they will follow a diet in the future.

H11: There is no relationship between low-carb dieters’ satisfaction with their diets and their future behavior regarding following a diet.

Hypothesis twelve was established to determine if there was a relationship between the likelihood of low-carb dieters’ eating low-carb foods on their next business trips and their future behavior regarding following a diet. This hypothesis sought to determine if it
is likely that dieters who will eat low-carb foods on their next business trips will also anticipate following a low-carb diet in the future.

H12: There is no relationship between the likelihood of low-carb dieters’ eating low-carb foods on their next business trips and their future behavior regarding following a diet.

**Significance of the Study**

The current emphasis on low-carb dieting has produced a new high-growth market niche. It is changing consumers’ attitudes and altering the landscape where those purchases are made. For example, a hotel chain catering to business travelers estimates that a quarter of its clientele is on some form of a high-protein and low-carbohydrate diet (Sharkey, 2000, March 22).

As yet, there has been very little research directed toward the use of low-carb menus in hotel restaurants or by hotel catering services, or toward the extent of the business travelers’ demands for low-carb menu items. This research attempts to identify the diet practices of business travelers, particularly in regard to low-carb diets, as well as their experiences with low-carb menus in hotels during business travels.

The findings of this study will help hotels to better understand customers' expectations about low-carb menu items at their restaurants and to develop a marketing strategy which focuses on making their products and advertisements consistent with their customers' expectations.
Delimitation

This was exploratory research that examined the diet practices of business travelers and their experiences with low-carbohydrate menus during their business trips. The delimitations of this study are discussed in the following paragraphs.

First, this research focused only on the hotel industry. This limited scope raises some questions regarding the applicability of the results to other hospitality industries. The results associated with this industry may be different from other industries. However, concentration on one industry was expected to provide more detailed information about the diet practices of business travelers.

Second, this study selected only participants who stayed in the nationwide chain hotels such as Sheraton, Marriott, Hilton, and Hyatt. This choice might raise a question regarding the applicability of the results to local or independent hotels. However, the selection of these nationwide chain hotels was expected to provide a broad perspective.

Third, this research concentrated on meeting attendees, rather than individual hotel guests, as a sample group for business travelers. While business travelers may not be representative of all travelers and meeting attendees may not be representative of all business travelers, they represent a key group of consumers for nationwide chain hotels that focus on business travelers. In addition, a focus on this type of traveler was considered to lead to a higher response rate and a more comprehensive result.

Lastly, the meeting attendees surveyed for this study were predominantly hospitality professionals. Thus, the findings might not apply to either all meeting attendees or all general business travelers. However, it was thought that a concentration on this group
would present more detailed information about meeting planners and/or hospitality professionals, in general.

Definition of Terms

Body Mass Index or BMI is defined as the ratio of weight (kg) / height (m²). BMI is a measure of weight for height and correlates with body fat, and it is a tool to indicate weight status in adults (Garrow & Webster, 1985). BMI values can be divided into four weight categories: underweight (BMI of 18.4 or less), Normal weight (BMI between 18.5 and 24.9), Overweight (BMI between 25.0 and 29.9), and obese (BMI of 30.0 or more) (Paeratakul, York-Crowe, Williamson, Ryan & Bray, 2002). The relation between fatness and BMI differs with age and gender. As BMI increases, the risk for some disease increases (Calle, Thun, Petrelli, Rodriguez, & Heath, 1999).

Business traveler is defined as a traveler whose expenses are paid by the business he works for (The Travel Industry Association of America, 2004). Travel for business includes either general reasons such as consulting and service or to attend a convention, conference, or meeting. In this study, a business traveler is a traveler on a business purpose who takes more than three round trips in a given calendar year.

Carbohydrates are divided in two types: simple and complex. Simple carbohydrates, such as candy, soda and juice, are quickly digested and can be used immediately for energy. On the other hand, complex carbohydrates take longer to digest and come from foods such as whole grain products, vegetables, and fruits. They are slowly released into the body, unlike simple carbohydrates.
Diet in this study refers to the act of restricting food intake or the intake of particular foods for any reason, such as health reasons or weight loss.

Dieters in this study refer to individuals who are on any type of diet and lifestyle consumers who try to restrict certain food(s).

Fad is defined as a practice or interest followed for a time with exaggerated zeal: a craze (Merriam-Webster’s Collegiate Dictionary, 2003)

Glycemic index is a ranking of carbohydrates based on their immediate effect on blood glucose (blood sugar) levels, comparing foods gram for gram of carbohydrate. It measures how efficiently the body can metabolize carbohydrates. Carbohydrates breaking down quickly during digestion have the highest glycemic indices, while those breaking down slowly have low glycemic indices (Brand-Miller, Foster-Powell, McMillan-Price, 2005).

Low-carb diet is a diet to restrict carbohydrate intake. However, there is no definition of low-carb by the FDA yet. In this paper, low-carb diets include high-protein diets.

Obesity is defined as excess body fat, which promotes diabetes, high blood cholesterol, hypertension, cardiovascular disease and other disorders (Seidel, 2000)

Trend is defined as a prevailing tendency or general direction; the general movement in the course of time of a statistically detectable change (Merriam-Webster’s Collegiate Dictionary, 2003)
CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter provides a foundation for the discussion of food and nutrition, diet and health, and the nutritional movement of the low-carb diet and its impact on the hospitality industry through a review of relevant literature. This review will encompass the discussion of the role of food, nutrition and diet trends, obesity, the low-carb diet, business travelers’ diet practices, and the hospitality industry’s responses.

Food and Nutrition

Food is a source of nutrients which provide energy, regulate body processes, and furnish essential compounds needed for growth and maintenance of the human body (Ikeda, 1996). Food is often defined as ‘good or bad, masculine or feminine, powerful or weak, alive or dead, healthy or non-healthy, a comfort or punishment, sophisticated or gauche, a sin or virtue, animal or vegetable, raw or cooked, self or other’ (Lupton, 1996). Food is not only essential to survival; it is also one of the greatest pleasures of life and the crucial point around which many social occasions and leisure events are organized. As Claude Fischler (1988) noted, food is a bridge between nature and culture. Food habits are learned through culturally determined notions of what constitutes appropriate and inappropriate foods, and through cultural methods of preparation and consumption, irrespective of the nutritional value of these foods and methods. Nutrition is positioned as
a significant factor affecting the health of individuals. According to John Duff (1999), food and nutrition have become central to public health policy because of their potential to improve health. However, the author pointed out that nutritional policy that focuses on individual decisions while neglecting the food industry and its interest results in only a partial understanding of the problem of nutrition and health policy.

Nutritional Trends

America has been through nutritional trends before. According to Felicia Busch, nutrition communications consultant and spokesperson for the American Dietetic Association, nutrition trends start either from a slow groundswell of interest or when a major milestone happens (Alexander & Schleman, 2002). Trends brought from a groundswell are more common. Consumers' desires and needs depend on their beliefs and attitudes about health and nutrition. Nutritional trends, like all trends, change with time, depending on consumer needs and the media coverage of issues. Sometimes, major milestone events also impact nutritional trends. According to the survey of Shopping for Health 2001, most people rely primarily on the media for most of their information about health and nutrition (Alexander & Schleman, 2002).

Trends lead to many people "latching onto" the latest food to eliminate in the name of good health (Hirsch, 2004). In the 1970s, it was salt; in the 1980s, it was cholesterol; and in the 1990s, it was fat. Particularly, between 1985 and 1995, the top nutritional concern for consumers was fat consumption. Food product development also reflected consumers' interest in fat: many non-fat, low-fat, or reduced-fat products were introduced into the marketplace between 1990 and 1998 (Popkin, Horton & Kim, 2001). Most Americans rarely questioned the perceived wisdom of low-calorie, low-fat, or high-fiber diets, or of
eating lots of fruits and vegetables. As early as 1995 the low-fat trend was winding down. A long standing philosophy in diet circles, eating plans low in carbohydrates have been expected to follow the path of these previous nutritional trends (Clements & Edwards, 2004).

**Nutrition Concerns**

Since the early 1980s, much attention has been given to the attitudes of U.S. adults toward nutrition, and consumers have been concerned about nutritional issues. The NPD Group (n.d.) has conducted a survey of consumer attitudes every year since the early 1980s. This research documents increasing concern over caffeine, sugar, fat, additives and the like during the 1980s. However, this survey reported that for the past several years, the level of concern about every ingredient have fallen steadily. Figure 2 demonstrates that a variety of food ingredients and processes have caused concern with consumers at different times.

![Figure 2. Consumers' concern toward nutrient](http://www.npdfoodworld.com/)

In January 2005, Opinion Dynamics Corporation (ODC) conducted a study to understand how much value consumers placed on various nutritional claims, expecting to observe changes over time in the importance of issues such as total fat, saturated fat, trans-fatty acids, protein, fiber, carbohydrates, and calcium (Shiman, 2005, January). Figure 3 shows the results from the question about the respondent’s most important nutritional claim. The most common answer was overall fat; 21 percent of the respondents considered fat content more important than any of the other claims. Fat content was followed by protein (13 percent), calcium (12 percent), saturated fat (12 percent), and trans-fat (11 percent). For many consumers, fat was still more important than any other issue. This research noted that trans-fat, in particular, appeared to be of increasing importance to American consumers’ culture.

Figure 3. Nutritional claims

Obesity

Obesity is defined as the condition of having high levels of stored body fat or excess body fat, a condition which promotes diabetes, high blood cholesterol, hypertension, cardiovascular disease, and other disorders (Seidel, 2000). Early in the twenty-first century, obesity reached epidemic proportions. By 2001, over 60 percent of Americans were overweight; a third of those were obese; and about 16 percent of adults and children contracted diabetes (Satcher, 2001).

According to Katherine Flegal, an epidemiologist at the National Center for Health Statistics, the percentage of obese Americans stayed relatively constant through the 1960's and 1970's at 13 percent to 14 percent (as cited in Taubes, 2002). As Gary Taubes (2002) noted, the major trends in American diets since the late 1970's have been a decrease in the percentage of fat calories and a greatly increased consumption of carbohydrates. In addition, he stated that according to U.S. Department of Agriculture (U.S.D.A.), from the early 1980’s people suddenly began consuming more total calories: now up to 400 more each day since the government started recommending low-fat diets. The percentage of obese Americans shot up by eight percentage points, indicating that nearly one in four Americans was obese in the 1980’s. That steep rise was consistent through all segments of American society and continued unabated through the 1990’s.

Approximately, 17 million Americans have been diagnosed as having diabetes, and another 16 million have been considered pre-diabetic (Satcher, 2001). Furthermore, the growing number of obese children with the appearance of type two diabetes in the U.S. is of even greater concern. About 16 percent of children are overweight, and about the same number are at risk of becoming obese (Hellmich, 2004, October). These figures help
explain that the prevalence of obesity and the problem of diabetes in the United States are increasing rapidly.

According to research by the Centers for Disease Control and Prevention in Atlanta, the percentage of obesity was expected to rise because of poor diets and lack of activity (Mensah, 2004). In addition, Kelly Brownell, a psychologist at Yale University explained the obesity phenomenon as a result of a toxic food environment of cheap fatty food, large portions, pervasive food advertising and sedentary lives (Taubes, 2002).

The National Health and Nutrition Examination Survey found that obesity has become more prevalent (Kellner, 2003). This study aimed to identify factors of obesity differences in young adults aged 20-39 years old. Factors associated with the differences in obesity were compared by Body Mass Index (BMI) categories: underweight, normal, overweight, and obese. This study showed that ethnicity, gender, and age were all significantly associated with the BMI categories. Non-Hispanic blacks continued to increase in obesity, while Mexican Americans increased in overweight. Obesity was more prevalent in females than males. As age increases, obesity increases. In addition, this study explained that a diet with deficits in fruits, vegetables, and whole grains was related to obesity.

A study examining the role of diet, activity, and lifestyle factors found that there was a significant correlation between fat intake and weight change (Leser, Yanovski, S. & Yanovski, J., 2002). In this study, the dietary and exercise habits and other lifestyle factors of 27 women were examined for three years after they completed a very-low-calorie diet weight-reduction program. As a result of this study, for women who had lost weight on a very low-calorie diet, limiting dietary fat intake and maintaining physical
activity were both important factors for the prevention of weight regain. The study suggested that because of the negative health effects and increasing prevalence of obesity, identifying strategies to maintain weight loss is crucial, and counseling methods will enhance long-term dietary adherence (Rosal, Ebbeling, Lofren, et al, 2001).

*Health and Diet*

In recent years, public relations efforts have focused on diet and health. Dieting is the conscious manipulation of food choice and eating patterns to lose or maintain weight (Germov & Williams, 1999). Many scientific studies conducted from the 1960s to the early 1980s examined the relationship between diet and health. For many individuals, the decision to become a dieter, such as a vegetarian, was based on health considerations. According to a recent Gallop survey in the United Kingdom, for example, adults cited health concern as the main reason for becoming vegetarian, accounting for 76 percent, although other reasons such as animal welfare followed closely (cited in Spencer 1996, p. 338).

Dieting, especially dieting to lose weight, is common among U.S. adults (Jeffery, 1996). Data from the National Health Interview Survey (NHIS) showed that in 1990, about 23 percent of men and 40 percent of women were trying to lose weight, representing about 44 million American adults (Horm & Anderson, 1993). Other research by the Behavioral Risk Factor Surveillance System (BRFSS) showed that in 1995, 28.8 percent of men and 43.6 percent of women were attempting to lose weight either by eating less fat, consuming less energy, increasing physical activity, or using a combination of these methods (Serdula, Mordad, Williamson, et al, 1999).
A study examined the prevalence of dieting to lose weight or for a health reason in a representative sample of U.S. adults (Paeratakul, York-Crowe, Williamson, Ryan, & Bray, 2002). This study conducted a survey regarding dieting status by sociodemographic characteristics, i.e., comparison of the type of diet, the reason for dieting, and the source of diet used by men and women and comparison of the nutrient intake and health status of dieters and nondieters. The study reported that the prevalence of dieting varied by gender and race, being highest in Caucasian women, accounting for 21 percent, and lowest in Hispanic men, accounting for eight percent. About 71 percent of all dieters reported that they were dieting to improve health, and 50 percent reported that they were dieting to lose weight. Additionally, this research implied that a distinction must be made between dieting and restrained eating, and that the dieter must be aware that there are nutritional and health risks associated with dieting.

**Diet Trends**

Dieting has consumed Americans for more than a century (Stearns, 1997). Even though sporadic and documented cases of dieting stretch back 1,000 years, the great interest in dieting only began at the end of the 19th century. As the years rolled on, dieting became a widespread national preoccupation. Distaste for obesity had slowly and inexplicably been growing, and new discoveries sharpened people's focus on body weight and shaped the recommendations of diet mavens (Mestel, 2004). Although it is difficult to capture the cultural implications of Americans' attitudes toward diets and dieting, it is nonetheless an intriguing and important exercise in this era of rapidly changing food-consumption habits. Table 1 demonstrates diet trends through the years beginning in 1000 to the present.
Table 1

*Diet Trends Through the Years*

<table>
<thead>
<tr>
<th>Years</th>
<th>Diet Trends Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1087</td>
<td>William the Conqueror tries a liquid diet for weight loss, taking to his bed and consuming only alcohol.</td>
</tr>
<tr>
<td>1600s-1700s</td>
<td>Dr. George Cheyne, author of &quot;An Essay of Health and Long Life,&quot; writes that a milk diet renders him &quot;lank, fleet and nimble.&quot;</td>
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<tr>
<td>1811</td>
<td>Lord Byron douses his food in vinegar to lose weight, dropping from 194 pounds to less than 130.</td>
</tr>
<tr>
<td>1860s</td>
<td>William Banting loses 50 pounds on a high-protein regimen of lean meat, dry toast, soft-boiled eggs and vegetables; Dr. James Salisbury promotes a diet of hot water and minced meat patties.</td>
</tr>
<tr>
<td>1876</td>
<td>Dr. John Harvey Kellogg crusades for vegetarianism, pure foods, slow chewing, calorie counting, colon cleansing and individualized diets.</td>
</tr>
<tr>
<td>1898</td>
<td>Businessman Horace Fletcher drops 40 pounds through a strategy of chewing each mouthful of food to liquid before swallowing it.</td>
</tr>
<tr>
<td>1910</td>
<td>Food scales, developed for diabetics, and calories become central to diet</td>
</tr>
<tr>
<td>1920</td>
<td>Dr. William Howard Hay's &quot;medical millennium&quot; plan holds that dieters must not combine starches, fruits and proteins in the same meal; the very-low-calorie Hollywood 18-day diet allows 585 calories daily, mostly grapefruit.</td>
</tr>
<tr>
<td>1928</td>
<td>Low-calorie diets of 600 to 750 calories daily are introduced by doctors for severely obese patients.</td>
</tr>
<tr>
<td>1932</td>
<td>Dr. Stoll's Diet Aid meal substitute powder goes on sale.</td>
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<tr>
<td>1948</td>
<td>Take Off Pounds Sensibly, the first national group-dieting organization, is formed.</td>
</tr>
<tr>
<td>1950</td>
<td>Reducer's Cookbook, the first dieter's cookbook from commercial publishers, is published.</td>
</tr>
<tr>
<td>1960</td>
<td>Diet support groups grow; Overeaters Anonymous founded.</td>
</tr>
<tr>
<td>1961</td>
<td>Bestselling &quot;Calories Don't Count&quot; by Herman Taller espouses a high-fat, high-protein, low-carb diet; Dr. Irwin Stillman publishes &quot;The Doctor's Quick Weight Loss Diet,&quot; a low-carb, high-protein diet.</td>
</tr>
<tr>
<td>1961-63</td>
<td>Weight Watchers is born.</td>
</tr>
</tbody>
</table>
1972  "Diet Revolution" by Robert Atkins advocates plenty of meat and fat, no carbohydrates.

    "The Last Chance Diet" by osteopath Robert Linn relies on a mix of fasting and liquid-protein drinks made from animal tendons and hides. Fifty-eight deaths are associated with these and similar diet drinks, which lack key nutrients.

1978  Herman TAMOWER publishes the high-protein Scarsdale diet, 700 calories daily.

    Very low-fat diets emerge after Nathan Pritikin's "Pritikin Program for Diet & Exercise" is published.

1979  Diet counselor and avid dieter Judy Mazel publishes "The Beverly Hills Diet," a fruit-heavy food-combining regimen; the Cambridge diet peddles low-calorie liquid-protein drinks sold through a pyramid scheme. Thirty people die of heart attacks before the nutritionally inadequate drinks are banned.

1981  Jenny Craig weight-loss company is formed.

    Atkins publishes "Dr. Atkins' New Diet Revolution," espousing his low-carb, high-fat, high-protein approach.

1992  Low-fat diets re-emerge: "Eat More, Weigh Less" by Dean Ornish is a low-fat vegetarian diet.

    Low-carb, high-protein diets return with the publication of Barry Sears' "The Zone."

1995  Mazel's "The New Beverly Hills Diet" is a revised version of the old fruit-rich diet.

    One of many resurfacings of Lord Byron's strategy, "Lose Weight With Apple Vinegar," claims vinegar consumption burns body fat.

1999  Atkins publishes a revised version of his book.

2003  "The South Beach Diet" is published by Miami doctor Arthur Agatston. It falls midway between low-fat, high-carb and low-carb, high-protein diets.


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Dieting can result in a lifelong issue with food (Sobal & Cassidy, 1987). Dieting for weight loss requires a considerable investment in time and money, as well as emotional and physical resources. While the health consequences of obesity and of subsequent weight reduction are clear, the ability of overweight individuals to maintain a weight loss is routinely questioned. A report from the National Institutes of Health (NIH) conference indicated that one third of weight loss will most likely be regained within the first year (“Methods for voluntary weight loss,” 1993). Additionally, the study noted the rate of regain does not diminish as time elapses, with an estimated 66 percent regained within two years and 95 percent within five years. As a consequence, the unsuccessful nature of diets can lead to a cycle of yo-yo dieting or weight cycling, with detrimental physiological and psychological consequences (Brownell & Rodin, 1994).

Only recently have scientists begun trying to figure out which diets work. A recent study presented the components, costs, and efficacy of the major commercial and organized self-help weight loss programs: Weight Watchers, Jenny Craig, LA Weight Loss, very-low-calorie diet, Health Management Resources, Optifast, and eDiets.com (Tsai & Wadden, 2005). Of the programs the research evaluated, Weight Watchers had the strongest studies to support the effectiveness of weight loss programs. However, the report indicated that commercial weight loss programs have not been carefully studied and that they vary greatly in cost while many of the existing studies presented the best-case scenario. The American Medical Association published the results of a year-long study (Dansinger, 2005). It showed that people could lose weight on any diet, but only one in four people could actually stick to a diet for any length of time in order to lose the weight. Researchers studied four groups of 40 overweight adults. Each group of dieters
followed one of the diet plans: Atkins, Ornish, Weight Watchers or Zone. All four diets worked well for weight loss, and all of the diets helped reduce the risks for heart disease. However the study found the diets worked only as long as the participants followed them. Researchers concluded that a healthy approach should include plenty of fresh fruits and vegetables, whole grains, nonfat dairy products and lean meat, instead of focusing on a trendy diet. A longitudinal study conducted by Nutritionists at the University of Newcastle in the United Kingdom (U.K.) examined the food consumption of 200 students aged 11-12 years old and then revisited the same people 20 years later when they were in their early thirties. They found that these adults ate twice the amount of fruit and vegetables and less fat and sugar than they had done as children, and concluded that most people’s diets became healthier as they matured from childhood to young adulthood (Lake, Rugg-Gunn, Hyland, et al, 2004).

*Diet Status by Sociodemographics*

In recent times, concern about nutrition and health has rekindled interest in differences in food consumption. According to a study for Nordic countries, differences in nutritional intake and food choice between lower and higher socioeconomic strata have diminished (Prattala, 1995). This study indicated that social class differences in diets have diminished since the 1970s and that lower social class diets follow those of the upper social classes, within a 5-10 year time period. Additionally, this research found that there were no substantial differences in nutritional intake on the basis of educational or income levels.

A study examined the diets of a random sample of some 9000 British adults through a food-frequency questionnaire for the 1984-85 Health and Lifestyle Survey (Prevost &
They used thirty-nine foods and discerned four dietary patterns, which explained the differences in terms of demographic information, geographic data, and lifestyle factors among four different groups: 1) low-fat, high fruit and vegetable pattern; 2) high-carbohydrate pattern consistent with a traditional meal structure of meat and vegetables as well as another course; 3) high-fat pattern; and 4) high refined carbohydrate pattern. There was a large range of associations reported, such as which groups are more likely to consume which dietary pattern. Pattern one, for example, was related to middle age, non-smokers, and self-assessed good health. Pattern two was popular with young men, older men and women, and those who viewed themselves as healthy. Pattern three was predominantly consumed by young people, and smoking women. Lastly, pattern four was most favored by students, the elderly, and those living alone. Overall, the research explained that demographic factors were associated with a relatively high proportion of the variation in the nutrient or food compositions.

A low-fat regimen, adequate and persistent exercise, and a lean body were representative of an upper-middle-class taste culture, providing those who can attain it a kind of cultural capital (Bourdieu, 1984). Bodies and consumption habits that do not conform are regarded as somehow lacking in moral fortitude. In American culture, people who are overweight are commonly regarded in the same way because of their own inner and moral deficiencies. Similarly, Barbara Ehrenreich (2002) discussed that the low-fat way of life has become an important indicator of social rank, commenting on the challenge of Atkins to mainstream low-fat notions of health and diet. It was added that whereas both the low-fat and Atkins diets could be called white by virtue of their
bourgeois class sensibility, a low-fat regimen embodied the ideal qualities of whiteness that Americans consider more deserving or virtuous.

Several feminist authors have described the relationship between gender, food, and the social context of eating (Charles & Kerr 1988; Murcott 1983). They explained that the relationship between gender, food, and the body was epitomized by the sexual division of dieting, since dieting was primarily considered as a female act. This might explain why dieting is considered to be a gendered behavior, as well as why it is a thin ideal that promulgates this behavior. Since the early twentieth century in the United States, the public face of dieting has always been predominantly female. In addition, given the emphasis on slimness for the female body, the fundamental purpose of dieting was to make one's self smaller. A study of a nationally representative sample of U.S. adults (Serdula, Williamson, Anda, et al, 1994), for example, showed that in 1996, nearly 29 percent of men and 44 percent of women were trying to lose or maintain weight by eating less or increasing physical activity. In addition, this study showed that the lifetime prevalence of dieting in men and women was 47 percent and 75 percent, respectively.

Along with the appearance of low-carb/high protein diets, men have recently been receiving attention with respect to the fact that they are responding to social pressures to maintain fit and lean bodies. Atkins has helped to masculinize dieting, allowing men a greater level of comfort in the world of dieting (Bentley, 2004). Like women, they have turned to dieting as a way to achieve and maintain this body image, as well as to maintain health. Research conducted by Weight Watchers, for example, has indicated that men went on diets primarily for the same reasons that women did: to feel and look better, as opposed to a health concern. According to Karen Miller-Kovach, chief scientific officer
in Weight Watchers, it was reported that men responded well to being told what to do and when to do. She indicated that men are typically more goal-oriented, numbers-oriented, and specific about wanting to be told exactly what to do, while women's decisions to go on a low-carb diet were complicated by various circumstances and motivated by a desire to receive support from others such as their husbands or co-workers (Weinraub, 2004).

Age is a social status. Age is a social category and is related to status and role. (McIntosh & Kubena, 1996). Older people are considered a group at high risk of food insecurity, hunger, and poor nutrition. Older people represent one of the fastest growing segments of the populations of most developed countries. One nutritional concern associated with ageing is changing nutritional need (Fiatarone & Evans, 1993). Older people have a lessened need for energy; however, they have greater protein and other nutrient requirements per calorie of food intake.

Ethnicity is a social status that has implications for the distribution of resources (McIntosh & Kubena, 1996). A study examined the association of diets with ethnicity (Parker, Nichter, Vuckovic, Sim & Ritenbaugh, 1995). The study indicated that African Americans were much more tolerant of obesity than were Caucasian women. African American females were more flexible than their white counterparts in their concepts of beauty. African American adolescent females were more apt to be supportive of each other with respect to 'looking good', as opposed to Caucasian adolescents, who were apt to be envious and competitive with respect to appearance. White adolescent females tended to view appearance as the most critical factor in becoming popular.
**Business Travelers**

More than 200 million people travel on business each year (The Travel Industry Association of America, 2005). The Travel Industry Association of America reported that overall, in 2004, nearly 20 percent of U.S. adults, or 38.3 million people traveled for business on a past-year trip. Business travels are most often taken for general business purposes. Meetings, presentations, consulting, sales, etc, account for 44 percent of such travels. About one in five of the business travels are taken for the primary purpose of attending a convention, conference or seminar. One third or 34 percent of business travels are made by those traveling for combined business and pleasure purposes. Forty percent of business, convention, or seminar trips include air transportation. One in ten, or ten percent, of business/convention/seminar trips include multiple adults from the same household; five percent include children. This association estimated that U.S. households generated 210.5 million travels for business purposes in 2003.

**Nutrition and Diet Practice**

Business travelers have poor eating habits even though accurate nutrition information can be accessed by almost anyone with an Internet connection or a library card (Protica Research, 2005). At the airport, for example, the vast majority of these hubs offer travelers a selection of fast foods or snack foods that are usually very high in carbohydrates and saturated fats, and are loaded with calories. In addition, according to a study by the American weight-loss program organization Nutricise, in the airplane, the average economy-class airline meal has 1,054 calories, which is more than half the 2,000 calories the average person needs to consume per day (as cited in Protica Research, 2005). About 44 percent of those calories come from fat, which is a full 15 percent more than
some experts recommend as the 30 percent optimum daily fat-from-calorie level.
Furthermore, an average first-class or business-class meal has approximately 1,234 calories. About 47 percent of those calories are from fat. The survey found that some first-class meals surpassed 1,800 calories which meant a single meal approaches the amount of calories the average person should consume in an entire day. The Physicians Committee for Responsible Medicine (2003) rated ten of the top airlines for the availability of healthy vegetarian and vegan entrées. The research noted that of the ten airlines surveyed, only ten percent were observed to provide easily available healthy eating choices. Three of the ten airlines offered some degree of healthy eating options. The remaining six airlines surveyed were criticized for providing little or no effort at offering vegetarian, i.e. low-fat, low sodium, low calorie, in-flight eating options.

Holiday Inn Express surveyed 1,000 executives to examine business travelers’ needs and behavior (Benzer, 1999). This study reported that 70 percent of executives did not diet while on the road, and 63 percent did not stick to an exercise program when traveling. In addition, 63 percent reported it was not hard to find a nutritional breakfast on the road. While business travel in the U.S. comprises over 200 million trips per year, the vast majority of foods fell short of providing the high-protein, low-calorie, low-carbohydrate nutrition that travelers need. There have been some attempts to respond to this massive business traveler need, and several nutritional supplement options have been proposed to help fill this business traveler nutritional gap. Gradually, a small number of nutritionally wise products, such as nutrition bars and instant hummus, are generating positive feedback from business travelers (Messina, 1994).
Low-Carb Diet

Low-carbohydrate, high-protein diets have been receiving much of the attention, along with the low-fat diet espoused by mainstream organizations such as the American Heart Association. According to Amy Bentley (2004), an associate Professor in the Department of Nutrition, Food Studies and Public Health at New York University, although the Atkins diet, along with other low-carb diets, had an earlier surge of popularity in the 1970s, in light of studies showing links between fat intake and heart disease and arteriosclerosis, it was ultimately dismissed as a fad diet by most of the medical and nutritional community.

Over the past few years, the Atkins diet and other high-protein/low-carbohydrate regimens have moved from trendy status to the mainstream of American weight-loss programs, and they have transformed the food landscape with breathtaking speed. As early as 1995, the low-fat trend was winding down. In 1996, The Zone, by Barry Sears, reached number five on the Publishers Weekly annual bestseller list, and Sugar Busters by H. Leighton Steward et al. was published (Alexander & Schleman, 2002). Both The Zone and Sugar Busters focused on the alleged negative effects of sugar and carbohydrates in the diet. In addition, in 1972, cardiologist Robert C. Atkins published Dr. Atkins’ Diet Revolution. In 1992 Robert C. Atkins reissued the book, and in 2002 republished an updated version, Dr. Atkins’ New Diet Revolution, which explained how the Atkins low-carb diet worked, not just for weight loss, but also for overall wellness. These books have sold over fifteen million copies, and they have spent more than four years on the New York Times bestseller list while low-carb diets quickly became a major topic of interest online, in print, and everywhere else (Leith & Rogers, 2003).
According to the market research firm, A.C.Nielsen, more than 17 percent of U.S. households include someone who is currently on a low-carb diet ("The low-carb lifestyle," 2004). Opinion Dynamic Corporation (ODC) conducted several omnibus surveys over the past one year, which showed a very consistent level of low-carb dieters, approximately 12 percent of the U.S. adult population (Shiman, 2005, January).

Additionally, ODC reported in April 2004 that 20 percent of the public had tried such a diet in the past two years, and another 20 percent of those who were not currently on a low-carb diet might try one in the next two years (Schiman, 2004, April). Another ODC research report in July 2004 categorized people into four different groups: 1) current low-carb dieters, who are currently on a low-carb diet; 2) former low-carb dieters, who have tried a low-carb diet in the past but are not currently on such a diet; 3) low-carb lifestyle consumers, who have never tried a low-carb diet, but who say they are making an effort to restrict their carbohydrates; and 4) regular consumers who have never tried a low-carb diet and who are not watching their carbohydrates in any way. This ODC study found that low-carb dieters had indeed eliminated the high-carbohydrate foods, and that low-carb diets had proven effective for short-term weight loss. (Shiman, 2004, July)

Figure 4 indicates that two-thirds, or 66 percent, of those who lost weight reported that they continued to lose weight or had kept the weight off. About 22 percent of those who lost weight reported that they regained some of the weight, and only nine percent stated that they regained all the weight.
The Natural Marketing Institute (NMI) conducted a consumer research study regarding the low-carb diet in June 2004 (as cited in The low-carb lifestyle..., 2004). A majority of low-carb dieters, accounting for 65 percent, actively reduced sugar, while 62 percent actively reduced starch-based foods. In addition, almost half of the low-carb dieters used sugar substitutes with 47 percent increasing their protein intake. The survey indicated that one-third of the low-carb dieters had used low-carb packaged foods and beverages designed with a lower carbohydrate content, and almost one in five low-carb dieters had followed a specific, formal low-carb diet, such as Atkins, South Beach or other low-carb program. Another study at the University of Pennsylvania, School of Medicine found that subjects who followed the high-protein, low-carbohydrate Atkins diet lost twice as much weight as those on a high-carbohydrate diet, both in three months and in six months time (Foster, Wyatt, Hill, et al., 2003).
Larry Shiman (2005, January) indicated in a low-carb report that the percentage of respondents who claimed to be on a low-carb diet was 15 percent, the highest figure over the past 14 months of time period (see Figure 5). This research showed that former low-carb dieters tended to be very loyal to their diets, and that many had intentions to restart their diets in the future. In addition, this study indicated that there were no other significant demographic differences but age. The diet was most popular among those between the ages of 30 and 55. People under the age of 30, and those over the age of 55 tended not to be on low-carb diets. Finally, this report indicated that most people on low-carb diets did not look for low-carb alternatives to high-carb foods; they simply decreased or eliminated the types of foods that were typically high in carbohydrates. Therefore, this does not necessarily imply that manufacturers should expect a substantial increase in sales of low-carb products.

Figure 5. Percentage of Low-carb dieters over time period

*Note.* Percentage of U.S. adults. Prior to Jan. 2005, question was worded as “Are you currently on a low-carbohydrate diet, such as the Atkins or South Beach diet?” From “Updated low-carb results January 2005,” by L. Shiman, January 2005, Opinion Dynamics Corporation.
Amy Bentley (2004) stated that although low-carb diets have been popular in the past, this diet was qualitatively different. She implied that low-carb dieting found mainstream acceptance very rapidly, this time in reaction to alarming reports of obesity reaching epidemic proportions with life-threatening health consequences. Additionally, she explained that low-carb diets were more acceptable to males with respect to restricting carbohydrates and promoting protein and some fats because this diet allowed them to consume a lot of meat, a feature which was different from the low-fat diets' restrictions.

**Low-Carb vs. Low-Fat**

Gary Taubes (2002) discussed that the low-carb diet and the low-fat diet differed significantly in many respects; one counts calories and fat grams while the other tracks carbohydrates, considering calories as secondary; one demonizes high-fat foods while the other outlaws high-carb foods; one encourages lots of fruits and vegetables with little fat whereas the other recommends vegetables with fat or with animal foods; therefore, overall, the rules of food consumption or eating are extremely different. According to ODC's research, low-fat diets are easier to stay on for a long period of time and provide for a healthier long-term lifestyle while low-carb diets are more effective for short term weight loss (Shiman, 2004, June).

A study by the department of Veterans Affairs in Philadelphia tracked 132 obese people, half of whom were on a low-carb diet and half of whom were on a low-fat diet, for one year. This research indicated that severely obese people who followed the low-carb diet for one year lost more weight quickly and had lower levels of triglycerides than did those in the low-fat group (Samaha, Iqbal, Seshadri, et al., 2003). Another study, conducted at Duke University, also found that low-carb dieters had greater improvement
in triglyceride and good cholesterol level than did low-fat dieters (Hellmich, 2004, May). The Duke research team tracked 120 overweight people for six months. Low-carb dieters lost an average of 26 pounds, compared with 14 for low-fat dieters. They explained that it was easier to stay on a low-carb diet because protein and fat make people feel more satisfied while a high-carb diet tends to make people feel hungrier.

A study published in the Annals of Internal Medicine in 2004 (Yancy, Olsen, Guyton, Bakstn & Westman, 2004) showed that in regard to weight loss, low-carb and low fat diets ended up in a statistical tie after one year. The study comparing low-carb diets with other diets reported that low-carb diets help patients lose weight faster than conventional plans in a six-month study. In a 12-month study, however, the low-carb counters lost about the same amount as those on a conventional diet even though they tested slightly better on triglyceride and blood-sugar levels. The study added that if a low-carb regimen is followed correctly, dieters would lose four to eight pounds in the first two weeks. This issue imparted three messages: 1) Low-carb dieting can be improved by sticking with polyunsaturated and monounsaturated fats and choosing whole grains. 2) Diets have differing effects on cholesterol levels and metabolic factors. 3) Because of taste, upbringing, genetics, and other factors, the individual response to diets varies tremendously.

Research on the effects of low-carb diets on children and teens showed that low-carb diets were effective for short-term weight loss only in obese teenagers (Toppo, 2004). However, Gary Foster et al. (2003), at the University of Pennsylvania School of Medicine, indicated that because the data on low-carbohydrate diets for the treatment of obesity in adults was encouraging, but very preliminary, the research in adolescents was even more
preliminary; therefore, it was concluded that it would be inappropriate at this time to recommend low-carbohydrate diets for youth or adolescents.

**The Kinds of Low-carb Diets**

Amy Bentley (2004) stated that whereas Atkins was famous for its stringency, most other popular low-carbohydrate diets, including the South Beach Diet, the Zone, and Weight Watchers, took a more moderate approach.

The Atkins Diet is based on the theory that eating fat is not the true reason for obesity and nutrition problems, but rather carbohydrates are the chief reason (Ornish, 2004). The basic underlying premise of Atkins is that an excess of carbohydrates, in particular starches and sugars, is the main culprit in preventing weight loss (Bentley, 2004). The theory of the low-carb diet is in direct opposition to the mainstream medical emphasis that the high consumption of fat in a diet is the chief cause of obesity. It explains that limiting the number of carbohydrates consumed allows bodies to burn energy from stored body fat and thus to lose weight. Further, limiting the number of carbohydrates also helps to stabilize and limit the production of insulin, the glucose regulating hormone in the body (Atkins, 2001). The Atkins diet program calls for the serious restriction of most types of carbohydrates; therefore, a low-carb diet is considered to be effective and leads to weight loss.

Another low-carb diet, the South Beach diet, restricts foods with a high glycemic index (Arnst, 2004). The South Beach Diet works on the principle that weight gain is caused by sugars and starches being absorbed into the bloodstream too quickly ("South beach Diet," 2004). Unlike the Atkins Diet, this diet does not entail cutting out a particular nutrient, but emphasizes a balanced and healthy eating regime. This diet aims
to educate people to rely on the right carbohydrates and fats such as unsaturated fats and to avoid the wrong ones. Because this diet is less restrictive and allows more whole grains, fruits, and vegetables than Atkins, it can be easier to stay on this diet. However, health associations have expressed concerns regarding dieters’ long-term health when dieters used the glycemic index as the basis for their weight loss diet.

The Zone Diet is a weight loss program based on the nutritional composition of 40 percent carbohydrates, 30 percent protein, and 30 percent fat, called a 40-30-30 diet. This approach is based on a theory that the strict ratio keeps insulin levels in peak zone for promoting weight loss and maintaining energy (Arnst, 2004). The Zone diet claims that this composition is how the human body is genetically programmed to be fed and that the human body will burn fat at the fastest rate possible if fed in this way. The balanced diet and very low calorie intake can lead to rapid weight loss; though high in protein, it does call for lots of fruits and vegetables. It has conveniently produced a whole line of zone-perfect items to help people use this diet. However, there is little evidence that insulin levels can be manipulated as claimed. Another problem is that low calorie intake can leave you hungry.

Weight Watchers is evaluated as a balanced diet, with emphasis on portion control (Arnst, 2004). This diet is designed for dieters to follow a point system for different foods. The program offers a well-balanced diet combined with weekly meetings, which provide chances to talk with fellow dieters. However, since this diet is designed for long-term weight loss, it is expected to be slow weight loss, and the point system can be complicated.
Concerns Regarding Low-carb Diets

While a low-carb diet can be easy to follow and can initially lead to very rapid weight loss, there are concerns that following a low-carb and high-protein diet may damage long-term health associated with kidney or heart disease (Arnst, 2004). Dr. Susan Jebb, head of nutrition at the Medical Research Council's Human Nutrition Research Unit in Cambridge (U.K.), presented a summit in London focused on concerns that the Atkins diet carried major health risks (“Atkins diet,” 2003). Even though there have been as yet very few clinical studies into the long term weight loss of low-carb diets, several researchers have pointed out possible adverse health effects, including constipation, fatigue, the risk of heart disease and bone loss, and kidney malfunction (Toppo, 2004). Additionally, an Atkins diet study found that the diet may result in greater initial weight loss, but not in long-term weight loss.

Recent studies show that although high-protein, low-carbohydrate diets are effective for weight loss, excess protein intake can be harmful for women with hypertension or undetected kidney dysfunction (Anon, 2003). A Harvard study found that eating too much protein could hasten the decline of kidney function in women with mild kidney impairment or renal insufficiency (Knight, Stampfer, Hankinson, Spiegelman, & Curhan, 2003). Researchers looked at data for 1,624 women aged 42-69 enrolled in the Nurse's Health Study. For women with renal insufficiency, high protein consumption - particularly nondairy animal protein - was associated with a greater decline in the rate at which kidneys were able to filter protein. Experts have also raised concerns over ketosis, a state in which the body releases ketones - a compound created when fat is metabolized.
The research added that ketosis can lead to dehydration, acidic environment in the blood and other metabolic imbalance.

The high consumption of fat on a low-carb diet is another concern. A high intake of fat and saturated fatty acids could lead to increased blood cholesterol levels and an increased risk of heart disease (The Diabetes Resource Center, 2002). There are some studies that show the negative effect of a high intake of animal products. Berriman (1996) began the China study in 1983, and published the results of the study in 1990. This research involved a survey of 6500 Chinese contributing 367 facts about their diets. The study found that the fewer animal products eaten, the lower the incidence of diseases such as cardiovascular disease, cancer, and diabetes. Another study was conducted in Oxford, England (Sanjoaquin, Appleby, Thorogood, Mann & Key, 2004). This study also found that the group eating fewer animal products had nearly 40 percent less cancer, 30 percent less heart disease, and were 20 percent less likely to die up to the age of 80 years. Kim McDonald (2004) claimed that one of the biggest criticisms of the Atkins diet is that the diet's low-fiber and high-fat content increases the risk of colon cancer, cardiovascular disease, impaired renal function and osteoporosis.

The excess protein intakes may cause calcium losses from the body, which could adversely affect bone health over the longer term (“Health Concerns,” n.d.). In theory, a high protein diet could also put a strain on the kidneys, which have to excrete the excess protein from the body. The U.K. diet trials study found that a high-protein, fat reduced intake, taken over six months, caused adaptive changes in renal size and function without indications of adverse effects (British Dietetic Association, 2003). In addition, people with poor kidney or liver function should be cautious (Sharon & Stern, 2004).
Dr. Patricia A. Farrell, psychologist and educator claimed that there was a relationship between depression and low-carbohydrate intake (Cliffs, 2004). She indicated that decreasing the intake of carbohydrates may bring on a depressed mood since they affect the level of serotonin, a chemical in the brain that is believed to be linked to depression, cravings and over eating. With respect to this criticism, medical professionals and dietitians are emphasizing the importance of not necessarily having a low-carbohydrate intake, but eating more types of carbohydrates, particularly, those complex carbohydrates such as breads, cereals, and legumes.

The American Heart Association (AHA) has highlighted the possibility of low intakes of some vitamins and minerals (as cited in “Health Concerns,” n.d.). The low consumption of fruits and vegetables on low-carb diets may cause shortages of important vitamins and minerals including the B vitamins found in enriched grains, vitamins C, E and beta-carotene in fruits and vegetables, and potassium and calcium in yogurt and milk. Furthermore, some bread with fewer carbohydrates may lead to the loss of important nutrients such as fiber. The AHA was also concerned about the potential risk of cardiac, kidney, bone, and liver abnormalities as well. On the basis of unknown long-term consequences on health, the British Dietetic Association did not recommend the Atkins diet as the best approach for healthy weight control (British Dietetic Association, 2003).

Dr. Alice Lichtenstein, a nutrition specialist at Tufts University, pointed out that the low-carb trend has taken the same route as the low-fat trend: a change in diet without a reduction of calories, showing that low-carb ice cream, for example, actually has as much fat and calories as regular ice cream (as cited in “Negative carbs,” 2004).
Impact of Low-Carb Diets on the Hospitality Industry

With 28 percent of Americans controlling their carbohydrate intake, and another 20 percent considering it in the next year, the consumer is looking for a quick alternative (The Valen Group, 2004). The hospitality industry’s reaction to people’s interest in low-carb diets has led to the introduction of new products or alternatives. According to recent research, more than $25 billion is the expected sale size for the low-carbohydrate industry in 2004, including food items, books and classes, up from $15 billion last year (LowCarbiz, 2004). There are about 400 low-carb stores around the country, with two new stores opening weekly, and more than 500 low-carb food products were introduced last year, up from 85 in 2002 (Hirsch, 2004).

Food industry

A survey by Productscan Online tracked six hundred low-carb products, including catsup, beer, lattes, pasta, ice cream, orange juice, and even dog food that were introduced in 2000. Roughly 1,300 items were on the market for 2004 with ten new items added each week (“New, improved,” 2004). According to Denver-based LowCarbiz, sales of foods, beverages and publications geared to lowering carbohydrate consumption would double in 2004 whereas sales by traditional food manufacturers were expected to grow by four to six percent a year (as cited in “People on the move,” 2004). In light of the aforementioned growing obesity epidemic, Pure Foods, LLC, which specializes in low-carb products, launched the first low-carb vending machines and a low-carb vending division (“Childhood obesity,” 2004).

Consumption of tortillas is sky-rocketing, and tortillas are expected to soon surpass white bread as the bread of choice for Americans, according to the Tortilla Industry
Association. In response to the popularity of low-carbohydrate diets, Mission Foods introduced its Low-carb Tortillas and has been racing to keep up with demand since the tortillas were first placed in stores in 2004 (Arcos & Stevens, 2004). Panera Bread has been offering six low-carb breads (Arndt, 2004).

Restaurants

Americans ate more than 54 billion meals outside of their homes last year, spending $426.1 billion on those meals, and restaurants have been altering menus to suit popular diets for years, according the National Restaurant Association (Rayasam, 2003). Recognizing that more than ten million people are following a low-carb regimen (The NPD Group, 2004), some restaurant chains, including TGI Friday’s, Chang’s China Bistro, and Denny’s, as well as quick service restaurants, including Subway, McDonalds and Burger King, have introduced low-carb versions of their existing menus.

TGI Friday’s rolled out a "Cheeseburger Cheeseburger," which pairs two patties with melted American cheese, with no ketchup and no bun, as well as Buffalo wings with five carbs and a char-grilled salmon fillet that has six carbs (Ruggless, 2003). They also launched a national advertising campaign in January touting their new Atkins-approved specialties at the same time. Furthermore, Denny’s, which is known for its high-carb breakfasts, created low-carb dishes that will be added to menus soon, and the Spaghetti Factory is working with a pasta manufacturer to bring a low-carb noodle to its restaurants this spring (Clements & Edwards, 2004).

Such quick service restaurants as Carl’s Jr. and Hardee's are promoting low-carbohydrate breakfast items and burgers with only five or six total grams of carbohydrates, such as The Low-carb Six Dollar Burger, the Low-carb Breakfast
Bowl™, and The Low-carb Thickburger™. Burger King is also encouraging low-carb dieters to enjoy its Whopper sans bun. Subway, which introduced new Atkins-based wraps and salads, saw sales increases in 2003 and plans more low-carb options in the future (Greene, 2004).

**Hotels**

From the late nineteenth century, large hotels had dining rooms open to non-residents, where elaborate meals could be eaten, and the specialized restaurant dates from the same period (Martens & Warde, 1999). As hotel food has improved, it has changed to adapt to the latest trends in healthy eating (Greenberg, 2004). Health-conscious travelers have been challenged with finding food and beverage choices that match their diets and lifestyles when on the road or at business events. In response to the explosive growth in popularity of low-carb diets, a number of hotel chains are updating their menus to reflect dietary preferences for low-carb foods.

Loews may have been the first hotel chain to introduce a low-carb menu in early 2000 (Stark, 2004). Shortly after the low-carb revival, the company survey for carbohydrates indicated that almost a quarter of their clientele was requesting low-carb accommodations for their meals. Early this year Loews launched a new line of low-carb cocktails, dubbed No-Carbtails.

Sheraton Hotels & Resorts (2004) introduced Lo-Carb Lifestyle by Sheraton, the extensive line of low-carb food offerings at 200 Sheraton hotels in North America, followed by an expansion overseas later in 2004. This line features more than 15 menu items covering breakfast, lunch, dinner, dessert, cocktails and a low-carb mint on the pillow, most of which contain less than five net carbohydrates. They also developed a
special banquet menu for meeting attendees, guests at weddings, fundraisers and other social functions. ‘Sheraton Promises to Deliver Lo-Carb Lifestyle by Sheraton’ is the latest in a series of innovations designed to elevate the brand to the top of the upscale hotel segment.

Marriott Hotels & Resorts first addressed the low-carb issue with the creation of the Fit for You program in Dec. 2003, which offered breakfast menu options (Wolf, 2004). “Fit for You” caters to guests’ personal dietary regimens with carb-conscious, low-cholesterol, low-fat and other dietary offerings. Rather than focusing on a low-carb trend, however, the program was designed to adapt to diverse lifestyles and dietary needs, including low-cholesterol and low-fat choices as well as low-carb menus. In response to the success of its “Fit for You” breakfast program, Marriott launched new culinary offerings and services in September, 2004. The program expanded to lunch and dinner restaurant menus, concierge-level selections, room service and catering menus, and retail store offerings in November, 2004 (Wolf, 2004).

Hyatt Hotels, which has offered the health-conscious Cuisine Naturalle menu for several years, began offering nine menu selections with low-carbohydrates and high protein to include more options for the low-carb dieters at restaurants, through room service and for banquets at 100 properties in the United States (Sharkey, 2004, March 30).

Hilton Hotels is also planning menus to address the needs of all dieters, including those with low-carb preferences, according to Jeanne Datz, director of brand communications (Stark, 2004). The Holiday Inn on the Lane recently began offering a low-carb menu in its restaurant, and it is prepared to make similar choices available to meeting clientele (Deutschle, 2004).
The Millennium Hotel, Cincinnati’s Bistro on Elm, has added a selection of low-carb dishes to its menu from appetizer to main dishes. (as cited in “Low-carb it,” 2004). Patrons can also order a healthy meal at the restaurant with a choice of desserts such as the New York Style Cheese Cake, Ice Sorbet and so on.

Radisson Hotels & Resorts and its managed hotels group in the Americas has joined forces with Mission Foods and the New England Culinary Institute (NECI) to create a mouth-watering, low-carb menu that made its debut in October, 2004 at all of its Radisson-managed properties throughout the U.S. and the Caribbean (Arcos & Stevens, 2004). Radisson’s partnership with Mission Foods is a reflection of the changing palate of Americans. This partnership compliments Radisson’s communication of its brand positioning that invites guests to ’Stay your Own Way’ by providing another option in the form of a low-carb menu that will further enable guests to have more control during their stay. Initially, Radisson featured the menu at 13 Radisson properties in the summer of 2004, and the company planned to broaden the roll out of the low-carb menu by the end of 2004 at additional Radisson hotels and resorts nationwide (Acros & Stevens, 2003).

Tourism & conventions

In the past, a chronic problem for dieters and those with special food requirements was following their diets during travel. However, as the travel industry, airlines, and conventions have begun adapting to diet trends, it is getting easier for travelers to stay on their diets during vacation or when traveling for business.

Airlines like Northwest, America West and United have either been selling or giving away low-carb candy (Woodyard, 2004). United sells low-carb salads through a deal with the Au Bon Pain bakery chain. Northwest eliminated the high-carb pasta entree choice in
international business class on June 1, 2004. Lufthansa also planned to begin testing low-carb menu options in business class on its routes between Germany and Los Angeles in July, 2004. In addition, Carnival Cruise Lines began rolling out specially designated low-carb dining selections on dinner menus with a gradual fleetwide implementation (“Carnival Cruise,” 2004)

Only a year ago, meeting planners provided fruit, yogurt and bagels for their breaks. Recently, however, meeting planners began preparing to accommodate requests for low-carb menus for lunches, dinners and snacks. The St. Paul Hotel hosted a five-day conference for 50 people from the travel and tourism industry (Fukushima, 2004). The meeting planner had one food request: low-carb for breakfast, lunch and dinner. In addition, Aramark is working to create more than a dozen different entrée menus that will allow low-carb dieters more flexibility in their meal selections at the convention centers it manages.

**Summary**

This chapter provided a review of relevant literature regarding a current nutritional movement, that of the low-carb diet. The review presented a comprehensive overview of nutritional trends and the history of diets; it encompassed a discussion of the prevalent issue regarding obesity and consumers’ diet practices. It particularly focused on business travelers’ diet practices. In addition, the review discussed research comparing low-carb diets with traditional diet programs, and examined concerns regarding low-carb diets. Lastly, this chapter contained a summary of the impact of low-carb diets on the food, restaurant, hotel, and tourism industry.

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Through this literature review, it was found that the recent low-carb phenomenon has influenced not only eating habits, but also society’s attitudes, the culture, politics, and economics. On the other hand, however, this study found that there has been little research directed toward the use of low-carb menus in hotel restaurants or by hotel catering services, or toward the extent of the business travelers’ demands for their diet practices.
CHAPTER 3

METHODOLOGY

This research focuses on business travelers who are staying in and/or attending meetings in hotels which are currently offering low-carb menu items in their restaurants or on their catering menus. Data were collected through a survey form which had questions in regard to three primary categories: business travelers’ diet practices, their experiences with low-carb menu items during business trips and demographic information. The sample group consisted of meeting attendees who participated in meetings at chain hotels such as Sheraton, Marriott, Hilton and Hyatt hotels, which have already created low-carb menu items in their restaurants for their guests and meeting attendees or are planning to do so.

Research Design

This present study was designed as descriptive and correlational research. The study examines the prevalence of dieting in a sample of U.S. business travelers by dividing the sample into four different diet groups: current dieter, former dieter, current lifestyle consumer, and regular consumer. In addition, with respect to low-carb diet practices, respondents were placed into one of three different categories: low-carb dieter, non-carb dieter and non-dieter. The study was designed as an intercept approach survey at meetings and an Internet survey.
Survey Instrument

The questionnaire developed for this study was designed to identify business travelers’ diet practices and to understand their experiences and satisfaction with low-carb menu items during business trips. To understand the low-carb diet movement within the hospitality industry and develop this survey questionnaire, the researcher communicated with meeting planners through a list server named MIMlist, and interviewed convention and catering managers at such hotels as the Marriott, Sheraton, Hyatt, Hilton and Four Seasons hotels which serve carb-conscious menu items. This survey consisted of the following three data categories: business travelers’ diet practices, their experiences with low-carb menus during a business trip, and their demographic information (see appendix A).

In the first category, the diet practice questions asked the respondents to indicate the number of diets that they had followed in their lifetime, the type of diet that they were following recently, their reasons for dieting, their reasons for staying on a diet, the monthly amounts of expense for their diets, their diet satisfaction, and their future behaviors. In addition to questioning respondents about their diet practices, the respondents were asked about their special diet practices during business travels to assess how many times the respondents traveled for business a year, how often they tried to follow their diets while traveling for business, and whether they ate low-carb food items during their most recent meeting.

For their experiences with low-carb menu items in the second category, respondents who answered that they had eaten low-carb food items on their trips were asked to identify the place, time, frequency, expense, and specific food items. The respondents’
satisfaction with the low-carb food items was indicated in terms of nutritional value, price value, quality, quantity, and taste. A Likert-type scale with ratings from 1 (very dissatisfied) to 5 (very satisfied) was used to evaluate the satisfaction factors. Finally, respondents were asked if they would have low-carb foods again when they would travel for business in the future.

The last category contained questions pertaining to respondents’ demographic profiles. The demographic information sought included age, gender, income level, ethnicity, education, height, weight and satisfaction with current weight. The height and weight values were used to calculate the respondents’ BMI values and weight status.

This study divided the sample into four different diet groups: 1) current dieter, someone who is following a specific diet(s); 2) former dieter, someone who has tried a diet(s) in the past, but is neither following a specific diet nor restricting any food; 3) lifestyle consumer, someone who is currently trying to restrict certain food(s); and 4) regular consumer, someone who has never tried a diet and is not restricting any food. These categories were based on the Opinion Dynamic Corporation (ODC) study (Shiman, 2004, July) which categorized people into four different groups: 1) current low-carb dieters, who are currently on a low-carb diet; 2) former low-carb dieters, who have tried a low-carb diet in the past but are not currently on such a diet; 3) low-carb lifestyle consumers, who have never tried a low-carb diet, but who are making an effort to restrict their carbohydrates; and 4) regular consumers, who have never tried a low-carb diet and who are not watching their carbohydrates in any way. Instead of focusing on only the low-carb dieter in the ODC study, this survey for business travelers’ diet practices included all dieters and consumers in order to understand general diet practices and to
compare the practices of persons following a low-carb diet with the practices of other people.

The questionnaire included an informed consent cover page explaining the purpose of the research and informing the respondents that participation was voluntary. Prior to conducting the survey, the survey was approved by the Institutional Review Board (IRB) of the Office for the Protection of Research Subjects at the University of Nevada, Las Vegas (UNLV) in November, 2004 (see Appendix B).

Scales

The survey questionnaire consisted of 32 closed-ended questions regarding the respondents’ diet practices with low-carb menus and two open-ended questions for the respondents’ opinions about the low-carb diet movement (see Appendix A). Nominal scales were used to identify the respondents’ diet status, the diet name, their low-carb experiences while traveling, their gender and ethnicity.

Ordinal scales were used to indicate the importance of their reasons for dieting and their reasons for staying on their diets, their frequency of traveling, and the likelihood of staying on their diets during business trips and of following a diet in the future, their satisfaction with their diets, their weight and the low-carb food items that they ate, and some demographic information such as age, education, weight, and height. Category scales were designed for ordinal scales to enable respondents to report the importance, satisfaction, frequency and the likelihood.

Validity and Reliability

The content validity and construct validity of the instrument were assessed by two approaches: experts’ appraisal and a pilot study. The designed questionnaire was
reviewed with experts including professors and staff members with University of Nevada, Las Vegas and practitioners in the hotel and food industry. Their evaluations helped develop measurement scales, improve the sequence of questions, and modify the wording.

A pretest of the survey instrument for business travelers’ diet practices was conducted to determine whether the questionnaire met the objective, whether the data collection plan was an appropriate procedure, and to minimize errors due to improper design. The pretest was conducted with meeting attendees at a food service equipment conference at the Westin hotel in Las Vegas, Nevada, on October 8, 2004. A total of 64 out of 100 participants completed the survey questionnaire. The pretest results indicated that the planned data analysis procedures were feasible. The respondents also understood all the questions well, though a few minor edits of question wording were suggested. The suggestions were incorporated into the questionnaire that was used for the collection of the actual study data.

Statistical tests were performed to assess the reliability of the instrument for the actual survey. In general, Cronbach’s alpha is the most commonly accepted formula to evaluate the reliability and internal consistency of the survey items. In other words, Cronbach’s alpha determines how well a set of items or variables measures a single unidimensional latent construct. Nunally (1978) suggested a Cronbach’s alpha of 0.7 should be adequate. Churchill and Peter (1984) reported a Cronbach’s alpha of 0.5 could be used in marketing studies. In addition, according to Hair, Anderson, Tatham, and Black (1995), the value above 0.5 is typically accepted as a sufficient level of reliability at which to conduct exploratory research. In this respect, Cronbach’s coefficient alpha
was conducted to test the reliability for three scales: the importance of reasons, satisfaction with diets and low-carb foods, and behavior regarding diet practices. As shown in Table 2, Cronbach’s alpha values of the importance, satisfaction, and behavior variables were 0.945, 0.925, and 0.794 respectively, indicating a high degree of reliability and internal consistency with all items exhibiting a positive correlation. Therefore, it can be inferred that the scale questions were fairly easy for participants to understand and that the participants were consistent in their interpretation of the questions.

Table 2

<table>
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<tr>
<th>Composite Variables</th>
<th>N of Items</th>
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<td>.945</td>
</tr>
<tr>
<td>Satisfaction scale</td>
<td>8</td>
<td>.925</td>
</tr>
<tr>
<td>Behavior scale</td>
<td>4</td>
<td>.794</td>
</tr>
</tbody>
</table>

Sample Selection

The population for this study consisted of business travelers who participated in meetings at chain hotels which offered low-carb menu items in the United States. On the basis of the desired population, the convenience sampling design for this study consisted of three parts: the selection of hotels, meetings and participants.

Hotel selection was limited to the main chain hotels offering low-carb food items in the U.S. Nationwide chain hotels were selected, rather than local or independent hotels. As previously discussed in chapter 2, national chain hotels, such as the Sheraton, Marriott, Hilton and Hyatt, have created and offered carb-conscious menu items to guests
and meeting attendees. The second part of the sampling design consisted of the selection of meetings for the study. The selection of meeting groups, rather than individual hotel guests, was done in anticipation of a higher response rate and for the convenience of conducting the survey. To be considered, meetings had to be held for at least two days at those hotels. Lastly, the sampling frame was also limited to those over 18 years of age because the questionnaire was designed for business travelers who work and travel for business purpose. Both males and females were included in the study.

Through the sampling design process, meetings were selected, and the participants consisted of hospitality industry professionals who were members of the Professional Convention Meeting Association (PCMA), the National Society of Minorities in Hospitality (NSMH), and a MIMlist – a meetings industry's email-based discussion group. In addition to the hospitality professionals, general business people who attended a BPCA (Business Products Council Association) meeting were selected.

**Research Procedures**

The survey was conducted in two ways: through an intercept approach at two meetings and through an Internet survey.

**On-site Meetings**

The survey was self-administered with the researcher or trained assistants available to answer any questions and explain the nature of the research. Two surveys were conducted at the PCMA meeting and the BPCA meeting in January and February 2005, respectively. To obtain permission for conducting a survey in advance, the researcher communicated with each meeting organizer by email and discussed the survey.
distribution and data collection in terms of time and place. Through several email
discussions, the researcher obtained permission to conduct the surveys for the two
meetings on the last day of each conference. Attendees’ participation was completely voluntary.

The first survey was conducted with business travelers, who participated in the
PCMA’s 49th annual meeting held in Honolulu, Hawaii, from January 9 to 12, 2005.
Approximately 2,500 meetings industry professionals attended this annual meeting, and
most attendees stayed at the major chain hotels, Sheraton, Marriott, Hilton and Hyatt. On
the last day of this conference, the researcher and three trained research assistants
distributed the survey questionnaires to 450 meeting attendees.

The other survey was conducted at a BPCA meeting held at the Renaissance hotel in
Las Vegas, Nevada, from February 2 to 4, 2005. About 150 business people attended this
meeting and stayed at the same hotel during this conference. In the same survey-
conducting procedure as for the PCMA conference, on the last day, the questionnaires
were distributed to 90 of the meeting attendees.

*Internet survey*

An Internet survey is a self-administrated questionnaire posted on a Web site. The
online survey for this study was designed and built on the basis of the survey
questionnaire used for the onsite meeting by using Zoomerang, a survey website, in order
to increase responses. This online survey was composed of five pages including a consent
cover explaining the purpose of the research. This Internet survey was launched on
February 02, 2005, and closed on March 07, 2005.
The target sample for the online survey consisted of 210 of the PCMA’s Pacific region members, 500 of the MIMlist members and 25 of the NSMH industry members. On February 2, 2005, the survey introduction and guideline were emailed to the PCMA’s Pacific region members and the MIMlist members. The online survey for the NSMH members was conducted due to the NSMH policy which does not allow any form of research to be conducted at the annual conference. On February 21, 2005, the survey introduction and guidelines were emailed to 25 industry professionals who were the NSMH conference attendees. Two follow-ups were sent to explain the importance of the study and to encourage non-respondents to participate in the research on February 25, and March 4, 2005, respectively.

Data Collection

As previously mentioned, on the last day of both the PCMA and BPCA conferences, the researcher and trained research assistants distributed and collected the survey questionnaires. At the PCMA meeting, the survey questionnaires were distributed to a total of 450 meeting attendees, and 124 surveys were collected. At the BPCA, the survey was distributed to 90 of the meeting attendees, and a total of 52 surveys were collected. During the Internet survey period from February 2 to March 7, 2005, a total of 79 out of 735 people visited the website, and 48 people completed the online survey.

Eventually, a total of the 176 completed surveys out of the 540 distributed were collected on-site at the two meetings, and a total of 48 out of the 79 people who visited the website completed the online survey. The response rates of the onsite and the online were 32.6 percent and 60.8 percent respectively.
The surveys were carefully reviewed by the researcher to ensure that they were filled out completely and correctly. Any survey that was filled out incorrectly was considered unusable and not included in further analysis. A total of five surveys out of the 176 from the two onsite meetings and nine surveys out of the 48 online responses were eliminated because there were incomplete. Therefore, the usable response rates of the onsite and the online were 31.7 percent and 49.4 percent respectively.

_data analysis methods_

The Statistical Package for Social Science (SPSS) version 12 was utilized in the analysis of the data collected through the surveys. The statistical tools applied in this study included: descriptive statistics, Chi-Square test, independent sample t-test, and one-way analysis of variance (ANOVA), correlation, and regression analysis. The following section will explain how these statistical tools were operated to test the study hypotheses, and identify the preselected significance level.

The level of significance, which is denoted as \( \alpha \) "is a level of probability at which the null hypothesis, can be rejected with confidence. Significance level can be set at \( \alpha = 0.05 \). Since a 0.05 significance level is accepted for most business research, this study will use this value as a threshold to decide whether the null hypothesis will be rejected.

Descriptive Statistics

The descriptive statistics, which included measures of central tendency, dispersion, and shape, examined the distribution of data values. The mean, median, and standard deviation were derived from all interval data, and the histogram of each interval variable
helped to explain the shape of data distribution. Demographic data were analyzed through the use of frequency tables and graphs.

Chi-Square test, ANOVA and T-test

Cross tabulation is a useful way of exploring whether the value of one variable is associated with that of another. The Chi-Square statistic in the cross tabulation analysis is computed as the sum of the squared difference between the observed frequency and the theoretical frequency divided by the theoretical frequency. A Chi-Square test was performed to identify low-carb dieters' characteristics as a way of exploring the differences between low-carb dieters and other dieters regarding demographic data, such as gender, age, income, education, ethnicity, and weight status.

In addition to the Chi-Square tests, One-Way Analysis of Variance (ANOVA) was used as a generalized version of the t-test because it allowed testing for differences in the mean ratings for a predictor variable with more than three categories. In particular, ANOVA was performed to determine if there were significant differences among three groups - low-carb dieters, other dieters, and non-dieters (regular consumer) in terms of demographic characteristics.

The Independent-Samples t-test was used to compare the values of the means from two samples and test whether it was likely that the samples were from populations having different mean values. The T-Tests were performed on the data to determine if differences existed between low-carb dieters and other dieters regarding diet satisfaction, the length of a diet practice, weight status, and reason for a diet and for staying on a diet. In addition, the T-tests were also used to assess the relationship between the likelihood of
staying on a low-carb diet during business trips and the experience of eating low-carb diet menu items on a business trip among low-carb dieters.

Correlation and Regression Analysis

Correlation and regression analysis helped to examine relationships among interval or ratio variables. The Pearson correlation, one of the most widely used bi-variable test, was employed to look at the relationship between the likelihood of staying on a diet on business trips and four independent variables: the reason for dieting, reason for staying a diet, diet satisfaction and the frequency of traveling.

Regression is a statistical technique that calculates a line that best fits the data and can be used to predict behaviors, actions or attitudes with multidimensional scaling. In particular, linear regression is a particular type of regression model that provides accurate and reliable results only under certain prescribed conditions. Multiple regression analysis is a method for explanation of phenomena and prediction of future events. In this research, multiple linear regressions were performed to assess which independent variables were significant in predicting future behavior to follow a diet and to determine whether there is relationship between business travelers’ overall satisfaction with low-carb menu items and food factors.

Factor Analysis

The main applications of factor analytic techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables, that is to classify variables (StatSoft, n.d.). A factor analysis was performed to classify the variables of low-carb food factors: taste, nutrition, quality, quantity and price value.
CHAPTER 4

FINDINGS OF THE STUDY

This study analyzed business travelers' diet practices regarding low-carb diets. Four primary research questions were developed to indicate the characteristics of business travelers who were on low-carb diets and the relationship between their diet practices during business trips and their future behavior regarding following a diet. Further, the results of statistical data analyses pertaining to the differences between low-carb dieters and non-carb dieters in regard to demographic data and their diet practices, and to the relationship between their experiences with low-carb food items and their future behavior regarding following a diet are presented. Chi-square analyses, T-tests, correlations, linear regression, and factor analysis were conducted to analyze the data using the SPSS 12.0.

Profile of the Participants

Data were collected through an on-site survey of attendees at the meetings of the Professional Convention Meeting Association (PCMA) and Business Products Council Association (BPCA) respectively on January 12 and February 4, 2005, and through an Internet survey from February 2 to March 7, 2005. A total of 210 people completed the survey questionnaire. Approximately five percent of the respondents did not answer about gender, age, education, ethnicity, and height; and about nine percent of the participants did not answer the questions about annual income and weight.
The respondents’ demographics are shown in Table 3. Of the 210 participants, the proportion of females and males were 55.7 percent and 44.3 percent respectively. The participants’ ages fell into one of nine categories from under 25 to over 65 years of age. Almost 40 percent of the respondents were between 36 and 45 years of age. The participants reported their annual household income within a given range from under $25,000 to over $175,000. Almost one-third of all respondents fell into the category of between $50,001 and $75,000. The participants were asked to report their completed education level within five categories from high school to graduate degree. Over 50 percent of the respondents fell into the classification of completed college. Ethnicity was highly skewed because the predominant race was Caucasian, accounting for 82 percent of all respondents. The category of weight status was created on the basis of BMI values that were calculated using the ratio of weight to height. The participants’ weight status fell into one of four categories: underweight, normal, overweight, and obese. Over 63 percent of the respondents were in either the overweight or obese category.

**Dieters’ Profile**

The 210 respondents could be placed into one of four different categories, as anticipated: 1) current dieter, 2) former dieter, 3) lifestyle consumer, and 4) regular consumer (see Table 4). Approximately 13 percent of all the respondents were current dieters who were following a specific diet while 47 percent of the respondents were lifestyle consumers who did not follow a specific diet, but restricted certain foods. About 16 percent of all the respondents were former dieters who had been on at least one diet but did not follow a diet anymore. The rest of the respondents were regular consumers who have never tried any diet.
## Table 3

**Demographics of the Respondents**

<table>
<thead>
<tr>
<th>Demographics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>117</td>
<td>57.9</td>
</tr>
<tr>
<td>Male</td>
<td>85</td>
<td>42.1</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;=25</td>
<td>14</td>
<td>7.0</td>
</tr>
<tr>
<td>26-35</td>
<td>48</td>
<td>23.8</td>
</tr>
<tr>
<td>36-45</td>
<td>77</td>
<td>38.3</td>
</tr>
<tr>
<td>46-55</td>
<td>43</td>
<td>21.4</td>
</tr>
<tr>
<td>56-65</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td><strong>Annual income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;=25000</td>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td>25001-50000</td>
<td>30</td>
<td>15.7</td>
</tr>
<tr>
<td>50001-75000</td>
<td>60</td>
<td>31.4</td>
</tr>
<tr>
<td>75001-100000</td>
<td>37</td>
<td>19.4</td>
</tr>
<tr>
<td>100001-125000</td>
<td>23</td>
<td>12.0</td>
</tr>
<tr>
<td>125001-150000</td>
<td>11</td>
<td>5.8</td>
</tr>
<tr>
<td>more than $150000</td>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>completed high school</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>some college</td>
<td>48</td>
<td>23.9</td>
</tr>
<tr>
<td>completed college</td>
<td>104</td>
<td>51.7</td>
</tr>
<tr>
<td>some graduate studies</td>
<td>18</td>
<td>9.0</td>
</tr>
<tr>
<td>graduate degree</td>
<td>26</td>
<td>12.9</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian / American</td>
<td>165</td>
<td>82.1</td>
</tr>
<tr>
<td>African American</td>
<td>13</td>
<td>6.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>American Indian, Alaskan native</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Weight Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Normal</td>
<td>69</td>
<td>34.8</td>
</tr>
<tr>
<td>Overweight</td>
<td>77</td>
<td>38.9</td>
</tr>
<tr>
<td>Obese</td>
<td>48</td>
<td>24.2</td>
</tr>
</tbody>
</table>
In this study, current dieters, former dieters and lifestyle consumers were considered as dieters, and regular consumers were regarded as non-dieters. In respect to these respondents, a total of 159, or 75.7 percent of all the participants, had diet experience by either following a specific diet or restricting certain foods for their diet purposes while a total of 51, or 24.3 percent of all respondents, had never tried a diet and were not restricting any food (see Table 4).

Table 4

*Current Diet Status*

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dieter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current dieter</td>
<td>27</td>
<td>12.9</td>
</tr>
<tr>
<td>Former dieter</td>
<td>34</td>
<td>16.2</td>
</tr>
<tr>
<td>Lifestyle consumer</td>
<td>98</td>
<td>46.7</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>159</td>
<td>75.7</td>
</tr>
<tr>
<td>Non-dieter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular consumer</td>
<td>51</td>
<td>24.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>210</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Dieters were asked to indicate the type and the name of their most recent diets. Table 5 shows the cross tabulation of diet names by current diet status and by diet type. The findings indicate that half of the lifestyle consumers were on self-invented diets. Thus, the self-invented diet was the most popular diet among dieters. The Atkins diet was the most popular diet among the specific diet brands, accounting for 20 percent of the
respondents’ diets, and it was followed by the South beach diet, accounting for 13 percent. Other diets listed by respondents included Weight Watchers, Zone, and the eDiet.

As shown in Table 5, one-third of the dieters reported that they had been on a low-carb diet recently; a total of 30 low-carb dieters were following the Atkins diet; and 19 dieters were following the South Beach diet. A total of 29 out of the 159 respondents followed a low-fat diet; and 14 people followed a low-calorie diet.

Table 5

*Diet Name by Diet Type and by Current Diet Status*

<table>
<thead>
<tr>
<th>Diet status</th>
<th>Atkins</th>
<th>South Beach</th>
<th>Self-invented</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current dieter</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>Former dieter</td>
<td>7</td>
<td>5</td>
<td>15</td>
<td>7</td>
<td>34</td>
</tr>
<tr>
<td>Lifestyle consumer</td>
<td>15</td>
<td>13</td>
<td>49</td>
<td>21</td>
<td>98</td>
</tr>
<tr>
<td><strong>Total (%)</strong></td>
<td>30 (20%)</td>
<td>21 (13%)</td>
<td>67 (42%)</td>
<td>41 (25%)</td>
<td>159 (100%)</td>
</tr>
</tbody>
</table>

Diet Type

<table>
<thead>
<tr>
<th>Diet Type</th>
<th>Atkins</th>
<th>South Beach</th>
<th>Self-invented</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-carb</td>
<td>30</td>
<td>19</td>
<td>14</td>
<td>6</td>
<td>70</td>
</tr>
<tr>
<td>Low-fat</td>
<td>0</td>
<td>1</td>
<td>18</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Low-calorie</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Self-invented</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30 (20%)</td>
<td>21 (13%)</td>
<td>67 (42%)</td>
<td>41 (25%)</td>
<td>159 (100%)</td>
</tr>
</tbody>
</table>
**Testing Hypotheses**

Twelve null hypotheses were developed and tested according to the three research questions previously presented in Chapter I.

On the basis of their low-carb diet practices, a total of 210 respondents can be simply divided into two groups: low-carb dieters and the others who are not following a low-carb diet. The others included non-carb dieters who were not on low-carb diets and non-dieters who did not follow any diet. In this classification, respondents could be categorized into one of three different categories, as anticipated: 1) low-carb dieter, 2) non-carb dieter, and 3) non-dieter. That is, a low-carb dieter was someone who had any experience in restricting their carbohydrate intake in any way. A non-carb dieter was someone who had any diet experience except a low-carb diet, and a non-dieter was someone who had never tried a diet and was not restricting any food. A total of 70 respondents, accounting for one-third of all respondents, reported that they had low-carb diet experience; a total of 89 had other diet experiences; 51 people had never followed any diet (see Table 6).

Table 6

*Dieters Classification according to Low-carb Diet Practice*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-carb Dieter</td>
<td>70</td>
<td>33.3</td>
</tr>
<tr>
<td>The others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-carb dieter</td>
<td>89</td>
<td>42.4</td>
</tr>
<tr>
<td>Non-Dieter</td>
<td>51</td>
<td>24.3</td>
</tr>
<tr>
<td>Total</td>
<td>210</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Hypothesis One

HI: There is no difference between low-carb dieters and the others in regard to demographic characteristics.

The first hypothesis was to determine if significant differences existed between low-carb dieters and the others who were not on the low-carb diet in demographic variables. For this hypothesis, the sample included all respondents: low-carb dieters, non-carb dieters, and non-dieters as previously classified. The differences in gender, age, annual income, education, ethnicity, weight status, and weight satisfaction between the two groups were assessed according to seven sub-hypotheses. The Chi-square test was used to evaluate gender and ethnicity between low-carb dieters and the others (see Table 7), and to compare low-carb dieters, non-carb dieters, and non-dieters (see Table 8). An independent sample t-test was conducted for age, income, education, weight status, and weight satisfaction to compare the two different groups: low-carb dieters and non-carb dieters (see Table 9). In addition, ANOVA was performed to compare the three groups: low-carb dieters, non-carb dieters and non-dieters (see Table 10).

Table 7

<table>
<thead>
<tr>
<th></th>
<th>Low-carb dieter</th>
<th>The others</th>
<th>Chi-square test</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>47 (69.1%)</td>
<td>70 (52.2%)</td>
<td>5.273</td>
<td>.022*</td>
</tr>
<tr>
<td>Male</td>
<td>21 (30.9%)</td>
<td>64 (47.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasians</td>
<td>58 (82.9%)</td>
<td>106 (76.3%)</td>
<td>1.200</td>
<td>.273</td>
</tr>
<tr>
<td>The others</td>
<td>12 (17.1%)</td>
<td>33 (23.7%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Significant at 0.05
Table 8

**Chi-square test of Low-carb Dieters, Non-carb Dieters, Non-dieters for Demographics**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>12.858(a)</td>
<td>2</td>
<td>.002*</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>1.202(a)</td>
<td>2</td>
<td>.548</td>
</tr>
</tbody>
</table>

*Note: * Significant at 0.05

Table 9

**Independent Sample T-Test for Demographics**

<table>
<thead>
<tr>
<th></th>
<th>Low-carb dieter</th>
<th>The others</th>
<th>t-value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
<td>N</td>
</tr>
<tr>
<td>Age</td>
<td>68</td>
<td>5.06</td>
<td>1.852</td>
<td>133</td>
</tr>
<tr>
<td>Education</td>
<td>68</td>
<td>3.13</td>
<td>.945</td>
<td>133</td>
</tr>
<tr>
<td>Annual Income</td>
<td>66</td>
<td>3.85</td>
<td>1.395</td>
<td>125</td>
</tr>
<tr>
<td>Weight Status</td>
<td>65</td>
<td>3.00</td>
<td>.827</td>
<td>133</td>
</tr>
<tr>
<td>Weight Satisfaction</td>
<td>68</td>
<td>2.46</td>
<td>1.387</td>
<td>134</td>
</tr>
</tbody>
</table>

*Note. *Significant at 0.05

Age: 1 <=25 2=26-30 3=31-35 4=36-40 5=41-45 6=45-50 7=51-50 8=56-60 9=61-65
Education: 1=Completed high school 2=Some college 3=Completed college 4=Some graduate studies 5=Graduate degree
Annual income: 1=<= 25000 2=25,001-50,000 3=50,001-75,000 4=75,001-100,000 5=100,001-125,000 6=125,001-150,000 7=More than 150,001
Weight Status: 1=Underweight 2=Normal 3=Overweight 4=Obesity
Weight Satisfaction: 1=Very dissatisfied 2=Somewhat dissatisfied 3=Neutral 4=Somewhat satisfied 5=Very satisfied
Table 10

**ANOVA for Demographics**

<table>
<thead>
<tr>
<th></th>
<th>Low-carb dieter</th>
<th>Non-carb dieter</th>
<th>The others</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>N</td>
<td>Mean</td>
<td>N</td>
</tr>
<tr>
<td>Age</td>
<td>68</td>
<td>5.06</td>
<td>83</td>
<td>4.37</td>
<td>50</td>
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<tr>
<td>Education</td>
<td>68</td>
<td>3.13</td>
<td>82</td>
<td>3.15</td>
<td>51</td>
</tr>
<tr>
<td>Annual Income</td>
<td>66</td>
<td>3.85</td>
<td>76</td>
<td>3.36</td>
<td>49</td>
</tr>
<tr>
<td>Weight Status</td>
<td>65</td>
<td>3.00</td>
<td>82</td>
<td>2.84</td>
<td>51</td>
</tr>
<tr>
<td>Weight Satisfaction</td>
<td>65</td>
<td>3.00</td>
<td>82</td>
<td>2.84</td>
<td>51</td>
</tr>
</tbody>
</table>

*Note.* *Significant at 0.05*

Age (years old): 1=<=25 2=26-30 3=31-35 4=36-40 5=41-45 6=45-50 7=51-50 8=56-60 9=61-65

Education: 1=Completed high school 2=Some college 3=Completed college 4=Some graduate studies 5=Graduate degree

Annual income: 1=<= $25000 2=$25,001-$50,000 3=$50,001-$75,000 4=$75001-$100,000 5=$100,001-$125,000 6=$125,001-$150,000 7=More than $150,001

Weight Status: 1=Underweight 2=Normal 3=Overweight 4=Obesity

Weight Satisfaction: 1=Very dissatisfied 2=Somewhat dissatisfied 3=Neutral 4=Somewhat satisfied 5=Very satisfied

Table 11

**Bonferroni Post Hoc Tests for Demographics**

<table>
<thead>
<tr>
<th></th>
<th>Low-carb Dieter</th>
<th>Non-carb dieter</th>
<th>Non-Dieter</th>
<th>Non-carb dieter</th>
<th>Non-Dieter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.050*</td>
<td>1.000</td>
<td>.501</td>
<td>1.000</td>
<td>.000*</td>
</tr>
<tr>
<td>Educatio n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>.203</td>
<td>1.000</td>
<td>.260</td>
<td>1.000</td>
<td>.000*</td>
</tr>
<tr>
<td>Weight Status</td>
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<td></td>
<td>.758</td>
<td></td>
<td></td>
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<tr>
<td>Weight Satisfaction</td>
<td>1.000</td>
<td>.833</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* *significant at 0.05.*
H1-1: There is no difference between low-carb dieters and the others in regard to gender.

Table 7 indicates that the low-carb dieter group was composed of 69.1 percent females and 30.9 percent males while the other group consisted of 52.2 percent females and 47.8 percent males. As shown in Table 7, the Chi-square value under “Asymp. Sig” is 0.022. Since the significance level is less than 0.05, the null sub-hypothesis that there is no difference between low-carb dieters and the others in gender was rejected. The analysis indicates that the proportion of men to women between the two groups was significantly different at the 0.05 significance level. Therefore, it can be concluded that more women than men were following a low-carb diet than were following other diets or not following any diet at all.

The gender differences regarding low-carb diet practices were further assessed by comparing the three sample groups: low-carb dieters, non-carb dieters and non-dieters. The Chi-square test results of this comparison are shown in table 8. The significance level of the Chi-square value is 0.002, and less than 0.05. This value indicated that there were gender differences among the three groups; therefore, the result supported the finding that the proportion of men to women between low-carb dieters and the others was significantly different.

H1-2: There is no difference between low-carb dieters and the others in regard to age.

The participants were asked to report their ages in one of nine categories from one (under 25 years of age) to nine (over 65 years of age). Table 9 indicates that the average age of low-carb dieters was 41-45 years whereas that of the others was 36-40 years old. An independent sample t-test was used to assess the null hypothesis that low-carb dieters
and the others did not differ in age. The result of the independent sample test, shown in Table 8, indicated that the significance level of the independent test was 0.022. Therefore, the null sub-hypothesis was rejected. It can be concluded that there was a significant difference between low-carb dieters and the others in age; a greater proportion of older people than younger ones were following low-carb diets.

ANOVA was performed to determine if there were significant differences among the three groups - low-carb dieters, non-carb dieters, and non-dieters - in regard to age. The mean ages of low-carb dieters, non-carb dieters and non-dieters were respectively 41-45, 36-40, and 36-40 years (Table 10). When the three different groups were compared, the significance level of the ANOVA value was 0.055. It implies that the three groups did not differ significantly in an average age. However, the Bonferroni procedure, as shown in Table 11, indicated that there was a significant difference between low-carb dieters and non-carb dieters at the 0.05 significance level. Therefore, it can be concluded that the average age of low-carb dieters was significantly greater than that of non-carb dieters.

H1-3: There is no difference between low-carb dieters and the others in regard to educational level.

The participants were asked to report their completed education levels in one of five categories from 1 (completed high school) to 5 (graduate degree). The average education levels of low-carb dieters and the others were respectively 3.13 and 3.02, indicating completed college (see Table 9).

An independent sample t-test was used to assess the null hypothesis that low-carb dieters and the others did not differ in completed education level. The result of the independent sample test, shown in Table 9, indicated that the significance level of the t-
test value was 0.450; therefore, the null hypothesis 1-3 was not rejected. It indicates that the mean education levels of the two groups were not significantly different. It implies that there was no difference between low-carb dieters and the others in their completed education level. Therefore, it can be concluded that the average education levels of low-carb dieters were not significantly different from that of the others; that is, the average education levels of both the two groups were completed college.

ANOVA was performed to determine if there were significant differences among the three groups - low-carb dieters, non-carb dieters, and non-dieters - in regard to education level. The mean education levels of low-carb dieters, non-carb dieters and non-dieters were respectively 3.13, 3.15 and 2.82 (see Table 10). When the three different groups were compared, the significance level of the ANOVA value was 0.133 which was higher than 0.05. It implies that low-carb dieters, non-carb dieters and non-dieters did not differ significantly in average completed education level.

H1-4: There is no difference between low-carb dieters and the others in annual income level.

The participants were asked to report their annual income levels - before tax - in one of seven categories from 1 (under $25,000) to 7 (over $150,000). The average income level of low-carb dieters was 3.85, indicating in the range of $50,001-75,000, while that of the others was 3.48, also in the range of $50,001-75,000 (see Table 9). These values indicate that the average income level of all the respondents fell into the same income range.

An independent sample t-test was used to assess the null hypothesis that low-carb dieters and the others did not differ regarding the annual income level. The result of the
independent sample test, shown in Table 9, indicated that the significance level of the t-test value was 0.131; thus, the null hypothesis 1-4 was not rejected. Therefore, it can be concluded that the mean income levels of the two groups were not significantly different. It implies that low-carb dieters and the others did not differ significantly in their average annual income level.

ANOVA was performed to determine if there were significant differences among three groups - low-carb dieters, non-carb dieters, and non-dieters - in regard to annual income levels. The mean annual income levels of low-carb dieters, non-carb dieters and non-dieters were respectively 3.85, 3.36, and 3.67, indicating all average annual incomes in the same range of $50,001-75,000 (see Table 10). As shown in Table 10, the significance level of the ANOVA value was 0.178. It implies that low-carb dieters, non-carb dieters and non-dieters did not differ significantly in their annual income level.

H1-5: There is no difference between low-carb dieters and the others in ethnicity.

As previously stated, the predominant race was Caucasian, accounting for 82 percent of all the respondents. Thus, each cell did not have enough numbers to run the SPSS analysis. Therefore, respondents in the remaining groups were combined and named as the other races. Table 7 indicates that the low-carb dieter group was composed of 82.9 percent Caucasians and 17.1 percent of the other races while the other group consisted of 76.3 percent Caucasians and 23.7 percent the others.

As shown in Table 7, the Chi-square value under “Asymp. Sig” is 0.273. Since the significant value is greater than 0.05, the null sub-hypothesis that there is no difference between low-carb dieters and the others in ethnicity was not rejected. Therefore, the result indicates that the proportion of Caucasians to the others between the two groups
was not significantly different. It implies that proportionately the low-carb dieters and the others did not differ significantly in ethnicity.

In addition, Chi-square was performed to test the ethnicity differences regarding the low-carb diet practices among the three sample groups: low-carb dieters, non-carb dieters and non-dieters. As shown in table 8, the significance level of the Chi-Square value was 0.548. This result indicates that there were no ethnicity differences among the three groups; therefore, the result supported that the proportion of Caucasians to the other races between low-carb dieters and the others was not significantly different.

H1-6: There is no difference between low-carb dieters and the others in weight status.

Weight status was determined on the basis of BMI values as previously explained in chapter 1. The participant’s weight status fell into one of four categories from 1 (underweight) to 4 (obese). Table 9 shows that the average weight status value of low-carb dieters was 3.0, indicating the overweight category, whereas that of the others was 2.81, indicating the normal category; low-carb dieters, on average, appeared to be slightly heavier than the others. An independent sample t-test was conducted to evaluate the null hypothesis that low-carb dieters and the others did not differ in regard to weight status. The result of the independent sample test, shown in Table 9, indicated that that the significance level of the t-test value was 0.303; thus, the null hypothesis 1-6 was not rejected. Therefore, it implies that the average weight status of low-carb dieters and the others were not significantly different.

In addition, ANOVA was used to determine if there were significant differences among the three groups - low-carb dieters, non-carb dieters, and non-dieters - in regard to weight status. The average weight status values of low-carb dieters, non-carb dieters and
non-dieters were respectively 3.00, 2.84 and 2.76 (see Table 10). These values indicate that on average, the low-carb dieters were overweight while the non-carb dieters and non-dieters were the normal weight. However, the significance level of the ANOVA value was 0.511, which was greater than 0.05. It implies that low-carb dieters, non-carb dieters and non-dieters did not differ significantly in their weight status. Therefore, the result supported that the average weight status of low-carb dieters and the others did not significantly differ.

H1-7: There is no difference between low-carb dieters and the others in weight satisfaction.

The participants were asked to rate their weight satisfaction in one of seven categories from 1 (very dissatisfied) to 5 (very satisfied). Table 9 indicates that low-carb dieters rated their weight satisfaction at 2.46, on average, indicating that they were somewhat dissatisfied with their weight. Non-carb dieters rated it at 2.94, indicating that they were also somewhat dissatisfied with their weight. However, low-carb dieters seemingly were slightly less satisfied with their weight than were the others. An independent sample t-test was performed to assess the null hypothesis that low-carb dieters and the others did not differ regarding weight satisfaction. The result of the independent sample test, shown in Table 9, indicated that the significance level of the t-test value was 0.017; the null hypothesis 1-7 was rejected. Therefore, it indicates that low-carb dieters and the others were significantly different in regard to weight satisfaction; thus, low-carb dieters were less satisfied with their weights than the others. It implies that respondents who were following low-carb diets were less satisfied with their weights than were those who were following other diets or were not on any diet at all.
Additionally, ANOVA was conducted to determine if there were significant differences among the three groups in regard to weight satisfaction. Table 10 indicates that non-dieters were the most satisfied with their current weights while low-carb dieters were the least satisfied. The significance level of the ANOVA value was 0.000. It implies that there were significant differences among low-carb dieters, non-carb dieters and non-dieters in weight satisfaction. Furthermore, the Bonferroni procedure, as shown in Table 11, indicates that there was a significant difference, in particular, between low-carb dieters and non-dieters at the 0.00 significance level. Therefore, the weight satisfaction between low-carb dieters and non-carb dieters was significantly different on the basis of the Bonferroni procedure. Therefore, the result specified that low-carb dieters were less satisfied with their weights than the others. In particular, low-carb dieters were significantly less satisfied with their weights than were non-dieters

_Hypothesis Two_

H2: There is no difference between low-carb dieters and non-carb dieters in regard to their diet practices.

For the second hypothesis, the sample included only low-carb dieters and non-carb dieters. This hypothesis was to determine if significant differences existed between low-carb dieters and non-carb dieters in their diet practices. This hypothesis was composed of four sub-hypotheses according to the four diet practice variables: the number of times that dieters followed diets in their lifetime, the length of time that they had followed their most recent diets, their satisfaction with their most recent diets, and the monthly amounts of expense for their diets. An independent sample t-test was performed to test each sub-hypothesis (see Table 12).
Table 12

Independent Sample T-test for Diet Practices

<table>
<thead>
<tr>
<th></th>
<th>Low-carb dieter</th>
<th>Non-carb Dieter</th>
<th>t-value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
<td>N</td>
</tr>
<tr>
<td>Number of Diets</td>
<td>70</td>
<td>4.06</td>
<td>1.970</td>
<td>84</td>
</tr>
<tr>
<td>Length of Time</td>
<td>70</td>
<td>1.34</td>
<td>.778</td>
<td>89</td>
</tr>
<tr>
<td>Expense for diet</td>
<td>70</td>
<td>3.14</td>
<td>1.828</td>
<td>88</td>
</tr>
<tr>
<td>Diet Satisfaction</td>
<td>70</td>
<td>3.94</td>
<td>.946</td>
<td>89</td>
</tr>
</tbody>
</table>

* significant at 0.05

Note: * significant at 0.05

Number of Diets: 1=Once  2=Two times  3=Three times  4=Four times  5=Five times  6=More than six
Length of Time: 1=Within one year  2=Within two years  3=Within three years  4=Over three years
Expense for diet: 1=$0  2<$50  3=$51-100  4=$101-150  5=$151-200  6>$201
Diet Satisfaction: 1=Very dissatisfied  2=Somewhat dissatisfied  3=Neutral  4=Somewhat satisfied  5=Very satisfied

H2-1: There is no difference between low-carb dieters and non-carb dieters in the number of diets followed in their lifetime.

Dieters were asked how many times they had followed a diet(s) in their lifetime. Responses ranged from 1 (one) to 6 (more than six times). It appeared that low-carb dieters had followed diets in their lifetimes averaged 4.06 times while non-carb dieters averaged 3.20 times (see Table 12).

An independent sample t-test, shown in Table 12, indicated that the significance level of the t-test value was 0.007; thus, the null hypothesis 2-1 was rejected. It indicates that the two groups were significantly different in regard to the average number of diets that they had followed in their lifetime. Therefore, it implies that low-carb dieters had followed more diets in their lifetime than had non-carb dieters.
H2-2: There is no difference between low-carb dieters and non-carb dieters in the length of time that they have followed their most recent diets.

Dieters were asked how long they have been following their most recent diets. Table 12 shows that low-carb dieters have been following their diets for an average of 1.34 years while non-carb dieters have been following their diets for an average of 1.66 years. An independent sample t-test, as shown in Table 12, indicated that the significance level was 0.045; thus, the null hypothesis 2-2 that there is a significant difference between low-carb dieters and non-carb dieters in the length of time that they have been following their current diets was rejected. Thus, it implies that low-carb dieters have been following their most recent diets for less time than have non-carb dieters.

H2-3: There is no difference between low-carb dieters and non-carb dieters in the monthly amount of expense for their diets.

Dieters were asked to indicate the monthly amounts that they spent on their diets on a scale ranging from 1 (nothing) to 6 (over $200). The amount of expense included foods, products, or consulting costs specifically designed for their diets. Table 12 shows that on average, low-carb dieters spent between $50 and $100 a month on their diets while non-carb dieters spent less than $50 per month. An independent sample t-test, as shown in Table 12, indicated that the significance level of the t-test value was 0.008; therefore, the null hypothesis 2-3 was rejected. It indicates that the monthly amounts that the two groups spent on their diets were significantly different. It can be inferred that low-carb dieters spent, on average, more money monthly on their diets than did non-carb dieters.
H2-4: There is no difference between low-carb dieters and non-carb dieters in diet satisfaction.

Dieters were asked how satisfied they were with their most recent diets on a rating from 1 (very dissatisfied) to 5 (very satisfied). Table 12 indicates that the average values for weight satisfaction of the low-carb dieters and non-carb dieters were respectively 3.94 and 3.99, both indicating close to somewhat satisfied. An independent sample t-test was performed to evaluate the null hypothesis that low-carb dieters and non-carb dieters did not differ regarding their satisfaction with their diets. The result of the independent sample test, shown in Table 12, indicated that the significance level of the t-test value was 0.753; therefore, the null hypothesis 2-4 was not rejected. That is, the level of diet satisfaction between the two groups was not significantly different. It implies that both low-carb dieters and non-carb dieters were somewhat satisfied with their most recent diets.

Hypothesis Three

H3: There is no difference between low-carb dieters and non-carb dieters in regard to their reasons for dieting.

For the third hypothesis, the sample included low-carb dieters and non-carb dieters. The third hypothesis was tested to determine if significant differences existed between low-carb and non-carb dieters in regard to the importance of their reasons for dieting. Respondents were asked to rate the importance of a list of reasons for dieting from 1 (not at all important) to 5 (very important). The reasons listed included health concerns, weight loss, a health professional’s advice, following someone else, and appearance concerns. This hypothesis was composed of five sub-hypotheses according to the five
reasons, and an independent sample t-test was used to test each sub-hypothesis. Table 13 shows the mean values for the importance of these reasons for dieting and the results of the independent sample t-tests.

Table 13

The Importance of Reasons for Dieting by Low-carb dieters and Non-carb dieters

<table>
<thead>
<tr>
<th></th>
<th>Low-carb (n=70)</th>
<th>Non-carb (n=89)</th>
<th>t-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Concerns</td>
<td>4.54</td>
<td>4.63</td>
<td>-.634</td>
<td>.527</td>
</tr>
<tr>
<td>Weight loss</td>
<td>4.46</td>
<td>4.34</td>
<td>.781</td>
<td>.436</td>
</tr>
<tr>
<td>Professional advisor</td>
<td>2.47</td>
<td>2.69</td>
<td>-.847</td>
<td>.398</td>
</tr>
<tr>
<td>Following someone else</td>
<td>2.26</td>
<td>1.57</td>
<td>3.399</td>
<td>.001*</td>
</tr>
<tr>
<td>Appearance Concerns</td>
<td>4.26</td>
<td>4.20</td>
<td>.303</td>
<td>.762</td>
</tr>
</tbody>
</table>

* Significant at 0.05

Note. 1= Not at all important  2= Not so important  3= Neutral  4= fairly important  5 = Very important

H3-1: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of health concerns as a reason for dieting.

As shown in Table 13, low-carb dieters rated the importance of health concerns at 4.54 while non-carb dieters rated it at 4.3. The values imply that health concern was an important reason for both types of dieters.

An independent sample t-test was performed to assess the null hypothesis that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of health concerns. The result of the independent sample test, as shown in
Table 13, indicated that the significance level of the t-test value was 0.527; therefore, sub-hypothesis 3-1 was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding health concerns as a reason for dieting. Thus, it implies that health concerns was one of the important reasons for both low-carb and non-carb dieters to follow a diet.

H3-2: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of weight loss as a reason for dieting.

As shown in Table 13, low-carb dieters rated the importance of weight loss at 4.46 while non-carb dieters rated it at 4.34. The values imply that weight loss was an important reason for both types of dieters.

An independent sample t-test was conducted to evaluate the null hypothesis that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of weight loss. As shown in Table 13, the result of the independent sample test indicated that the significance level of the t-test value was 0.436; therefore, the null hypothesis 3-2 was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the importance of weight loss as a reason for dieting. Thus, it implies that weight loss was one of the important reasons for both low-carb and non-carb dieters to follow their diets.

H3-3: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of a health professional’s advice as a reason for dieting.

Low-carb dieters rated the importance of a health professional’s advice as a reason for dieting at 2.47 while non-carb dieters rated it at 2.69 (see Table 13). These values for
both groups imply that a health professional’s advice was not an important reason to follow their diets for both the low-carb dieters and non-carb dieters.

The result of the independent sample T-test, shown in Table 13, indicated that the significance level of the t-test value was 0.398; therefore, the null hypothesis 3-3 that there was no difference between low-carb dieters and non-carb dieters in regard to a health professional’s advice was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the advice of a health professional as a reason for dieting. Thus, it implies that the advice from a health professional was not a very important reason for following their diets for both the low-carb dieters and non-carb dieters.

H3-4: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of following the lead of someone else as a reason for dieting.

As shown in Table 13, low-carb dieters reported that following someone else was not a very important reason for dieting, according to the mean value of 2.26. On the other hand, non-carb dieters rated the importance at 1.57, which indicates that it was not at all important.

The result of an independent sample t-test, shown in Table 13, indicated that the significance level of the t-test value was 0.001; therefore, the null hypothesis 3-4 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of following the lead of someone else was rejected. It indicates that low-carb dieters and non-carb dieters did significantly differ in regard to following the lead of someone else. Thus, the difference implies that low-carb dieters were more likely to follow the lead of someone else who was on a diet than were non-carb dieters.
H3-5: There is no difference between low-carb dieters and non-carb dieters in regard to the importance of appearance concern as a reason for dieting.

As shown in Table 13, low-carb dieters rated the importance of appearance concerns as a reason for dieting at 4.26 while non-carb dieters rated it at 4.20. The values of the two groups imply that their concerns for their appearance was a fairly important reason for following a diet for both the low-carb dieters and non-carb dieters.

The result of the independent sample T-test, shown in Table 13, indicated that the significance level of the t-test value was 0.762; therefore, the null hypothesis 3-5 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of appearance concern was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the importance of appearance concern as a reason for dieting. Thus, it implies that their concern for their appearance was a fairly important reason to follow their diets for both low-carb and non-carb dieters.

On the basis of results of sub-hypothesis 3-1 through 3-5, the null hypothesis three that there was no difference between low-carb and non-carb dieters in regard to the reasons for dieting cannot generally be rejected. For four of the five reasons studied, there was no significant difference between low-carb and non-carb dieters in regard to the values that they placed on these reasons. Following someone else was the only reason on which the two groups placed a significantly different value. However, this reason was not too important to either of two groups. As shown Table 14, it is worth noting that in general, health concerns was the most important reason followed by weight loss and appearance concern.
**Hypothesis Four**

H4: There is no difference between low-carb and non-carb dieters in regard to the reason for staying on their diets.

For the fourth hypothesis, the sample included low-carb dieters and non-carb dieters. Hypothesis four was tested to determine if significant differences existed between low-carb and non-carb dieters in regard to the importance of reasons for staying on their diets. Respondents were asked to rate the importance of reasons for staying on their diets from 1 (not very important) to 5 (very important). The reasons were health concerns, weight loss, easy to follow, easy to find products, and food taste. This hypothesis was composed of five sub-hypotheses. An independent sample t-test was conducted to test each sub-hypothesis. Table 15 indicates the values for the importance of these reasons for staying a diet that the respondents reported and the results of the independent sample t-test.
Table 15

The Importance of Reasons for Staying on a Diet by Low-carb and Non-carb dieters

<table>
<thead>
<tr>
<th></th>
<th>Low-carb (n=70)</th>
<th>Non-carb (n=89)</th>
<th>t-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health concern</td>
<td>4.13</td>
<td>3.98</td>
<td>.729</td>
<td>.467</td>
</tr>
<tr>
<td>Weight loss</td>
<td>4.44</td>
<td>4.29</td>
<td>.966</td>
<td>.335</td>
</tr>
<tr>
<td>Easy to follow</td>
<td>3.77</td>
<td>3.83</td>
<td>-.281</td>
<td>.779</td>
</tr>
<tr>
<td>Easy to find</td>
<td>3.80</td>
<td>3.69</td>
<td>.517</td>
<td>.606</td>
</tr>
<tr>
<td>Food taste</td>
<td>3.70</td>
<td>3.69</td>
<td>.066</td>
<td>.948</td>
</tr>
</tbody>
</table>

Note. 1= Not at all important 2= Not so important 3= Neutral 4= fairly important 5 = Very important

H4-1: There is no difference between low-carb and non-carb dieters in regard to health concerns as a reason for staying on a diet.

As shown in Table 15, low-carb dieters rated the importance of health concerns at 4.13 while non-carb dieters rated it at 3.98. The values of the two groups imply that health concern was an important reason for staying on a diet for both groups of dieters.

The result of an independent sample test, as shown in Table 15, indicated that the significance level of the t-test value was 0.467; therefore, the null hypothesis 4-1 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of health concern as a reason for staying on a diet was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the importance that they placed on health concerns. Thus, it implies that health concerns was a fairly important reason for both low-carb and non-carb dieters to stay on their diets.
H4-2: There is no difference between low-carb and non-carb dieters in achieving weight loss as a reason for staying on their diets.

As shown in Table 15, low-carb dieters rated the importance of weight loss at 4.44 while non-carb dieters rated it at 4.29. The values of the two groups imply that weight loss was an important reason for both types of dieters to stay on a diet.

The result of an independent sample test, as shown in Table 15, indicated that the significance level of the t-test value was 0.355; therefore, the null hypothesis 4-2 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of weight loss as a reason for staying on a diet was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the values that they placed on weight loss. Thus, it implies that weight loss was a fairly important reason for both low-carb and non-carb dieters to stay on their diets.

H4-3: There is no difference between low-carb dieters and non-carb dieters in the importance of the ease of following their diets as a reason for staying on their diets.

As shown in Table 15, low-carb dieters rated the importance of the ease of following their diets at 3.77 while non-carb dieters rated it at 4.29. The values of the two groups imply that the ease of following their diets was a fairly important reason for both types of dieters to stay on their diets.

The result of an independent sample test, as shown in Table 15, indicated that the significance level of the t-test value was 0.779; therefore, the null hypothesis 4-3 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of the ease of following their diets as a reason for staying on their diets was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the ease of following their diets.
differ regarding the value that they placed on their diets being easy to follow. Thus, it implies that a diet being easy to follow was a fairly important reason for both low-carb and non-carb dieters to stay on their diets.

H4-4: There is no difference between low-carb dieters and non-carb dieters in the importance of the ease of finding products or foods as a reason for staying on their diets.

As shown in Table 15, low-carb dieters rated the importance of the ease of finding products or foods at 3.80 while non-carb dieters rated it at 3.69. That is, the values of the two groups imply that the designed foods or products for their diets being easy to find was fairly important for both types of dieters to stay on a diet.

The result of an independent sample test, as shown in Table 15, indicated that the significance level of the t-test value was 0.606; therefore, the null hypothesis 4-4 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of easy to find foods or products as a reason for staying on a diet was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the value that they placed on their diet foods and products being easy to find. Thus, it implies that diet products or foods being easy to find was a fairly important reason for both low-carb and non-carb dieters to stay on their diets.

H4-5: There is no difference between low-carb and non-carb dieters in regard to the value placed on food taste.

As shown in Table 15, low-carb dieters rated the importance of food taste at 3.70 while non-carb dieters rated it at 3.69. That is, the values of two groups imply that food taste was a fairly important reason for both types of dieters to stay on a diet.

The result of an independent sample test, as shown in Table 15, indicated that the
significance level of the t-test value was 0.948; therefore, the null hypothesis 4-5 that there was no difference between low-carb dieters and non-carb dieters in regard to the importance of food taste as a reason for staying on a diet was not rejected. It indicates that low-carb dieters and non-carb dieters did not significantly differ regarding the value that they placed on food taste. Thus, it implies that food taste was a fairly important reason for both low-carb and non-carb dieters to stay on their diets.

Based on the result of sub-hypothesis 4-1 through 4-5, the null-hypothesis four that there is no significant difference between low-carb and non-carb dieters in regard to the reasons motivating them to stay on their diets was not rejected. However, as shown in Table 16, it is worth noting that, in general, weight loss was the most important reason motivating both types of groups to stay on their diets, followed by health concerns.

Table 16

*The Importance of Reasons for Staying on a Diet*

<table>
<thead>
<tr>
<th></th>
<th>Health Concerns</th>
<th>Weight Loss</th>
<th>Easy to Follow</th>
<th>Easy to Find</th>
<th>Food Taste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.04</td>
<td>4.36</td>
<td>3.81</td>
<td>3.74</td>
<td>3.69</td>
</tr>
</tbody>
</table>

*Note. 1= Not at all important  2= Not so important  3= Neutral  4= fairly important  5= Very important*

**Hypothesis Five**

H5: There is no relationship between low-carb dieters’ satisfaction with their diets and their likelihood of staying on the diet during business trips.

For the fifth hypothesis, the sample included only low-carb dieters. The Pearson correlation coefficient analysis was used to determine if there was a relationship between
low-carb dieters' satisfaction with their diets and their likelihood of staying on their diets during business trips. As shown in Table 17, the correlation between these two variables is 0.35 and the significance level is 0.002; therefore, the null hypothesis was rejected. It indicates that there was a significant positive relationship between low-carb dieters' satisfaction with their diets and their likelihood of staying on their diets during business trips. Therefore, it can be concluded that the more satisfied low-carb dieters are with their diets, the more likely it is that they will try to stay on their diets during business trips.

Table 17

Correlation of Diet Satisfaction and the Likelihood of Staying on a Diet during Trips

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.346</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.002*</td>
</tr>
<tr>
<td>N</td>
<td>70</td>
</tr>
</tbody>
</table>

Note: * Significant at 0.05

Hypothesis Six

H6: There is no relationship between the frequency of traveling and low-carb dieters' likelihood of staying on their diets during business trips.

The Pearson correlation coefficient analysis was used to determine if there was a relationship between the frequency of traveling and the likelihood of staying on their diet during business trips among low-carb dieters. As shown in Table 18, the correlation between the two variables is 0.32 and the significance level is 0.004; therefore, the null
hypothesis was rejected. It indicates that there was a significant positive relationship between the frequency of low-carb dieters’ traveling and their likelihood of staying on their diet during business trips. Therefore, it can be concluded that the more frequently low-carb dieters travel on business, the more likely it is that they will try to stay on their diets during these trips.

Table 18

*Correlation of the Frequency of Traveling and Likelihood of Staying on a Diet on Trips*

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.317</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.004*</td>
</tr>
<tr>
<td>N</td>
<td>69</td>
</tr>
</tbody>
</table>

*Note: * Significant at 0.05

*Hypothesis Seven*

H7: There is no relationship between the likelihood of low-carb dieters’ staying on their diets during business trips and the extent to which they ate low-carb menu items while attending their most recent meetings.

Respondents were asked if they ate low-carb foods while they were at the meetings where they completed this survey. Table 19 shows that 75, or 47 percent of all 159 respondents, ate low-carb menu items. Of the 75 respondents, 47 were low-carb dieters (63 percent) and 28 were non-carb dieters (37 percent). The majority of the low-carb dieters followed either the Atkins diet (43 percent) or the South Beach diet (28 percent) while the majority of the non-carb dieters followed self-invented diets (32 percent).
Table 19

*Experience with Eating Low-carb Foods at Meetings*

<table>
<thead>
<tr>
<th>Did you eat low-carb foods?</th>
<th>Low-carb dieter</th>
<th>Non-carb dieter</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes (within low-carb foods)</td>
<td>47 (63%)</td>
<td>28 (37%)</td>
<td>75 (100%)</td>
</tr>
<tr>
<td>(within LC vs. NC)</td>
<td>(67%)</td>
<td>(32%)</td>
<td>(47%)</td>
</tr>
<tr>
<td>No (within low-carb foods)</td>
<td>23 (27%)</td>
<td>61 (72%)</td>
<td>84 (100%)</td>
</tr>
<tr>
<td>(within LC vs. NC)</td>
<td>(33%)</td>
<td>(68%)</td>
<td>(53%)</td>
</tr>
<tr>
<td>Total (within low-carb foods)</td>
<td>70 (44%)</td>
<td>89 (56%)</td>
<td>159 (100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Low-carb dieters</th>
<th>Non-carb dieter</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>low-fat</td>
<td>low-calorie</td>
</tr>
<tr>
<td>Atkins</td>
<td>20 (43%)</td>
<td>-</td>
</tr>
<tr>
<td>South Beach</td>
<td>13 (28%)</td>
<td>1</td>
</tr>
<tr>
<td>Self-invented</td>
<td>8 (16%)</td>
<td>3</td>
</tr>
<tr>
<td>Others</td>
<td>6 (13%)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>47 (100%)</td>
<td>6</td>
</tr>
</tbody>
</table>

Regarding the likelihood of staying on low-carb diets during business trips, low-carb dieters who ate low-carb foods were compared with those who did not eat such foods. Table 20 shows that the mean value for the likelihood of staying on low-carb diets during business trips of dieters who ate low-carb foods was 3.36 while the mean value of those who did not eat these foods was 3.09; it appeared that the mean value for the likelihood of staying on their diets during business trips of low-carb dieters who ate low-carb foods...
was higher than for those who did not.

An independent sample t-test was used to determine if there was a difference between those who ate low-carb foods and those who did not eat such foods in regard to their likelihood of staying on their diets during business trips. The result of an independent sample t-test, as shown in Table 20, indicated that the significance level of the t-test value was 0.272; thus, the null hypothesis that there was no significant difference between the two groups in the likelihood of their staying on their diets during business trips was not rejected. Therefore, it can be concluded that low-carb dieters’ experiences with eating low-carb menu items at the meetings during the business trip was not significantly related to their likelihood of staying on their diets during business trips.

Table 20

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>47</td>
<td>3.36</td>
<td>1.072</td>
<td>.156</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>3.09</td>
<td>.733</td>
<td>.153</td>
</tr>
</tbody>
</table>

Independent Samples Test

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.107</td>
<td>68</td>
<td>.272</td>
</tr>
</tbody>
</table>

*Note. 1= Very unlikely  2=Somewhat unlikely  3= Neutral  4=Somewhat likely  5=Very likely*
Hypothesis Eight

H8: There is no relationship between low-carb dieters’ overall satisfaction with low-carb menu items and their satisfaction with five food factors: taste, nutrition, quality, quantity, price value.

Prior to performing a regression analysis to assess the relationship between the low-carb dieters’ overall satisfaction with low-carb foods that they ate and their satisfaction with the five food factors, a correlation matrix was used to determine whether there were correlations among the variables. Table 21 is a correlation matrix for items pertaining to taste, nutrition, quality, quantity and price-value satisfaction. The correlation matrix indicated that the satisfaction items were highly correlated among themselves.

Table 21

Correlation Matrix for Food Factors

<table>
<thead>
<tr>
<th></th>
<th>Satisfaction</th>
<th>taste</th>
<th>nutrition</th>
<th>Quantity</th>
<th>quality</th>
<th>price value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation</td>
<td></td>
<td>1.000</td>
<td>.653</td>
<td>.737</td>
<td>.781</td>
<td>.300</td>
</tr>
<tr>
<td>taste</td>
<td></td>
<td></td>
<td>.653</td>
<td>1.000</td>
<td>.740</td>
<td>.700</td>
</tr>
<tr>
<td>nutrition</td>
<td></td>
<td></td>
<td></td>
<td>.737</td>
<td>1.000</td>
<td>.762</td>
</tr>
<tr>
<td>quantity</td>
<td></td>
<td></td>
<td></td>
<td>.781</td>
<td>.700</td>
<td>1.000</td>
</tr>
<tr>
<td>quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.401</td>
<td>.286</td>
</tr>
<tr>
<td>price value</td>
<td></td>
<td>.300</td>
<td>.401</td>
<td>.286</td>
<td>.241</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig.(1-tailed)</td>
<td></td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td>.004*</td>
<td>.004*</td>
</tr>
<tr>
<td>taste</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nutrition</td>
<td>.000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quantity</td>
<td>.000*</td>
<td>.000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quality</td>
<td>.000*</td>
<td>.000*</td>
<td>.000*</td>
<td></td>
<td>.019*</td>
<td></td>
</tr>
<tr>
<td>price value</td>
<td>.004*</td>
<td>.000*</td>
<td>.006*</td>
<td>.019*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05

Note: * Significant at 0.05
A principal components analysis was performed to classify the variables of low-carb food factors: taste, nutrition, quality, quantity and price value. As shown in Table 22, two factor components from the rotated component matrix with a variance maximizing (varimax) strategy were extracted; factor 1 was marked by high loadings on the taste, nutrition, quality, and quantity satisfaction items while factor 2 was marked by only the price value satisfaction item.

Table 22

Rotated Component Matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>taste satisfaction</td>
<td>.904</td>
<td>.002</td>
</tr>
<tr>
<td>nutrition satisfaction</td>
<td>.776</td>
<td>.364</td>
</tr>
<tr>
<td>quantity satisfaction</td>
<td>.832</td>
<td>.210</td>
</tr>
<tr>
<td>quality satisfaction</td>
<td>.885</td>
<td>.128</td>
</tr>
<tr>
<td>price value</td>
<td>.141</td>
<td>.976</td>
</tr>
</tbody>
</table>


A multiple regression analysis was conducted to evaluate how well these two factors predicted overall satisfaction. The predictor variables were factor 1 and factor 2 that were obtained from the factor analysis, while the criterion variable was overall satisfaction. The correlation matrix in Table 23 shows that the correlation between factor 1 and factor 2 was 0.000, which indicates that the two variables were not significantly related. The
correlations between factor 1 and overall satisfaction and between factor 2 and overall satisfaction were 0.769 and 0.251 respectively, which were statistically significant at a 0.000 and 0.044 significance level; therefore, the positive correlation between each factor and the dieters' overall satisfaction with low-carb foods indicates that respondents with higher factors have higher overall satisfaction with low-carb foods.

Table 23

*Correlation of Overall Satisfaction and Factor 1 and Factor 2*

<table>
<thead>
<tr>
<th></th>
<th>Overall satisfaction</th>
<th>factor 1 (n = 47)</th>
<th>factor 2 (n=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.769</td>
<td>.251</td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>.000*</td>
<td>.044*</td>
<td></td>
</tr>
</tbody>
</table>

*Note: * Significant at 0.05

Table 24 shows the coefficient of multiple correlations and squared multiple correlation which can be interpreted in regard to percentage of accountable variation. The multiple correlation coefficient was 0.809. The R square value of 0.655 indicates that about 66 percent of the variance in overall satisfaction can be accounted for by factor 1 and factor 2. The ANOVA values, as shown in Table 44, indicate the relationship between the two factors and overall satisfaction. F (2, 44) is 41.754 and Sig. is 0.000. It indicates that the regression model with the two predictors is significantly related to the criterion variable Y. It can be inferred that these two factors account for about 66 percent of the variance in the overall satisfaction, which is statistically significant.
Regression Coefficients in Table 25 display the linear relationship between the predictors and the criterion variables. From the values obtained in the table, $B_{\text{factor 1}} = .783$ (or beta = .769) and $B_{\text{factor 2}} = .256$ (or beta = .251) measures the effect of the predictor variables of factor 1 and factor 2 respectively on the criterion variable, overall satisfaction. A multiple linear regression equation in obtained score form based on unstandardized weights is as follows:

$$\text{Predicted overall satisfaction} = (.783) \times \text{factor 1} + (.256) \times \text{factor 2} + (4.085)$$

The multiple linear regression equation in standard score form based on beta weights (standardized regression coefficients) is as follows:

$$Z_{\text{predicted graduation rate}} = (.769) \times Z_{\text{factor 1}} + (.251) \times Z_{\text{factor 2}}$$

From the t-ratio of 8.687 and 2.835 for factor 1 and factor 2 respectively, it can be inferred that the regression coefficients associated with the two factors are significantly different from zero. Therefore, there was a significant linear relationship between the criterion variable and the entire set of predictor variables.
The collinearity statistics in Table 25 were displayed to assess if there was too much multicollinearity in the model. Since tolerance is 1 and Variance-inflation factor (VIF) or the reciprocal of tolerance is 1, there is no multicollinearity of factor 1 with factor 2. In addition, from the collinearity diagnostics in Table 25, Eigenvalue and condition indices are close to 1, which correspond to no impact on each other.

Table 25

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>4.085</td>
<td>45.809</td>
<td>.000*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 1</td>
<td>.783</td>
<td>.769</td>
<td>8.687</td>
<td>.000*</td>
<td>1.000</td>
</tr>
<tr>
<td>Factor 2</td>
<td>.256</td>
<td>.251</td>
<td>2.835</td>
<td>.007*</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Collinearity Diagnostics

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Eigenvalue</th>
<th>Condition Index</th>
<th>Variance Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Constant)</td>
</tr>
<tr>
<td>1</td>
<td>1.021</td>
<td>1.000</td>
<td>.49</td>
</tr>
<tr>
<td>2</td>
<td>1.000</td>
<td>1.010</td>
<td>.00</td>
</tr>
<tr>
<td>3</td>
<td>.979</td>
<td>1.021</td>
<td>.51</td>
</tr>
</tbody>
</table>

* Significant at 0.05

The consequence of the regression analysis indicates that there was a significant linear relationship between overall satisfaction and the entire set of predictor variables: factor 1 and factor 2. In addition, about 66 percent of the variance of overall satisfaction in the data can be accounted for by factor 1 and factor 2 which were important for better prediction.
Hypothesis Nine

H9: There is no relationship between low-carb dieters’ overall satisfaction with low-carb foods and their likelihood of eating low-carb foods on their next business trips.

A regression analysis was used to determine if there was a relationship between low-carb dieters’ overall satisfaction with low-carb foods and their likelihood of eating low-carb foods on their next business trips. As shown in Table 26, the correlation coefficient was 0.314 and the R square value was 0.099. The ANOVA values indicate the relationship between the two factors and overall satisfaction. F (1, 44) is 7.781 and Sig. is 0.006; therefore, the null hypothesis was rejected. It indicates that the regression model with the predictor is significantly related to the criterion variable Y. The results indicated that there was a positive relationship between low-carb dieters’ overall satisfaction with low-carb foods and their likelihood of eating low-carb foods on their next business trips. Therefore, it implies that the more satisfied people are with low-carb foods at a meeting, the more likely it is that they will try to eat low-carb foods on their next business trips.

Table 26

Regression of Low-carb Foods Satisfaction & Likelihood of eating Low-carb Foods

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.314(a)</td>
<td>.099</td>
<td>.086</td>
<td>.857</td>
</tr>
</tbody>
</table>

ANOVA

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>5.774</td>
<td>1</td>
<td>5.774</td>
<td>7.871</td>
</tr>
<tr>
<td>Residual</td>
<td>52.820</td>
<td>44</td>
<td>.734</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>58.595</td>
<td>45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Significant at 0.05
Hypothesis Ten

H10: There is no relationship between low-carb dieters’ satisfaction with their low-carb diets and their likelihood of eating low-carb foods on their next trips.

A regression analysis was used to determine if there was a relationship between low-carb dieters’ satisfaction with their low-carb diets and their likelihood of eating low-carb foods on their next business trips. As shown in Table 27, the correlation coefficient was 0.205 and the R square value was 0.042. The ANOVA values indicate the relationship between the two factors and overall satisfaction. F (1, 44) is 1.931 and Sig. is 0.172; therefore, the null hypothesis was not rejected. The results indicated that there was no significant relationship between low-carb dieters’ satisfaction with their diets and their likelihood of eating low-carb foods on their next business trips. Therefore, it implies that low-carb dieters’ satisfaction with their low-carb diets was not significantly related to their likelihood of eating low-carb foods on their next business trips.

Table 27

Regression of Diet Satisfaction and Likelihood of Eating Low-carb Foods

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.205</td>
<td>.042</td>
<td>.020</td>
<td>.918</td>
</tr>
</tbody>
</table>

ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1.627</td>
<td>1</td>
<td>1.627</td>
<td>1.931</td>
<td>.172</td>
</tr>
<tr>
<td>Residual</td>
<td>37.090</td>
<td>44</td>
<td>.843</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>38.717</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis Eleven

H11: There is no relationship between low-carb dieters' satisfaction with their diets and their future behavior regarding following a diet.

A regression analysis was conducted to assess the relationship between low-carb dieters' satisfaction with their diets and their future behavior regarding following a diet. As shown in Table 28, the correlation coefficient was 0.023 and the R square value was 0.001. The ANOVA values indicate the relationship between the two factors and overall satisfaction. F (1, 44) is 0.023 and Sig. is 0.879; therefore, the null hypothesis was not rejected. The results indicated that there was no significant relationship between low-carb dieters' satisfaction with their diets and their future behavior regarding following a diet. Therefore, it can be concluded that low-carb dieters' satisfaction with their diets was not significantly related to their future behavior regarding following a diet.

Table 28

Regression of Diet Satisfaction and Future Diet Practice

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.023(a)</td>
<td>.001</td>
<td>.022</td>
<td>1.023</td>
</tr>
</tbody>
</table>

ANOVA

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.025</td>
<td>1</td>
<td>.025</td>
<td>.023</td>
</tr>
<tr>
<td>Residual</td>
<td>46.084</td>
<td>44</td>
<td>1.047</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46.109</td>
<td>45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis Twelve

H12: There is no relationship between low-carb dieters’ likelihood of eating low-carb foods on their next business trips and their future behavior regarding following a low-carb diet.

A regression analysis was to determine if there was relationship between low-carb dieters’ likelihood of eating low-carb foods on their next business trips and their future behavior regarding following a diet. As shown in Table 29, the correlation coefficient was 0.389 and the R square value was 0.251. The ANOVA values indicate the relationship between the two factors and overall satisfaction. F (1, 44) is 0.786 and Sig. is 0.008; therefore, the null hypothesis was rejected. The results indicated that there was a significant positive relationship between their likelihood of eating low-carb foods on their next business trips and their future behavior regarding following a low-carb diet. Therefore, it can be concluded that it is likely that people who are willing to eat low-carb foods on their next business trips will also follow a low-carb diet in the future.

Table 29

**Regression of Likelihood of Eating Low-carb Foods and Future Diet Behavior**

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.389(a)</td>
<td>.152</td>
<td>.132</td>
<td>.943</td>
</tr>
</tbody>
</table>

ANOVA

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>6.995</td>
<td>1</td>
<td>6.995</td>
<td>7.868</td>
</tr>
<tr>
<td>Residual</td>
<td>39.114</td>
<td>44</td>
<td>.889</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46.109</td>
<td>45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05
Other Findings

Business travelers

Respondents were asked to report how many times a year they traveled on business purposes within the range from one (1-3 times) to five (more than 12 times). It appeared that they traveled, on average, seven to nine times a year (see Table 30).

Table 30

<table>
<thead>
<tr>
<th>Frequency of Business Trips a Year</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1-3</td>
<td>30</td>
<td>18.9</td>
</tr>
<tr>
<td>2. 4-6</td>
<td>37</td>
<td>23.3</td>
</tr>
<tr>
<td>3. 7-9</td>
<td>31</td>
<td>19.5</td>
</tr>
<tr>
<td>4. 10-12</td>
<td>34</td>
<td>21.4</td>
</tr>
<tr>
<td>5. more than 12</td>
<td>24</td>
<td>15.1</td>
</tr>
<tr>
<td>Mean 3.0 (7-9 times)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 156</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

Low-carb dieters

As indicated previously, one-third of the dieters reported that they had been on a low-carb diet recently. The figure of 33.3 percent of the respondents on a low-carb diet in this study is much higher than the 12 percent of Americans who had been on low-carb diets in 2004 as previously noted in chapter 2 (Shiman, 2004).

Weight status vs. weight satisfaction

Respondents were asked to report their height and weight for the purpose of obtaining BMI values and their weight status. They also rated their satisfaction with their current weight. The Pearson correlation coefficient analysis was conducted to assess the
relationship between weight status and weight satisfaction. As shown in Table 31, the correlation between the two variables was -0.459 and the significance level was 0.000; therefore these values indicated that there was a significant negative relationship between weight status and weight satisfaction at the 0.05 level of significance. It can be concluded that the heavier respondents were less satisfied with their weight.

Table 31

*Weight Status and Weight Satisfaction*

<table>
<thead>
<tr>
<th>Weight Status</th>
<th>Weight Status</th>
<th>Weight Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Low-Carb Dieter</td>
<td>65</td>
<td>2.94</td>
</tr>
<tr>
<td>Non-carb dieter</td>
<td>82</td>
<td>2.84</td>
</tr>
<tr>
<td>Non-Dieter</td>
<td>51</td>
<td>2.76</td>
</tr>
<tr>
<td>Total</td>
<td>198</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Pearson Correlation

- .459

Sig. .000*

N 198

*Note. * Significant at 0.05; Weight Status: 1=Underweight 2=Normal 3=Overweight 4=Obese
Weight Satisfaction: 1=Very dissatisfied 2=Somewhat dissatisfied 3= Neutral 4=Somewhat satisfied 5=Very satisfied

*Number of times that dieters followed diets in their lifetimes*

Table 32 indicates that respondents have followed their diets, on average, 3.6 times in their lifetime, and 33.8 percent of the respondents followed their diets more than six times. With respect to their current diet status, lifestyle consumers have tried the least diets, averaging three times in their lifetime, while current dieters and former dieters have tried diets 4.3 times.
Table 32

*Number of Times that Dieters Followed Diets in Lifetimes*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>current dieter</td>
<td>26</td>
<td>4.38</td>
<td>1.813</td>
<td>.356</td>
</tr>
<tr>
<td>former dieter</td>
<td>34</td>
<td>4.21</td>
<td>1.887</td>
<td>.324</td>
</tr>
<tr>
<td>lifestyle consumer</td>
<td>94</td>
<td>3.15</td>
<td>1.929</td>
<td>.199</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>3.59</td>
<td>1.969</td>
<td>.159</td>
</tr>
</tbody>
</table>

Age & diet number in lifetime

A positive relationship was found between age and the number of diets that respondents had followed in their lifetime. As indicated in table 33, these two variables were positively correlated at the 0.05 level of significance. Therefore, it implies that older people have followed more diets in their lifetime.

Table 33

*Correlation of Age and Number of Diets in Lifetime*

<table>
<thead>
<tr>
<th>Number of Diets in lifetime</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>154</td>
</tr>
</tbody>
</table>

*Note:* * Significant at 0.05

Length of time for the most recent diet

Dieters were also asked to indicate the length of time that they have been following their most recent diet. Table 34 indicates that over 50 percent of the dieters responded that they had been on their current diets for less than six months, and 25 percent of the
respondents had been on their diets for between six months and one year. However, only ten percent had followed their current diets over three years. It is interesting to note the smallest number of respondents fell into the category of between two and three years, not over three years.

Table 34

*The Length of Time for the Most Recent Diet*

<table>
<thead>
<tr>
<th>Duration</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>within 1 year</td>
<td>118</td>
<td>74.2</td>
</tr>
<tr>
<td>(within 6 months)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>(between 6 months and 1 year)</td>
<td>24.2</td>
<td></td>
</tr>
<tr>
<td>within 2 years</td>
<td>16</td>
<td>10.1</td>
</tr>
<tr>
<td>within 3 years</td>
<td>8</td>
<td>5.0</td>
</tr>
<tr>
<td>over 3 years</td>
<td>17</td>
<td>10.7</td>
</tr>
<tr>
<td>Total</td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

It might be suggested that most people try a diet and then tend to abandon the diet within one year; even more abandon it within six months. Thus, whether dieters stayed on their diets for over one year could be a critical point to determine whether dieters keep staying on their diets or not. Once they can follow a diet for more than a year, perhaps the diet becomes a lifestyle and part of their long-term diet habits. Therefore, people maintain a diet for a long time as a part of their life.

This idea can be explored by looking at the differences among current, former dieters and lifestyle consumers. Table 35 shows that the mean values of current, former dieters and lifestyle consumers were 1.41, 1.03 and 1.72 years respectively. The result of the ANOVA, as shown in Table 35, indicates that the significance level for the comparison...
of these groups is 0.001; thus, this value indicates these three groups were significantly different in respect to the length of time that they had followed their most recent diets. In addition, the Bonferroni procedure, as shown in Table 35, indicates that there was a significant difference between former dieters and lifestyle consumers at the 0.05 significance level.

Table 35

*Length of Time for the Most Recent Diet by Current Diet Status*

<table>
<thead>
<tr>
<th></th>
<th>Current dieter</th>
<th>Former dieter</th>
<th>Lifestyle consumer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>27</td>
<td>34</td>
<td>89</td>
<td>159</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>1.41 years</td>
<td>1.03 years</td>
<td>1.72 years</td>
<td>1.52</td>
</tr>
<tr>
<td>ANOVA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of Squares</td>
<td>12.623</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Df</strong></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Square</td>
<td>6.311</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>6.788</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>0.001*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>145.050</td>
<td>156</td>
<td>.930</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>157.673</td>
<td>158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonferroni Post Hoc Tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(I) (J)</td>
<td></td>
<td>(I-J)</td>
<td>Std. Error</td>
<td>Sig.</td>
</tr>
<tr>
<td>current dieter former dieter</td>
<td>.378</td>
<td>.249</td>
<td>.391</td>
<td></td>
</tr>
<tr>
<td>current dieter lifestyle consumer</td>
<td>-.317</td>
<td>.210</td>
<td>.397</td>
<td></td>
</tr>
<tr>
<td>former dieter lifestyle consumer</td>
<td>-.695</td>
<td>.192</td>
<td>.001*</td>
<td></td>
</tr>
</tbody>
</table>

*Note: * Significant at 0.05

*Number of diets in their lifetime & Length of time for their most recent diet*

The Pearson correlation analysis was performed to evaluate the relationship between the number of times that dieters have followed diets in their lifetime and the length of time that they have followed their most recent diet. As shown in Table 36, it appears that there was a negative relationship between the length of time that respondents had
followed their most recent diets and the number of diets that they had followed in their lifetime at a 0.002 significance level. Therefore, it can be inferred that the more diets the respondents have tried in their lifetime, the less time they have stayed on their most recent diets.

Table 36

*Correlations of Number of diets in Lifetime and Length of time for the most recent diet*

<table>
<thead>
<tr>
<th>diet numbers in life</th>
<th>Length of diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>-.243</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.002*</td>
</tr>
<tr>
<td>N</td>
<td>154</td>
</tr>
</tbody>
</table>

*Note: * Significant at 0.05

*Length of time for low-carb diet vs. satisfaction with low-carb diet*

Among low-carb dieters, as shown in Table 37, it appears that there was a relationship between the length of time that low-carb dieters have followed their diets and their satisfaction with low-carb diets at a 0.003 significance level; therefore, it can be suggested that the more satisfied low-carb dieters are with their diets, the more they tend to remain on their low-carb diets.

Table 37

*Correlations of Length of time for Low-carb Diet vs. Satisfaction with Low-carb Diet*

<table>
<thead>
<tr>
<th></th>
<th>diet satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.354</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.003*</td>
</tr>
<tr>
<td>N</td>
<td>70</td>
</tr>
</tbody>
</table>

*Note: * Significant at 0.05

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The amounts of expense for low-carb diets and dieters' annual income

The result of the Pearson correlation analysis, as shown Table 38, indicated that low-carb dieters' monthly expense for their diets was not significantly related to their annual income. Thus, even though products or foods designed for low-carb diet are somewhat expensive, people seemingly can afford to buy them regardless of their annual income.

Table 38

Correlation of Diet Expense and Annual Income among Low-carb Dieters

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.109</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.385</td>
</tr>
<tr>
<td>N</td>
<td>66</td>
</tr>
</tbody>
</table>

Reasons for following a low-carb diet

Among low-carb dieters, ANOVA was performed to determine if there were differences among current dieters, former dieters and lifestyle consumers in regard to the importance of the five reasons for dieting considered in this study. The reasons included health concerns, weight loss, a professional’s advice, following someone else and appearance concern in the discussion regarding hypothesis three. Table 39 shows that the most important reason for current and former dieters was weight loss at 4.87 and at 4.80 respectively while the most important reason for lifestyle consumers was health concerns at 4.80. The result of ANOVA, as shown in Table 39, indicates that there were differences among current dieters, former dieters and lifestyle consumers in regard to weight loss and following someone else at a 0.043 and a 0.018 significance level.
respectively. In particular, current low-carb dieters were most concerned about their weight loss while lifestyle consumers were most concerned about their health. The reason, following someone else, was the most significantly different reason for former low-carb dieters rather than current low-carb dieters or lifestyle consumers.

Table 39

Reasons for Dieting by Current Dieters, Former Dieters and Lifestyle Consumers

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Mean Current</th>
<th>Mean Former</th>
<th>Mean Lifestyle</th>
<th>ANOVA F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health improve</td>
<td>4.80</td>
<td>4.40</td>
<td>4.50</td>
<td>.676</td>
<td>.512</td>
</tr>
<tr>
<td>weight loss</td>
<td>4.87</td>
<td>4.80</td>
<td>4.18</td>
<td>3.294</td>
<td>.043*</td>
</tr>
<tr>
<td>professional advisor</td>
<td>2.80</td>
<td>2.20</td>
<td>2.45</td>
<td>.526</td>
<td>.593</td>
</tr>
<tr>
<td>following someone</td>
<td>1.87</td>
<td>3.20</td>
<td>2.05</td>
<td>4.270</td>
<td>.018*</td>
</tr>
<tr>
<td>looking better</td>
<td>4.60</td>
<td>4.53</td>
<td>4.03</td>
<td>2.223</td>
<td>.116</td>
</tr>
</tbody>
</table>

Note: * Significant at 0.05

Reasons to stay on a low-carb diet

Among low-carb dieters, ANOVA was conducted to determine if there were differences among current dieters, former dieters and lifestyle consumers in the importance of reasons for staying on their diets. The reasons listed were health concern, weight loss, easy to follow a diet, easy to find products, and food taste as previously discussed for hypothesis four. The most important reason for the low-carb dieters to stay on their diets was weight loss, averaging 4.44 and it was followed by health concern, averaging 4.13 (see Table 40). However, Table 40 indicates that there was no difference among current, former dieters and lifestyle consumers in regard to the importance of the reasons to stay on their diets.
Table 40

Reasons for Low-carb Dieters to Stay on a Low-carb Diet

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Current</th>
<th>Former</th>
<th>Lifestyle</th>
<th>Total</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>health concern</td>
<td>4.47</td>
<td>3.93</td>
<td>4.08</td>
<td>4.13</td>
<td>.763</td>
<td>.470</td>
</tr>
<tr>
<td>weight loss</td>
<td>4.73</td>
<td>4.53</td>
<td>4.30</td>
<td>4.44</td>
<td>1.505</td>
<td>.229</td>
</tr>
<tr>
<td>easy to follow</td>
<td>4.00</td>
<td>4.33</td>
<td>3.48</td>
<td>3.77</td>
<td>2.671</td>
<td>.077</td>
</tr>
<tr>
<td>easy to find products</td>
<td>3.80</td>
<td>4.40</td>
<td>3.58</td>
<td>3.80</td>
<td>2.186</td>
<td>.120</td>
</tr>
<tr>
<td>Looking better</td>
<td>4.07</td>
<td>3.93</td>
<td>3.48</td>
<td>3.70</td>
<td>1.430</td>
<td>.247</td>
</tr>
</tbody>
</table>

Non-carb dieters’ satisfaction & future behavior

The Pearson correlation coefficient analysis was used to determine if there was a relationship between non-carb dieters’ satisfaction with their diets and their future behavior to follow a diet. As shown in Table 41, the correlation between the two variables is 0.276 and the significance level is 0.012. The values indicate that there was a significant relationship between non-carb dieters’ satisfaction with their diets and their future behavior regarding following a diet.

Table 41

Correlations of Diet Satisfaction & Future Behavior

<table>
<thead>
<tr>
<th></th>
<th>diet satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.276</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.012*</td>
</tr>
<tr>
<td>N</td>
<td>83</td>
</tr>
</tbody>
</table>

Note: * Significant at 0.05
Experiences with low-carb foods

Among the 75 respondents who ate low-carb foods during their most recent meetings, about 44 percent responded that low-carb foods were available sometimes and about 40 percent said they were often available (see Table 42).

Table 42

Low-carb Food Items Availability

<table>
<thead>
<tr>
<th>Valid</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Never</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>2. Rarely</td>
<td>11</td>
<td>14.7</td>
</tr>
<tr>
<td>3. Sometimes</td>
<td>33</td>
<td>44.0</td>
</tr>
<tr>
<td>4. Often</td>
<td>25</td>
<td>33.3</td>
</tr>
<tr>
<td>5. Always</td>
<td>5</td>
<td>6.7</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>100.0</td>
</tr>
<tr>
<td>Mean</td>
<td>3.29</td>
<td></td>
</tr>
</tbody>
</table>

Participants were also asked to report where, when, and how many times they ate low-carb foods while they were at the meetings where this survey was conducted. Most respondents had low-carb foods at banquets or functions at the meeting, followed by at restaurants outside of the hotels that they stayed in or at restaurants at their hotels (see Table 43). They ate low-carb foods an average of four times during their trips, at breakfast, lunch or dinner. About 40 percent of the respondents who had the menu items at the meetings did not spend extra money on their food, and 30 percent spent less than $25. The most popular low-carb food menu item was salad, followed by poultry and seafood.
Table 43

Experiences with Low-carb Foods during Business Trip

<table>
<thead>
<tr>
<th>Where did you eat?</th>
<th>N</th>
<th>When did you eat?</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline flights</td>
<td>10</td>
<td>Breakfast</td>
<td>37</td>
</tr>
<tr>
<td>Restaurants at hotels</td>
<td>37</td>
<td>Brunch</td>
<td>11</td>
</tr>
<tr>
<td>Restaurants outside of hotels</td>
<td>40</td>
<td>Refreshment</td>
<td>12</td>
</tr>
<tr>
<td>Room service at hotels</td>
<td>9</td>
<td>Lunch</td>
<td>46</td>
</tr>
<tr>
<td>Banquets at the meeting</td>
<td>51</td>
<td>Dinner</td>
<td>47</td>
</tr>
<tr>
<td>Grocery</td>
<td>13</td>
<td>Others</td>
<td>8</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many times did you eat?</th>
<th>N</th>
<th>How much did you spend?</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Once</td>
<td>5</td>
<td>1. Nothing</td>
<td>29</td>
</tr>
<tr>
<td>2. Two</td>
<td>16</td>
<td>2. &lt;= $25</td>
<td>22</td>
</tr>
<tr>
<td>3. Three</td>
<td>10</td>
<td>3. $26-50</td>
<td>8</td>
</tr>
<tr>
<td>4. Four</td>
<td>15</td>
<td>4. $51-75</td>
<td>7</td>
</tr>
<tr>
<td>5. Five</td>
<td>5</td>
<td>5. $76-100</td>
<td>6</td>
</tr>
<tr>
<td>6, Six or more</td>
<td>24</td>
<td>6. &gt; $100</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>Total</td>
<td>75</td>
</tr>
<tr>
<td>Mean</td>
<td>4 times</td>
<td>Mean</td>
<td>2.31 ($26-50)</td>
</tr>
</tbody>
</table>

What did you eat?

<table>
<thead>
<tr>
<th>Menu</th>
<th>N</th>
<th>Menu</th>
<th>N</th>
<th>Menu</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appetizer</td>
<td>24</td>
<td>Pork</td>
<td>13</td>
<td>Dessert</td>
<td>1</td>
</tr>
<tr>
<td>Salad</td>
<td>58</td>
<td>Poultry</td>
<td>44</td>
<td>Beverage</td>
<td>19</td>
</tr>
<tr>
<td>Soup</td>
<td>8</td>
<td>Seafood</td>
<td>41</td>
<td>Others</td>
<td>14</td>
</tr>
<tr>
<td>Beef</td>
<td>24</td>
<td>Pasta</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Summary

This study analyzed business travelers' diet practices regarding low-carb diets through 12 null hypotheses and their sub-hypotheses developed from four research questions. To assess these hypotheses, the respondents were divided into low-carb dieters and the others, a group of respondents which included both non-carb dieters and non-dieters.

This study found that the low-carb diet was the most prevalent diet among the respondents. About 50 percent of the respondents ate low-carb foods during these business trips. Significant differences between the groups were found in regard to gender, age, and weight satisfaction. Weight loss was one of the most important reasons for low-carb dieters to follow their diets. Following someone else was the only reason on which the two groups placed a significantly different value.

A positive relationship appeared between their satisfaction with their low-carb diets and their likelihood of staying on their diets during business trips. In addition, there was a positive relationship between low-carb dieters' overall satisfaction with low-carb foods and their likelihood of eating low-carb foods on their next business trips. Furthermore, it appeared that dieters' likelihood of eating low-carb foods on their next business trip was significantly related to their future behavior regarding following a diet.
CHAPTER 5

CONCLUSION

This chapter discusses the conclusions drawn from the study results, the implications of the study, and the directions for future research. The chapter is divided into four sections: discussion of results, conclusions drawn from the findings, the limitations of the research, and the implications of the study.

Discussion of Results

This section presents a discussion of results based on the findings of the hypotheses testing regarding the characteristics of low-carb dieters, their diet practices during business trips, and their diet behavior in the future. In addition, it discusses the other findings of this study.

Dieters

This research examined the prevalence of dieting in a sample of business travelers. About 40 percent of the respondents were overweight and 24 percent were obese. This result reflects the growing problem of obesity in the United States. Approximately 75.7 percent of all the respondents were dieting either by following a specific diet or by restricting certain foods, and the dieters were likely to follow a diet in next year. It was found that dieters had followed diets, on average, 3.6 times in their lifetime, and that there was a positive relationship between age and the number of diets that respondents
had followed in their lifetime. Since the U.S. population is aging, and a significant relationship was found between the respondents being older and their being on a diet, more persons may tend to consider a diet for reasons such as health concerns and weight loss in the future. The low-carb diet was the most common type of diet reported, accounting for 33 percent of the respondents’ diets. In addition, about 50 percent of the respondents believed that the low-carb diet was a nutritional trend, not just a fad. These statistics seem to disagree with the media’s reports that this diet has started to fade and their expectation that a new nutritional movement will begin soon.

Low-carb Dieters’ Characteristics

The characteristics of low-carb dieters were evaluated through four hypotheses regarding demographic information, diet practices, reasons for following their diets and reasons for staying on their diets in comparisons with all other respondents and other types of dieters.

Significant differences between the groups were found in regard to gender, age, and weight satisfaction. More women than men reported that they were following low-carb diets, which is opposed to Amy Bentley’s argument (2002) that men have gravitated to the low-carb diet, as previously discussed in chapter 2. In terms of age, it appears that low-carb dieters were, on average, older than the others. This implies that a greater proportion of older people than younger ones were following the low-carb diet. In particular, there was a difference in regard to an average age between low-carb dieters and non-carb dieters.

In addition, there was a significant difference between low-carb dieters and the others in regard to weight satisfaction while there was no difference between the two groups in
regard to weight status. Non-dieters were the most satisfied with their current weight while low-carb dieters were the least satisfied. That is, weight satisfaction rather than weight status was a more important factor influencing respondents to follow a diet.

Furthermore, weight loss was one of the most important reasons both for following their diets and for staying on their diets among low-carb dieters. However, it did not appear that there was a significant difference in regard to the importance of weight loss as an influencing factor between low-carb dieters and non-carb dieters. Therefore, it can be implied that in general those who were not satisfied with their weight followed a diet to lose weight.

In comparison with non-carb dieters, low-carb dieters have followed more diets in their lifetime while they have been on their current diets for less time. This finding was consistent with a negative relationship between the length of time that dieters followed their most recent diets and the numbers of diets that they had followed in their lifetime in general. Furthermore, the results seem to correspond to the importance of weight loss in short term, one of the main reasons for the low-carb diet.

It appeared that low-carb dieters spent, on average, more money monthly on their diets than did non-carb dieters. This result might be reflective of the fact that low-carb products, foods or diet programs are more expensive than other diet products. However, the monthly amounts of expense for low-carb diets appeared to be unrelated to the dieters’ annual income.

Among dieters, the two most common reasons for dieting were to maintain or improve health and to lose weight. However, the results from hypothesis three showed that there was no significant difference between low-carb and non-carb dieters in terms of
the importance of their reasons for following their diets, except for the reason of following someone else. This difference indicated that more low-carb dieters than non-carb dieters were motivated by someone else such as their husbands or co-workers. In general, however, all respondents were motivated by health concerns, weight loss and appearance concerns. In addition, it appeared that both low-carb dieters and non-carb dieters were somewhat satisfied with their most recent diets.

Low-carb Diet Practices during Business Trips

The characteristics of low-carb dieters' during business trips were assessed in regard to the low-carb dieters’ likelihood of staying on their diets and their experiences with low-carb foods on business trips. Respondents reported that they traveled about eight times a year for business purposes.

Low-carb dieters’ likelihood of staying on their diets during business trips was evaluated with respect to these dieters’ satisfaction with their diets and their frequency of traveling. A positive relationship appeared between their satisfaction with their low-carb diets and their likelihood of staying on their diets during business trips. It implied that the more satisfied respondents were with their diets, the more likely it was that they would try to stay on their diets during their business trips.

Another positive relationship was found between their frequency of traveling and their likelihood of staying on their diets during business trips. That is, the more frequently the respondents traveled on business, the more likely it was that they would try to stay on their diets during their business trips. It seems that when people travel on business many times, traveling becomes a part of their life; thus, they are more likely to practice their diets while traveling.
Dieters were asked if they ate low-carb foods during the meetings at which this survey was conducted in order to understand if there was a relationship between their likelihood of staying on their diets and their actual diet practices during this business trip. Seventy-five of the respondents (47 percent) ate low-carb menu items. Of these 75 respondents, 47 were low-carb dieters and 28 were non-carb dieters. It was an interesting result that non-carb dieters also ate low-carb foods, and the majority of these dieters were following self-invented diets. Thus, it seems that some self-invented diets would include carb-conscious plans. Approximately 80 percent responded that low-carb foods were available over 60 percent of the time during their trips. They had low-carb foods, on average, four times. Since about 50 percent of the respondents had the foods at banquets or functions during the meetings that they attended, they did not spend extra money on their low-carb foods. The most popular low-carb food menu item was salad, followed by poultry and seafood.

Low-carb dieters' overall satisfaction with low-carb menu items was evaluated with respect to five food factors: taste, nutrition, quality, quantity, and price value. Since these factors were highly correlated among themselves, a factor analysis was performed to classify these variables. As a result, two factor components were extracted; the first factor was marked by high loadings on the taste, nutrition, quality, and quantity satisfaction items while the second factor was marked by only price value satisfaction item. The reason that only the price value was treated as another factor rather than anything else might be reflected by the fact that most people actually did not spend money on low-carb menu items at banquets or functions. The results of the regression analysis indicated that there was a significant linear relationship between overall satisfaction and the entire set
of predictor variables: factor 1 and factor 2. About 66% of the respondents' overall satisfaction was accounted for by both factor 1 and factor 2; that is, it implies that all the factors influenced the respondents’ overall satisfaction with low-carb menu items.

*Future Behavior*

To predict low-carb dieters' future behavior, their likelihood of eating low-carb foods on their next trips was assessed in regard to the relationship with their overall satisfaction with low-carb foods during this business trip. There was a positive relationship between low-carb dieters’ overall satisfaction with low-carb foods and their likelihood of eating low-carb foods on their next business trips. That is, the more satisfied people were with low-carb foods at this meeting, the more likely it was that they would try to eat low-carb foods on their next business trips. In addition, there was a significant, positive relationship between dieters’ likelihood of eating low-carb foods on their next business trips and their future behavior regarding following a diet. Eventually, it seems likely that the respondents who are more willing to eat low-carb foods on their next business trips will follow a diet in the future.

However, it appeared that there was no significant relationship between respondents’ satisfaction with their low-carb diets and their likelihood of eating low-carb foods on their next business trips. In addition, it showed that there was no significant relationship between respondents’ satisfaction with their low-carb diets and their future behavior regarding following a diet. It seems that dieters’ satisfaction with their low-carb diets does not directly affect either their likelihood of eating low-carb foods on their next business trips or their future behavior regarding following a diet. It can be inferred that dieters’ future behavior regarding following a diet is directly associated with their
likelihood of eating low-carb foods on their next business trips. Simultaneously, their likelihood of eating low-carb foods on their next business trips is related to their overall satisfaction with low-carb foods at the meetings.

Other Findings

In general, it appeared that there was a negative relationship between weight status and weight satisfaction. In addition, as respondents were older, they were heavier and less satisfied with their weight; thus, it was more likely that they would follow a diet in the future. In addition, there was a significant relationship between non-carb dieters’ satisfaction with their diets and their future behavior regarding following a diet in contrast to the results regarding low-carb dieters’ behavior.

One open-ended question asked respondents to give their opinions about low-carb diet phenomenon. Half of the respondents held a positive view about the low-carb diet, expecting this movement to last at least another two years or more. This response indicated quite a higher level of support for this diet than was thought in general. Simultaneously, many respondents pointed out that a diet should not be a short plan to lose weight, but rather should become a lifestyle of healthier eating habits in the long run. That is, the need for well-balanced meals and a long-term plan focused on health improvement or maintenance were emphasized.

The other open-ended question asked if respondents had any suggestions for low-carb menus that might have been served at the meetings that they attended. Many dieters suggested that the use of an alternative sugar supplement for the dessert and the replacement of high carbohydrate items with high protein foods such as cheese and eggs
would be desirable. In addition, they addressed the need for appropriate menus for their diet practices when they are traveling on business.

**Conclusion**

This study found that the low-carb diet was the most prevalent diet among the respondents. More women than men, and more older people than younger ones were on the low-carb diets. In addition, weight satisfaction rather than weight status was a more important factor influencing respondents to follow a low-carb diet. Weight loss was one of the most important reasons for low-carb dieters to follow their diets.

About 50 percent of the respondents had experience with low-carb foods during these business trips. It appeared that the more satisfied respondents were with low-carb foods at a meeting, the more likely it was that they would try to eat low-carb foods during their future business trips. Furthermore, it was likely that people who were more willing to eat low-carb foods during their next business trips would also follow low-carb diets in the future. However, low-carb dieters' satisfaction with their diets does not directly affect their likelihood of eating low-carb foods on their next business trips or their future behavior regarding following a diet. Therefore, these findings reflect that the respondents' experiences with low-carb foods during business trips play a critical role in their future behavior concerning following a diet regardless of their satisfaction with their current diet practices.

While the majority of the low-carb dieters have the intention of achieving weight loss, many of them also asserted that a diet became a lifestyle for the purpose of healthy eating.
habits in the long term. Furthermore, they implied that there was a need for developing appropriate menus for their diet practices during their business travels.

Limitations of the Study

This research has some limitations as follows:

First, the data analysis relied on self-reported information, especially self-reported weight and height to obtain BMI and weight status. The accuracy of self-reported weight and height has been studied extensively, and it was concluded that the self-reported weight and height were sufficiently accurate in situations in which measured weight and height was not available.

Second, since the sample was composed of 77 percent hospitality professionals and 23 percent business people, the data seem more likely to represent people in the meeting industry rather than those in the general business industry. The results of gender and age might represent meeting industry professionals more than general business travelers. In addition, considering that more women men participated in the meeting, the result could be influenced by the nature of meeting attendees’ characteristics.

Third, as previously discussed, ethnicity was highly skewed because the predominant race was Caucasian, accounting for 82 percent of all respondents. Therefore, this study was not able to evaluate the ethnicity differences between low-carb and non-carb dieters because each ethnicity did not have enough numbers to conduct data analysis regarding ethnicity.
Implications of the study

This research identified business travelers' diet practices, in particular, the practices of those respondents who were on low-carb diets, and their likelihood that they would consume low-carb menu items while traveling. In addition, these findings indicate that the respondents' experiences with low-carb foods during their business trips are influential in predicting their behavior regarding following a diet in the future. In this respect, the study will contribute practical insights to hotel restaurants and catering departments regarding the need to develop menus reflective of consumer preferences toward the low carbohydrate movement.

Furthermore, the study helps the hotel and the meeting industry to understand business travelers' diet practices beyond the low-carb diet. As indicated previously in the results, the more frequently people travel on business, the more likely it is that they would try to stay on their diets during their business trips. Hotel restaurant managers and catering managers can reflect the frequent business travelers' diet needs in their menu planning. In addition, about 50 percent of the dieters ate low-carb foods while attending at the meetings, and many of them ate the low-carb foods served at banquets or functions, rather than spending extra money on their diet foods. In this respect, meeting planners and convention service managers might need to understand meeting attendees' diet practices and food preferences at meetings. In addition, they need to consider that banquet services play an important role in enabling dieters to follow their diets.

In response to the growing problem with obesity, the healthy eating credentials of the entire hospitality industry are coming under scrutiny. This study suggests that the food, restaurant, and hotel industry must understand the needs of their customers. They should
particularly focus on self-invented dieters and lifestyle consumers who have been on their diets for a long time for health purposes and who want to stay on their diets while traveling.

Forecasting trends is not as easy as tracking them. It has been doubtful that the low-carb diets would subsume the traditional ways of eating in the U.S., just as a strict, low-fat diet has not permanently altered the U.S. population’s eating habits. As discussed previously in chapter 2, however, dieters in 2004 witnessed the launch, reformulation or repositioning of many low-carb products. In fact, the phenomenon of low-carb dieting has been the impetus for retailers, brands and consumers. According to data from ACNielsen (2005), however, carb-conscious products fell 11.5 percent in the fourth quarter of 2004 and a new trend - the Glycemic Index (GI) will replace the low-carb diet. The Glycemic Index, as a measurement for the metabolism of carbohydrates in the body, however, is still based on carbohydrates. This diet would be a more developed or customized concept. A respondent in this study suggested that the low-carb diet is the evolution of society’s attitude toward self-satisfaction and a desire for an effective diet. In fact, the low-carb diet has exerted influence on the culture, the environment, health, politics, and economics, a level of influence that goes well beyond only influencing persons’ eating habits. The U.S. Department of Health and Human Services and the U.S. Department of Agriculture (2005), for example, released the Dietary Guidelines for Americans 2005 that urged Americans to limit sugar intake and stressed the benefits of whole grains when considering the low-carb diet.

In summary, this documentation of a nutritional trend should help hotel restaurants and catering departments develop menus reflective of consumer preferences as the nation
becomes increasingly concerned about obesity and eating practices that may help reduce the incidence of obesity.


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Mensah, G. (2004, Fall). Chronic disease notes and reports. *Centers for disease control and prevention, 17(1).*


Sheraton hotels to launch lo-carb lifestyle by Sheraton; Menus, room service, cocktails and even the mint on the pillow go low-carb. (March 16, 2004). *Business Wire*. Retrieved April 15, 2004, from https://www.businesswire.com


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Title of Study: Identifying the diet practices of business travelers on low-carb diets
Investigators: So Jung Lee and Audrey C. McCool, University of Nevada, Las Vegas

You are invited to participate in a research study. The purpose of this study is to identify business travelers’ diet practices and to understand their experience and satisfaction with low-carb menus during business trips. You will be asked to complete questions in the following three categories: business travelers’ diet practices, your experience with low-carb menus during this trip, and demographic information. It will take 15 minutes to complete the entire survey process.

This study will provide valuable information about the current issues, the low-carb diet—especially issues focusing on business travelers’ diet practices. There may be no direct benefits to you as a participant in this study. However, the findings of the study will help hotels to better understand customers’ expectations about low-carb menu items at their restaurants and to develop a marketing strategy. This study may include minimal risks to you. There may be questions that make you uncomfortable to answer. You are free to stop completing the survey anytime. There will be no financial cost to participate in this study. You will not be compensated for your time, 15 minutes.

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with the University. You are encouraged to ask questions about this study any time during the research study. All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored at UNLV for 3 years after completion of the study. After the storage time, the information will be destroyed. For questions regarding the rights of research subjects, any complaints or comments regarding the manner, you may contact the UNLV Office for the Protection of Research Subjects at 702) 895-2794.

I have read the above information and agree to participate in this study. I am at least 18 years of age.

Signature of Participant    Date
BUSINESS TRAVELER DIET PRACTICES SURVEY

Please circle the number of your response to the following questions.

I am currently a ____________.

1. Dieter who is following a specific diet(s)
2. Former dieter who has tried a diet(s) in the past, but is not following a specific diet nor restricting any food.
3. Lifestyle consumer who is trying to restrict certain food(s).
4. Regular consumer who has “never” tried a diet and is not restricting any food. (Please skip to 27)

**If you are a current/ former dieter or lifestyle consumer, please answer the following questions.

2. How many times have you tried to follow any diet(s) including the current or lifestyle diet in your life?

3. Please indicate the type of your most “recent” diet. (Choose only one)
   1. Low-carb/High-protein  4. Low-sodium  7. Self-invented
   2. Low-fat  5. High-fiber  8. Other, please list
   3. Low-calorie  6. Diabetic

4. Please indicate the name of your most recent diet.
   1. Atkins  4. Weight Watchers
   2. South Beach  5. Sugar Buster
   3. The Zone Diet  6. Protein Power

5. How long have you followed your most recent diet?
   1. 3 months or less
   2. 3 months to 6 months
   3. 7 months to 9 months
   4. 10 months to 12 months
   5. 13 months to 18 months
   6. 19 months to 2 years

6. Please rate the importance of reasons for your diet. (Very important)
   1. To maintain or improve health
   2. To lose weight
   3. Advised by a health professional
   4. Following someone I know was on this diet
   5. To look better
   6. Other, please list

7. Please rate the reasons for staying on your diet. (Very important)
   1. Health concern
   2. Weight loss
   3. Easy to follow
   4. Easy to find products or foods
   5. Food Taste
   6. Other, please list

8. Please indicate the monthly amount of expense for foods, products or consulting specifically designed for diet.
   1. Nothing
   2. $50 or less
   3. $51 - $100
   4. $101 - $150
   5. $151 - $200
   6. $201 or more

9. Are/were you satisfied with your diet?
   Very satisfied
   Somewhat satisfied
   Neutral
   Somewhat dissatisfied
   Very dissatisfied

10. How many times do you travel on business a year?
    1. 1 - 3
    2. 4 - 6
    3. 7 - 9
    4. 10 - 12
    5. More than 12

11. How often do you try to follow your diet when traveling for business?
    Never (0%)
    Rarely (1-30%)
    Sometimes (31-60%)
    Often (61-90%)
    Always (91-100%)

12. Which hotel are you staying during this meeting?
    1. Hilton
    2. Hyatt
    3. Sheraton
    4. Marriott
    5. Others

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13. Did you eat “low-carb food items” during this meeting?
   1. Yes (Please continue)  2. No (Please skip to question 27)

14. How often were low-carb foods available during this meeting?
   Never (0%)  Rarely (1-30%)  Sometimes (31-60%)  Often (61-90%)  Always (91-100%)
   1  2  3  4  5

15. Where did you eat these low-carb food items during this meeting? (circle all that apply)
   1. On-board airline flights  5. At banquets or other functions at the meeting
   2. In restaurants at your hotel  6. At the grocery store near your hotel
   3. In restaurants outside of your hotel  7. Other (Please specify): _____________________
   4. Through room service at your hotel  8. None

16. When did you eat these low-carb food items during this meeting?

17. How many times did you eat these low-carb food items during this meeting?

18. How much did you spend on your own for low-carb food items during this meeting? (including tax, tip)
   1. None  3. $26 - $50  5. $76 - $100
   2. $25 or less  4. $51 - $75  6. $101 or more

19. What low-carb food items did you eat on this trip during this meeting? (circle all that apply)
   3. Soup  7. Entrée-Seafood  11. Other, please list
   4. Entrée-Beef  8. Entrée-Pasta

20-25. Please indicate your satisfaction with the low-carb food items that you had during this meeting.

<table>
<thead>
<tr>
<th></th>
<th>Very satisfied</th>
<th>Somewhat satisfied</th>
<th>Neutral</th>
<th>Somewhat dissatisfied</th>
<th>Very dissatisfied</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nutrition</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Quantity</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Quality</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Price value</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overall</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

26. How likely is it that you will eat low-carb food items in future trips?
   Very likely  Somewhat likely  Likely  Somewhat unlikely  Very unlikely
   5             4                  3                   2                      1

If you had more than one low-carb food item, indicate your satisfaction. Otherwise, go to next page. Q 27.

***I had __________________ (please choose the number of a food name on the basis of question 19’s choices)

<table>
<thead>
<tr>
<th></th>
<th>Very satisfied</th>
<th>Somewhat satisfied</th>
<th>Neutral</th>
<th>Somewhat dissatisfied</th>
<th>Very dissatisfied</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taste</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nutrition</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Quantity</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Quality</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Price value</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overall</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

***I had __________________ (please choose the number of a food name on the basis of question 19’s choices)
## Demographic Information

27. Gender  
1. Female  
2. Male  

28. Age  
1. 20 or less  
2. 21 - 25  
3. 26 - 30  
4. 31 - 35  
5. 36 - 40  
6. 41 - 45  
7. 46 - 50  
8. 51 - 55  
9. 56 - 60  
10. 61 - 65  
11. 66 or more  

29. The highest level of education  
1. Completed high school  
2. Some college  
3. Completed college  
4. Some graduate studies  
5. A graduate degree  

30. Annual Income (before tax)  
1. $25,000 or less  
2. $25,001 - 50,000  
3. $50,001 - 75,000  
4. $75,001 - 100,000  
5. $100,001 - 125,000  
6. $125,001 - 150,000  
7. $150,001 - 175,000  
8. $175,001 or more  

31. Ethnicity  
1. Caucasian/White  
2. African-American  
3. Hispanic  
4. Asian Pacific Islander  
5. American Indian, Alaskan Native  
6. Other, list  

32. Height (inches)  
1. 56 or less  
2. 57 - 60  
3. 61 - 63  
4. 64 - 66  
5. 67 - 69  
6. 70 - 72  
7. 73 - 75  
8. 76 - 78  
9. 79 or more  

33. Weight (pounds)  
1. 100 or less  
2. 101 - 115  
3. 116 - 130  
4. 131 - 145  
5. 146 - 160  
6. 161 - 175  
7. 176 - 190  
8. 191 - 205  
9. 206 - 220  
10. 221 - 235  
11. 236 - 250  
12. 251 or more  

34. Are you satisfied with your current weight?  
- Very satisfied  
- Somewhat satisfied  
- Neutral  
- Somewhat dissatisfied  
- Very dissatisfied  

35. How likely is it that you will follow a/the diet in next year?  
- Very likely  
- Somewhat likely  
- Likely  
- Somewhat unlikely  
- Very unlikely  

### Your Opinion

36. Do you think the interest in low-carb diet is (1) fad or (2) trend?  

37. If so, how long do you think the interest in low-carb diets will last?  

38. Do you have any suggestions for low-carb menus that might have been served at this meeting?  

---

THANK YOU!
Social/Behavioral IRB - Expedited Review
Approval Notice

DATE: October 26, 2004

TO: Dr. Audrey McCool
Food & Beverage Management

FROM: Dr. Michael Stitt, Chair
UNLV Social/Behavioral Sciences Institutional Review Board
via the Office for the Protection of Research Subjects

RE: Protocol Title: Identifying the Diet Practices of Business Travelers on Low-Carb Diets
OPRS# 0410 - 1397

This memorandum is notification that the protocol for the project referenced above has met the criteria for exemption from full committee review by the UNLV Social/Behavioral Institutional Review Board (IRB) as indicated in regulatory statues 45CFR46.110. The protocol has been submitted through the expedited review process and has been approved.

The protocol is approved for a period of one year from the date of IRB review. Work on the project may proceed as soon as you receive written notification from OPRS.

Should the use of human subjects described in this protocol continue beyond October 25, 2005, it would be necessary to request an extension 30 days before the expiration date. Should there be any change(s) to the protocol, it will be necessary to request such change in writing through the Office for the Protection of Research Subjects.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at OPRSHumanSubjects@ccmail.nevada.edu or call 895-2794.

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Yonsei, University, Seoul, Korea

Thesis Title: Identifying low-carb dieters’ characteristics and their diet practices during business travels

Thesis Examination Committee:
Chairperson, Dr. Audrey McCool, Ph. D.
Committee Member, Dr. Seyhmus Baloglu, Ph. D.
Committee Member, Dr. Kathy Nelson, Ph. D.
Committee Member, Dr. Jack Schibrowsky, Ph. D.