ATTITUDES, KNOWLEDGE, AND BELIEFS OF ADOLESCENT GIRLS ABOUT THE BENEFITS OF EATING ORGANIC FRUITS AND VEGETABLES

By

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To the memory of my mother, my life-long cheerleader.

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Since poor dietary practices are a leading contributor to the development of obesity and chronic diseases, these issues could be effectively addressed during adolescence by teaching and encouraging good nutritional habits to young people. Eating a plant-based diet consisting of primarily organic fruits and vegetables is an important nutrition recommendation for a healthy lifestyle. The purpose of this qualitative study was to examine adolescent girls' decision making and their diets, with the intent to determine their attitudes, knowledge and beliefs about the benefits of eating organic fruits and vegetables. In-depth individual interviews and focus groups were used with 26 sixth-grade girls, ages 11 and 12, who were recruited from a private school in a suburban area of Orlando, Florida. This study seems to indicate that in this cohort of sixth-grade girls, Ajzen's Theory of Planned Behavior may be a helpful framework to view their intention to consume organic fruits and vegetables. The participants in this study revealed they obtained their knowledge, attitudes, and beliefs about organic fruits and vegetables primarily from media sources such as television and Web sites as well as family members such as their mother. Most of the adolescent girls associated organic fruits and vegetables as a healthy food choice and believed that these foods were better for them than conventional fruits and vegetables. Participants' perceptions of the benefits and challenges of consuming organic fruits

and vegetables and the consumers of these products are also discussed. The findings suggest a need for continued research to understand thoroughly and to determine how the media affect adolescents' nutrition choices and dietary behavior. Results show the need for media literacy curriculum specifically designed to reach adolescent girls.

CHAPTER 1
INTRODUCTION

America is a nation that abounds in the latest technology, information and opportunities for individuals to make wise decisions regarding their health. As a result, it seems people should be living essentially disease-free lives. However, this is not the case. America is experiencing a health crisis. The incidence of disease is steadily increasing. Yet, it appears to be a crisis that is not only preventable, but also has a great deal to do with what people are putting on their forks. In fact, there appears to be a significant relationship between disease and diet. For example, heart disease, cancer, diabetes, and obesity are currently the most outstanding health issues that people incur as a result of consuming the standard American diet.

Coronary heart disease and stroke are the first and third leading causes of death in America (AHA, 2001; CDP, 2004). Nearly 2,600 Americans die every day from some type of cardiovascular disease--that's an average of one death every 34 seconds (AHA, 2005). The number of sudden deaths from coronary heart disease among people ages 15 through 34 has also increased in recent years (AIC, 2002; CDP, 2004), and overwhelming evidence indicates that is strongly related to poor diet. Excess calories leading to obesity, total fat, cholesterol, saturated fatty acids, sucrose, and fiber play a significant role in the development in this disease (Slattery & Randall, 1988). An estimated 16.7 million deaths result from the various forms of cardiovascular disease, many of which are preventable through a healthy diet (WHO, 2006). For example, studies indicate there is a lower instance of coronary heart disease among those people who have the highest intakes of fruit, vegetables, and grains (Shewmake, 2006).

Incidences of cancer also continue to increase in America. One out of every four deaths, or 7.1 million annually (WHO, 2006), is the result of cancer (AIC, 2002; CDP, 2004). Dietary factors account for about 30% of all cancers in Western countries. Approximately 20 million

people currently suffer from cancer, and this figure is projected to rise to 30 million within 20 years (WHO, 2006).

Not only are health issues like heart disease and cancer on the rise, but diabetes as well. The number of persons with diabetes in the United States recently increased by approximately 50 percent from 10.1 million in 1997 to 15.2 million in 2004. Diabetes-related doctors' visits have also increased by approximately 41 percent during this period (CDC, 2006), reflecting a strong correlation with obesity (USDA, 2004). Approximately 3.2 million deaths every year, or six deaths every minute, are attributable to complications of diabetes (WHO, 2006; Brunton, White, & Renda, 2005).

In a country where fat-laden, fast food is available on just about every street corner, obesity in adults and children has also become a definite part of America's health crisis. In a testimony before the House Committee on Government Reform, U.S Agriculture's Eric Bost said,

> Mr. Chairman, we all know that America is experiencing an epidemic of obesity with adults as well as children. About 60 million American adults are obese and 64% of adults aged 20-74 are either overweight or obese. Overweight persons live an average of 3 years less; obese persons live an average 7 years less. Recent trends among children are alarming. In the past 20 years, the percentage of children who are overweight has doubled and the percentage of adolescents who are overweight has more than tripled. (USDA, 2004).

U.S. Surgeon General Richard Carmona said,

> America's obesity epidemic will dwarf the threat of terrorism if the country does not reduce the number of people who are severely overweight" (The Guardian, 2006).

The American Academy of Pediatrics has estimated that one in five teens, or 20 percent, in the United States is overweight. In addition, obese adolescents with a body mass index children at or above the 95th percentile have a greater risk of becoming obese adults (Petrillo & Meyes,1999; Dietz, 1998).

Approximately 280,000 deaths a year are attributed to obesity among U.S. adults (Allison, et al., 1999; McHugh, 2006). There is a relation between higher childhood body mass indexes and disease as adults (Gunnell, Frankel, Nanchahal, Peters, & Smith, 1998; Guo & Chumlea, 1999; Tufts University, 1996; Goran & Gower, 1999; Nicklas, 1995). Moderately higher body fat at age 18 years is associated with increased rates of cardiovascular disease, diabetes (Dietz, 1998; Caprio, et al., 1995; Must, 1996) and premature death in younger and middle-aged U.S. women (Van Dam, Willett, Manson, & Hu, 2006).

Aside from diseases, serious psychological and social consequences may also increase as a result of obesity. Obese adolescents often report significant depression and lower self-esteem and impaired academic success (Kuczmarcki, 1993). Other psychological and social consequences among women who are obese during adolescence include completion of fewer years of education, higher rates of poverty, and lower rates of marriage and household income (Dietz, 1998).

Since poor dietary practices are a leading contributor to the development of obesity and chronic diseases, these issues could be effectively addressed during adolescence by teaching and encouraging good nutritional habits to young people. Adolescents' dietary needs are greater during this period of rapid growth and high-energy expenditure. However, they need guidance in making healthy nutritional choices. When they learn the importance of these choices, it can have a positive impact on the development and maintenance of healthy eating habits throughout adulthood (Petrillo & Meyes, 1999).

Since research has revealed a connection between the diets of children and adolescents and the diseases and premature death of adults, the diets of young people recently have started receiving more attention (Rockett & Colditz, 1997). For example, children eat more food per

body mass than adults (Hood, 2003). Therefore, it is important to be concerned about the higher amount of toxic chemicals they may consume when eating conventional produce versus organic (National Research Council, 1993; Benbrook, 2003). Research has shown that organic diets provide protection against pesticide exposure in children (Mangels, 2006).

Food that has been grown without artificial chemicals, additives, and pesticides is considered organic. The originally proposed food label for organic foods was a shield similar to the one that is displayed on meat, eggs and other government-inspected foods. However, in response to the National Food Processors Association, a trade group made up mostly of conventional food processors, the label was changed to either a brown and green circle or a black and white circle (Burros, 2000; Neal, 2004).

Source: http://www.ams.usda.gov/nop/Consumers/brochure.html

The Agricultural Marketing Service of the USDA specifies these descriptions and requirements for organic labels:

> ’100% Organic’ - Products must contain (excluding water and salt) only organically produced ingredients.
>
> ‘Organic’ - Products must consist of at least 95% organically produced ingredients (excluding water and salt). Any remaining ingredients must consist of nonagricultural substances approved on the National List or non-organically produced agricultural products that are not commercially available in organic form.
>
> The USDA seal and the seal or mark of involved certifying agents may appear on product packages and in advertisements.

These foods cannot be produced using excluded methods, sewage sludge or ionizing radiation.

'Made with Organic Ingredients' – Products contain at least 75% organic ingredients and can use the phrase 'made with organic ingredients' and list up to three of the organic ingredients or food groups on the principal display panel.

They cannot be produced using excluded methods, sewage sludge or ionizing radiation.

The percentage of organic content and the certifying agent seal or mark may be used on the principal display panel. However, the USDA seal cannot be used anywhere on the package" (AMS, 2002).

Certification is an important part of the National Organic Program and this ensures that organic growers and handlers are following the law. Certification is handled by agencies accredited by USDA. As of December 2002, more than 70 agencies were accredited. Anyone who wants to sell products labeled as "organic" and grossing over $5000 annually must be certified (OTA; Neal, 2004). This includes producers of organic livestock, food and fiber crops and anyone who receives, processes, packages or stores agricultural products (OTA; Keen, 2003).

The certification process focuses on three main requirements:

1 Methods and materials used in production must meet organic standards.

2 Clear and ongoing documentation of production methods and materials must be provided.

3 There must be proper paperwork to trace a product back to its production site in order to verify the production methods and materials (OTA).

Organic farmers are responsible for creating a buffer zone to prevent drift of pollutants, pesticides and non-organic seeds or pollen onto their land when growing crops. Their fields may not have had pesticides or other prohibited substances applied for three years before planting. Seeds must be produced under the organic standards and farming should maintain or improve the fertility of the soil, minimizing erosion and runoff. Crops should also be rotated to renew soil.

Farmers cannot use manure or sewage sludge fertilizers on crops for human consumption (OTA; New York Times, 2002). Pesticides, except for botanical and those approved on the National List, are not allowed (OTA, Neal, 2004).

Farmers who are raising organic livestock must feed their animals organic feed. The feed "may not contain plastic pellets (used experimentally for roughage), urea (a synthetic protein), poultry litter (a mix of waste and bedding fed to cattle), manure or parts of slaughtered animals." Animals cannot receive growth drugs or hormones and only approved vaccines may be used for sickness. Sick animals must be treated and medical treatment may not be withheld to maintain an animal's organic status. If organic methods fail, further treatment must be given and the animal may be kept or sold on non-organic markets. The animals must have outdoor access for fresh air, freedom of movement, exercise, sunlight, shade and stress reduction (OTA; New York Times, 2002).

As part of the Organic Foods Production Act of 1990, Congress mandated a uniform "National List" of materials that can and cannot be used in organic production, processing and handling in the United States. The NOSB recommends the materials on an ongoing basis to the USDA Secretary and the Secretary makes the final decision. An advisory panel researches data and makes recommendations to the NOSB based on:

"1 – Effect on human health.
2 – Effect on the farm ecosystem.
3 – Toxicity and mode of action.
4 – Availability of gentler alternatives.
5 – Probability of environmental contamination during manufacture, use and disposal.
6 – Potential for interactions with other materials used.
7 – Overall compatibility with a system of sustainable agriculture." (OTA)

It is questionable how much adolescents typically know about the importance of eating organic fruits and vegetables. There is a continued need to further examine the diets of

adolescents and educate and encourage them on the importance of establishing healthy dietary habits. Adolescents are beginning to make decisions that can have a significant impact on their health the rest of their lives. In particular, female adolescents are of particular interest as the primary caregivers and nutritional decision makers in their future families. Therefore, this study examines adolescent girls' decision making and their diets, with the intent to determine their attitudes, knowledge and beliefs about the benefits of eating organic fruits and vegetables.

CHAPTER 2
LITERATURE REVIEW

Adolescence and Diet

The period between adolescence and adulthood is a time of mental, physical and social change. Adolescents make decisions and develop habits that often continue into adulthood. In fact, evidence indicates that dietary patterns established during adolescence can be a significant predictor of food intake in adulthood (Lake, et al., 2006; Adamson, et al., 2004).

Research has shown that when adolescents ages 13 -16 are equipped with adequate information, they can make healthcare decisions as wisely as adults (Managed Care Weekly, 2004). Children's decision-making influence as consumers of food and in the family food shopping process is still a relatively unexplored area. One study of 10 -13 year olds from 20 families, and surveys from 451 families, revealed that children participate in and influence family food decisions (Mikkelsen & Norgaard, 2004). However, some research has shown that children's participation in the decision processes about food choice can have an important effect on the family's meals and eating habits (Christensen & Romero, 2006). One study of 92 families which included adolescents between 12 and 18 years old, showed that families in which adolescents had more influence in the food purchasing tended to eat less healthier food choices (De Bourdeaudhuij & Van Oost, 1998).

Adolescents have high nutritional requirements during this period of growth and development and consuming a diet rich in fruits and vegetables is particularly important (Neumark-Sztainer et al, 2003; Story & Alton, 1996). Developing healthy eating patterns during adolescence also may lead to continued health eating patterns during adulthood (Neumark-Sztainer et al, 2003; Kelder, Perry, Kelpp, & Lytle, 1994). However, studies have shown that

food choices for the population of adolescents are not consistent with the Dietary Guidelines for Americans (Story, et al, 2002).

Adults who regularly eat fruits and vegetables are those who often consumed these foods during childhood (Krebs-Smith, Cook, Subar, Cleveland, & Kahle, 1996). However, the percentage of children and adolescents who are regularly consuming fruits and vegetables appears to be low. Studies reveal that pre-school children consume approximately only 80% of the recommended fruit servings per day and only 25% of the recommended vegetable servings per day. As a result, young people's low intakes of fruits and vegetables cause inadequate intakes of vitamin A, vitamin C, and dietary fiber and high intakes of total fat and saturated fat (Dennison, Rockwell, & Baker, 1998).

A diet low in fruits and vegetables is not the only nutritional concern regarding adolescents. Adolescents consume a high intake of unhealthy fast foods. As a child becomes older his diet does not seem to improve. At least one-third of teens eat many of their meals away from home (Whitney and Rolfes, 1999). Erratic eating behaviors, such as skipping meals, are also prevalent especially among girls (Story et al, 2002). The Centers for Disease Control and Prevention (2000a) provide the following statistics of the average adolescent diet:

- More than 84% of children and adolescents eat too much total fat on a daily basis.
- More than 90% eat too much saturated fat.
- On the average, young people get 33 - 34% of their calories from total fat and 12 -13% of their calories from saturated fat.
- Children and adolescents eat only 3.6 servings of fruits and vegetables daily, and a significant portion of those vegetables are derived from fried potatoes.
- One in five children eat five servings of fruits and vegetables daily.
- 51% eat less than one serving a day of fruit, and 29% eat less than one serving a day of vegetables that are not fried.

- The average calcium intake of adolescent girls is about 800 mg a day. (Recommended daily allowance for adolescents is 1,200 mg of calcium a day) (Whitney and Rolfes, 1999; Petrillo & Meyers, 2002, p.293).

Benefits of a Plant-based Diet

Substantial health benefits could result from encouraging adolescents to consume organic fruits and vegetables as part of a plant-based diet. This could have positive implications for their health throughout their lives. T. Colin Campbell (1994), professor of nutritional sciences at Cornell University, and Chen Junshi, deputy director of the Institute of Nutrition and Food Hygiene in Beijing, conducted a comprehensive study of diet, lifestyle, and disease on 6,500 individuals living in 65 counties in rural and suburban China. Results revealed that Western diets, which include a higher intake of animal versus plant-based food products, are related to greater incidences of obesity, higher levels of plasma cholesterol, and increased risk for cancer and heart disease. Campbell and Junshi's recommendations were:

> Ignore the widespread dietary recommendations on the numbers of servings from each food group and the daily intake for grams of protein. Eat generous variety and amounts of roots, stems, leaves, flowers (such as broccoli florets), seeds, and fruits, and eliminate animal products. Even small increases in the consumption of animal-based foods was associated with increased disease risk (Henderson, 1994; Segelken, 2001).

Atherosclerosis, the underlying cause of coronary heart disease, currently threatens one of every two Americans and is predicted to become the number one global disease burden by the year 2020. However, atherosclerotic disease does not discriminate by age and has been shown to be present even in young adults. For example, in one study 2,876 people between the ages of 15 and 34 who had died of external causes, were examined for signs of this disease. Lesions not only appeared in all the aortas and more than half of the right coronary artery in the youngest age group (15-19 years), but also increased in prevalence and extent with age through the group (30-34 years) (Strong, Malcom, McMahan, Tracy, Newman, Herderick, & Cornhill, 1999; Esselstyn, Jr., 2001). Participants from the Korean and Vietnam wars, the Bogalusa study, and the

Pathological Determinants of Atherosclerosis in Youth study, also have shown the widespread nature of the disease in young Americans. However, this disease is virtually absent in cultures that eat plant-based diets, such as the Tarahumara Indians of northern Mexico, the Papua highlanders of New Guinea, and the inhabitants of rural China and central Africa (Esselstyn, Jr., 2001).

The American Heart Association and the National Cholesterol Education Program recommend that people consume no more than 30% dietary fat and maintain cholesterol levels below 200 mg. Yet, numerous studies confirm that people who adhere to these recommendations experience progression of the disease rather than arrest and reversal (Esselstyn, Jr., 2001; Jan, Jenkins, Jenkins, Kendall, Vuksan, & Vidgen, 2000). In 1990, *The Lancet* published the findings of Dean Ornish, M.D., who demonstrated that heart disease can actually be reversed through eating a plant-based diet and without medicines (Ornish, Brown, & Scherwitz, 1990).

A 28-day study of 120 men and women between the ages of 30 and 65 revealed that adding fruits, vegetables, nuts and whole grains may reduce LDL cholesterol levels more effectively than focusing on lowering fat intake alone (Clinicians Publishing Group, 2005). Another study showed that people who adopt a vegetarian diet can reduce their saturated fat intake by 26% and achieve a significant drop in cholesterol levels in just six weeks (Masarei, Rouse, Lynch, Robertson, Vandongen, & Beilin, 1984; Steffen, Jacobs, Jr., Stevens, Shahar, Carithers, & Folsom, A.R., 2003).

A study from Stanford University School of Medicine revealed a low-fat diet rich in vegetables, fruits, whole grains, and beans has twice the cholesterol-lowering power of a conventional low-fat diet (Consumer's Medical Journal, 2004). Another study of 22 patients

also revealed that a diet of grains, legumes, lentils, vegetables, and fruit can reduce cholesterol levels to below 150 mg (Esselstyn, Jr., Ellis, Medendorp, & Crowe, 1995). In fact, vegetarian diets can reduce serum cholesterol levels to a much greater degree than is achieved with the National Cholesterol Education Program Step Two diet (Cooper, Goldberg, & Trevisan, 1982; Cabral, Melo, Amado, & Santos, 1989; West & Hayes, 1968; Sacks, Ornish, Rosner, McLanahan, Castelli, & Kass, 1968; Burslem, Schonfeld, Howald, Weidman, & Miller, 1978).

Eating a plant-based diet primarily of fruits and vegetables not only has a positive impact on the prevention and reversal of heart disease but also on cancer. The World Cancer Report predicts that worldwide new cases of cancer will increase by 50% by 2020 (Nutrition & Food Science, 2006). A diet of raw fruits and vegetables has been tested and shown to suppress cancer growth (Robinson, Hunsberger, & Westall, 1994). In addition, cancer rates for vegetarians are 25% to 50% below population averages (Chang-Claude, Frentzel-Beyme, & Eilber, 1992; Thorogood, Mann, Appleby, McPherson, 1994). In 1995, the American Cancer Society released new dietary guidelines which included urging Americans to eat foods from plant sources (American Cancer Society, 1996; Welland, 1998).

Researchers believe that fruits and vegetables help protect against cancer in several ways. They contain nutrients, such as vitamin C, vitamin E, and carotenoids, which act as antioxidants to help reduce cellular damage caused by harmful free radicals (Jacob & Burri, 1996). Another benefit of fruits and vegetables is the fiber they provide to help move waste through the digestive tract, leaving less time for toxic compounds to harm the colon and helping curb precancerous polyps. Fiber also helps eliminates excess estrogen (Walsh, 2001). Plant-based diets also may encourage a later menarche for girls, which has been shown to be associated with the reduced risk of breast cancer (de Ridder, Thijssen, Van 't Veer, van Duuren, Bruning, Zonderland, &

Erich, 1991). Thirteen case-control studies provided substantial evidence that increased intake of fiber-rich foods, such as fruits, vegetables, cereals, and legumes, may decease the risk of both colon, rectal, and pancreatic cancers (Howe, Bentino, & Castelleto, 1992; Trock, Lanza, & Greenwald, 1990; Chan, Wang, & Holly, 2005).

Encouraging adolescents to consume organic fruits and vegetables as part of a plant-based diet also could have positive implications for their health in regards to preventing obesity. Research has shown that those who consume a vegetarian diet maintain a lower body mass index (BMI) than non-vegetarians (Barnard, Scialli, & Turner-McGrievy, 2005; Ellis, Path, & Montegriffo, 1970).

A study of 55,000 women who were either semi-vegetarians (who eat some meat, diary and eggs), lacto-vegetarians (who consume milk but not meat or eggs), vegans (who consume no animal products), and omnivores (who eat all foods), showed that all the vegetarian women had a lower risk of being overweight or obese than the omnivorous women (Bliss, 2006). In addition, a study of 2,909 18- to 30-year-olds also revealed that consuming high-fiber plant-based diets may protect against obesity by lowering insulin levels (Ludwig, Pereira, Kroenke, Hilner, Van Horn, Slattery, & Jacobs, Jr., 1999).

Creation of Organic Labeling Standards

Many consumers have an interest in knowing that their food is safe to eat. A November 1998 nationwide survey found that eighty-nine percent of U.S. consumers think food safety is a "very important" national issue. In fact, they think it's more important than crime prevention. A 1999 poll found that 81% of American consumers believe that genetically engineered food should be labeled. National surveys indicate that 80% of consumers also worry about pesticide residues on food, especially when it concerns their children (HEALL, 2000).

Even though organic foods account for only two percent of food sold in the United States (K. DiMatteo, personal communication, March 26, 2004), it has become a $22 billion dollar industry (Robbins, 2001). The total number of certified acres dedicated to organic farming increased from 1,347 in 1997 to 2, 344 in 2001 (U.S. Census Bureau, 2003). Research reveals that the customers purchasing organic foods are not just represented by one ethnic group. In fact, Asian-American, African-Americans and Hispanic-Americans are all more likely to choose organics for food purchases than Caucasians. It is not necessarily wealthy consumers either. The average income is $43,280 (Lipson, 2003).

As the organic industry has increased, requirements for strict, uniform standards also has increased. Only private and state agencies had previously been certifying organic practices and what constituted "organic" varied from state to state (OTA). Washington State became the first state to develop organic standards and implement an organic certification program in 1988. Colorado, Idaho, Iowa, Indiana, Kentucky, Maryland, New Hampshire, New Mexico, Nevada, Oklahoma, Rhode Island, and Texas followed (FAS, 2003).

However, the organic industry lobbied to have the government implement a national policy for the labeling of organic foods. Organic farmers, anti-pesticide, environmental and other trade and consumer groups met with U.S. Senator Patrick Leahy of Vermont. These groups educated Leahy and his staff and helped to create a bill requiring the development of national organic standards. Congressman Peter DeFazio of Oregon presented it before the House as an amendment to the 1990 Farm Bill. The House and Congress approved it and The Organic Foods Production Act of 1990 was created (USDA; Ingersoll, 1997; Greco, 2000; K. DiMatteo, personal communication, March 26, 2004).

The Organic Foods Production Act of 1990 authorized the formation of a National Organic Program "to establish organic standards and to require and oversee mandatory certification of organic production" (OTA). United States Department of Agriculture Secretary Dan Glickman appointed a fifteen-member National Organic Standards Board (NOSB) to assist him in developing standards to be used in organic production (USDA). Members of the NOSB serve for five-year terms and must include: four farmers; two handlers/processors; one retailer; one scientist; three consumers/public interest advocates; and three environmentalists (OTA).

At a meeting in Orlando, Florida in 1995 the NOSB decided on the following standard definition of "organic."

> Organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony.
>
> 'Organic' is a labeling term that denotes products produced under the authority of The Organic Foods Production Act. The principal guidelines for organic production are to use materials and practices that enhance the ecological balance of natural systems and that integrate the parts of the farming system into an ecological whole.
>
> Organic agriculture practices cannot ensure that products are completely free of residues; however, methods are used to minimize pollution from air, soil and water. Organic food handlers, processors and retailers adhere to standards that maintain the integrity of organic agricultural products. The primary goal of organic agriculture is to optimize the health and productivity of interdependent communities of soil life, plants animals and people (OTA).

In 1997 the USDA released a proposed National Organic Program (FAS). However, this was not acceptable to those in favor of organic standards because it allowed "irradiation, genetically modified foods, antibiotic-laced animal meat or sewage sludge-treated crops to be labeled as organic." Essentially, there would not be a difference between organic and non-organic production. (Greco, 2000; Priest, 2001; Robbins, 2001; DiMatteo, 2004).

Those in favor of strict organic standards such as The Organic Trade Association, Organic Consumers Association and National Campaign for Sustainable Agriculture organized a grassroots campaign against the first proposal. They posted notice on the Federal Register, the official daily publication for rules, proposed rules, and notices of Federal agencies and organizations (Merrigan, 2004; DiMatteo, 2004; GPO Access). They placed information, postcards and petitions in stores like Patagona Clothing, Whole Foods Market and Wild Oats. Working Assets, a long-distance company that gives proceeds to non-profit organizations, put inserts in its phone bills (DiMatteo, 2004; Merrigan, 2004).

The media also played a significant role in this campaign. There were articles in every major newspaper. Radio and television interviews were conducted. Katherine DiMatteo, Executive Director of the Organic Trade Association, was surprised by the amount of coverage since the organic industry is not a large industry and does not support the media through advertising. Kathleen Merrigan, professor at Tufts University, said it was the typical David and Goliath story that probably drew media attention. It was an unusual situation of the smaller organic industry fighting the government and larger agribusiness (DiMateo, 2004; Merrigan, 2004).

As a result, concerned consumers responded. They contacted their congressional representatives and President Clinton (Priest, 2001; Robbins, 2001). Various leaders of nonprofit organizations such as Friends of the Earth, Natural Resources Defense Council, League of Conservative Voters, Physicians for Social Responsibility, etc., wrote a letter to USDA Secretary Dan Glickman stating that the recently proposed National Organic Program threatened to undermine the significant ecological gains promised by passage of the 1990 Act (CFFS).

Postcards, letters and emails were sent to the USDA (Robbins, 2001). In fact, this was the first time that the public could send electronic responses to the USDA regarding a governmental rule. As a result, the USDA received over 275,000 responses from consumers and industry groups, the largest amount of responses to any regulation ever posted and the second largest for any federal agency (DiMatteo, 2004).

Prior to The Organic Foods Production Act of 1990 the USDA was not involved in organic foods. After Congress passed the law, Arthur Neal, Agriculture Marketing Specialist for the USDA, said the USDA's main role was to create fair and consistent organic standards. "People weren't held accountable prior" (A. Neal, personal communication, March 23, 2004).

After more deliberations, the USDA released the United States first official standards for organic labeling on December 20, 2000. After an 18-month certification period the new government standards were to begin in June 2002. However, due to paperwork delays, the new organic labeling was enacted on October 21, 2002. As of that date "producers and handlers must be certified by a USDA-accredited certifying agent to sell, label or represent their products as '100 percent organic,' organic,' or 'made with organic'" (Keen, 2003; Robbins, 2001; Neal, 2004; AMS). The new standards apply to all organic food products imported into the United States (Keen, 2003).

Conventional Versus Organic Produce

Pesticides contaminate more than 94% of foods, and studies have shown that continuous exposure to them can cause cancer and other degenerative diseases. In 1968, researchers found that patients who died from liver cancer, brain cancer, multiple sclerosis and other degenerative disease had significantly higher traces of pesticides in their brains and fatty tissues than those who died from other diseases (Contreras, 2002).

According to the 2003 U. S. Census Bureau, a total of 511.1 million pounds of herbicides, insecticides, fungicides and other pesticides were used on vegetables and fruit in 2001. In a sampling of supermarket produce, conventional produce was more than three times as likely to contain residues of toxic pesticides than organic produce (HEALL, 2000; Baker, Benbrook, Groth, & Benbrook, 2002). Pesticides also have been shown not to help protect against E. coli and other pathogens. Research conducted at the University of Manitoba in Winnipeg shows that pesticide sprays actually encourage life-threatening bacteria to grow on crops. "Numbers of E. coli could increase one-thousand fold," said lead researcher Greg Blank, who found that the life-threatening microbes flourished in many pesticides (Robbins, 2001).

Children consume not only more food per kilogram of bodyweight than adults but also a much less varied diet. As a result, exposure to a pesticide from consumption of a given food is greater per kilogram of infant/child bodyweight compared to adults (National Research Council, 1993; Benbrook, 2003). Nearly three-quarters of the fresh fruits and vegetables consumed most frequently by children in the U.S. contain residues and almost half the fruit and vegetable samples tested from 1994-1999 in the pesticide Data Program contain two or more residues (Baker et al, 2002). In general, soft-skinned fruit and vegetables tend to contain residues more frequently than foods with thicker skins, shells, or peels (Benbrook, 2003).

One study compared children who ate produce that was at least 75% organic with those who ate at least 75% non-organic produce. Results of this study found that children who ate primarily organic produce and juice had one-sixth the level of pesticide byproducts in their urine compared with children who ate non-organic food (Curl, Fenske & Elgethun, 2003).

Adolescents are also aware of the risks of pesticides. One study surveyed 669 high school students in New York City and revealed that more than 63% were worried that pesticides might

leak into the drinking water supply, and more than 54% were concerned that the way in which animals are raised for food damages the environment. Fifty-eight percent also indicated it was important that foods be grown without pesticides and herbicides (Bissonnette & Contento, 2001).

In a study of high school seniors, more than 69% understood that conventional farming practices require the use of pesticides or herbicides. More than 51% of the participants agreed that conventional farming practices are harmful to the environment and will need to change, more than 73% agreed that organic foods are better for the environment, and more than 74% believed consuming organic foods was better for their personal health. More than 55% also considered organic foods more expensive to purchase, but more than 45% considered them better in taste. In addition, almost 70% of the seniors indicated that more organic foods should be available (Bissonnette & Contento, 2001).

Studies have also revealed that organic crops contained significantly more vitamin C, iron, magnesium, phosphorus, chromium, iodine, potassium, selenium, zinc and significantly less nitrates than conventional crops (Smith, 1993; Worthington, 2001). There also seems to be higher ascorbic acid content in organically grown leafy vegetables and potatoes (Magkos, Arvaniti, & Zampelas, 2003).

Theory of Reasoned Action and Theory of Planned Behavior

The Theory of Reasoned Action and The Theory of Planned Behavior provide a framework from which to determine and analyze beliefs that impact health behaviors (Ajzen, 1989; Ajzen, 1991; Ajzen, 1987; Ajzen & Fishbein, 1980). Both theories focus on theoretical constructs that are concerned with motivational factors that determines individuals' likelihood that they will perform a specific behavior (Glanz, Rimer & Lewis, 2002).

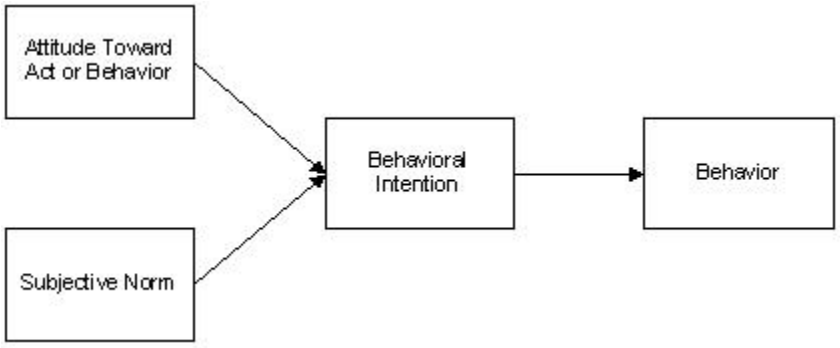

Figure 1-1 Theory of Reasoned Action

. Reprinted with permission from Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior : An introduction to theory and research. Reading, Mass.; Don Mills, Ontario: Addison-Wesley Pub. Co.

Theory of Reasoned Action

The Theory of Reasoned Action was developed in 1967 and focused on the relationship between beliefs (behavioral and normative), attitudes, intentions, and behavior (Montano & Kasprzyk, 2002). The Theory of Reasoned Action asserts that a person's behavioral intentions are determined by his attitude toward performing the behavior and his subjective norms, or belief about whether most people important to him approve or disapprove of the behavior. Fishbein showed that attitude toward a behavior is a better predictor of a behavior than the attitude toward the target of the behavior. For example, according to this theory, a woman's attitude toward breast cancer is expected to be a poor predictor of a woman getting a mammogram. However, a woman's attitude toward actually getting a mammogram is determined to be the better predictor (Montano & Kasprzyk, 2002).

The main constructs of the Theory of Reasoned Action include behavioral intention, attitude, and subjective norm. Behavioral intention is the perceived likelihood of performing the behavior. It is an indication of how much effort a person will exert in order to perform the behavior. Behavioral intention is influenced by three components. The first component is a person's attitude toward performing the behavior. This is either a person's favorable or

unfavorable evaluation of the behavior. Subjective norm also influences behavioral intention. Subjective norm is the individual's belief about whether most people important to him approve or disapprove of the behavior. The influence of social pressure that is perceived by the person (normative beliefs) is weighted by the individual's motivation to comply with those perceived expectation (motivation to comply).

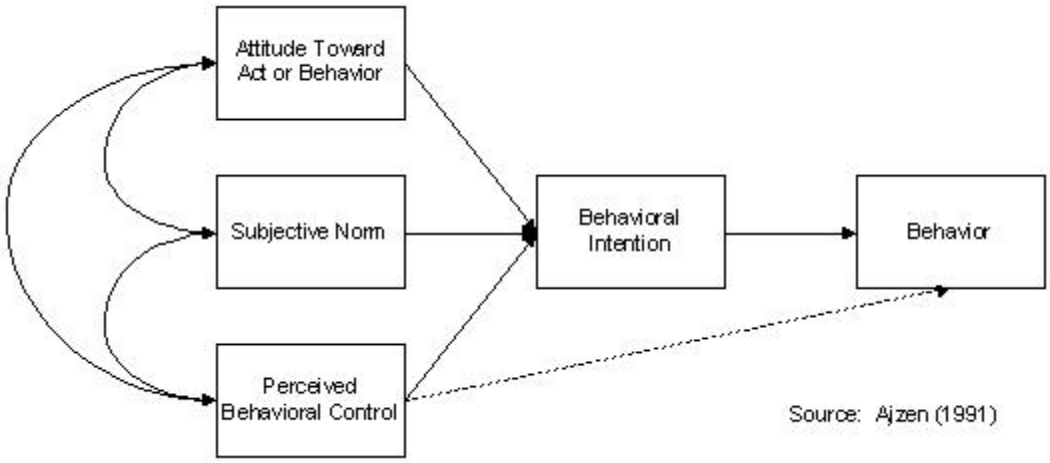

Figure 1-2 The Theory of Planned Behavior. Reprinted with permission from Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. Fort Worth: Harcourt Brace Jovanovich College Publishers

Theory of Planned Behavior

The Theory of Planned Behavior is not an independent theory. Instead, this theory is an extension of the Theory of Reasoned Action (Glanz, Rimer & Lewis, 2002). The Theory of Planned Behavior includes an additional construct that influences behavioral intention called perceived behavioral control. This construct is the individual's belief about his control over the behavior and how easy or difficult it will be to perform (Montano & Kasprzyk, 2002; Brown, 1999).

Ajzen observed that the Theory of Reasoned Action was valuable when describing behaviors in which the individual can make a conscious choice. However, if adopting the behavior requires opportunities, resources, or skills, the person has a lack of control. The concept

of perceived behavioral control was added to the original Theory of Reasoned Action since perceived behavioral control can apparently influence intention (Godin & Kok, 1996). Perceived behavioral control is determined by control beliefs and perceived power. This construct indicates that a person's motivation is influenced by how difficult he perceived the behavior to be and if he can successfully perform the activity (Montano & Kasprzyk, 2002; Brown, 1999).

Many factors often influence how adolescents make decisions (Fischhoff et al., 1999). According to the Theory of Planned Behavior, an adolescent's decision may be predetermined by norms perceived to be held by a significant other or peer group. The effectiveness of this model has been demonstrated in a variety of health behavior studies, including research on weight reduction (Sejwacz, Ajzen, & Fishbein, 1980; Saltzer, 1981) and cigarette smoking (Langer & Warheit, 1992; Chassin, et al, 1981), exercise behavior, and eating behavior (Godin & Kok).

The Theory of Planned Behavior also has appeared useful for examining food choice among adolescents (Dennison & Shepherd, 1995; Gummeson, et al., 1997; Mesters & Oostveen, 1994). For example, this model was used to study Swedish schoolchildren's choices for milk types (low-, medium-, and full-fat) and high-fiber bread for breakfast. It was found that attitudes were important predictors of intentions to consume each milk type and high-fiber bread. For all milk types, the beliefs about taste and health made the greatest contribution to the prediction of attitude. Those who ate high-fiber bread had a more positive attitude toward high-fiber bread. The relationships between subjective norm and normative belief suggest that parents were important influences in the children's choices for breakfast (Berg, Jonsson & Conner, 2000).

A study of 780 high school students in San Bernardino, California was conducted to identify predictors for adolescents' health dietary practices using the Theory of Planned Behavior. The results showed that the intention to eat a healthful diet was a predictor of

healthful dietary behavior. Those with positive attitudes toward healthful eating believed they would like the taste of healthful foods, feel good about themselves, tolerate giving up foods they like to eat, and lose weight or maintain a healthful weight. Mothers, siblings, and friends were identified as important influencers in decisions about healthy eating. Knowledge about how to eat a healthful diet, availability of healthful floods, motivation, and access to enough money were also factors related to this behavior control. Attitude seemed to be a stronger determinant of intention than subjective norm and perceived behavioral control (Backman, Haddad, Lee, Johnston & Hodgkin, 2002).

One study examined how well the Theory of Planned Behavior predicted the consumption frequency of fruit and vegetables among adolescents, and whether gender or socioeconomic status had any effects on the relationships between the constructs. More than 1400 seventh-grade students from eight middle schools were surveyed to measure how often they consumed fruit juice, fruit, green salad, potatoes, carrots, and other vegetables during the year. How often the children ate fruits and vegetables and frequency of attitudes, subjective norms, barriers, and intentions were measured. The results showed no significant direct effects of attitudes and subjective norms on behavior. Gender appeared to have moderating effects on the relationships between attitudes and intention and between intentions and behavior in the model. However, large proportions of the variance in frequency of the children's consumption of fruits and vegetables were unexplained. There appeared to be strong relationships between subjective norms or barriers and intentions as well as gender differences that may have implications for future intervention methods or messages (Lien, Lytle, & Komro, 2002).

The Media as a Source for Nutritional Information for Adolescents

Adolescents are at a life stage where they are forming their personal identity and developing a personal system of beliefs and values (Bissonnette & Conteneto, 2001; Cobb, 1992), and most of them seem to be turning to the media for entertainment and information. Studies have found that 26% of children aged 6 to 14 are using a variety of media at one time. Sixty-nine percent have a television in their room and consume an average of 24 hours of digital cable per week. They also are using broadband on their computers for an average of 17 hours a week. Many adolescent have their own cell phones and are sending an average of 14.4 text messages and making 8.8 calls each day (Oser, K., 2005).

The media, particularly advertising, can have such a powerful influence on children and adolescents. The American Psychological Association has stated that children ages eight and younger lack the cognitive ability to recognize advertising's persuasive intent (APA, 2004). Therefore, most children older than eight have at least an initial understanding that advertising aims to sell products (Moore, 2004; Macklin, 1987; Roberts, 1982). However, researchers from the Nielsen Norman Group found that children in grades one through five cannot distinguish between advertising and actual content on Web sites, even when the ads are clearly marked (eSchool News, 2002).

Research also showed that female adolescents remembered more facts, made more inferences, reported stronger emotional responses, and detected the explicit claim of the visual advertisements than males (Edens & McCormick, 2002). Another study was conducted to determine the difference between the abilities of teenagers and adults to recall and recognize advertisements. Results showed that teenagers 18 years and younger had greater brand recall and recognition than 18-to-34-year-old young adults (Dubow, 1995).

Since the media have such a powerful influence on children and adolescents, they could be used as effective tools to educate and encourage adolescent girls to consume organic fruits and vegetables. However, it may be helpful to examine what types of foods are presented by the media and how they may be influencing adolescents' dietary choices and behaviors.

Television can provide food information in a variety of ways that include advertising, entertainment programming, and news. For example, one study examined television advertisements that aired during top-rated, prime-time network programs. In a sample of 700 commercials, 42% contained food-related content in the form of verbal, written, or visual references. Advertisements promoting fast food sandwiches were shown most often which resulted in references to breads, cereals and protein–rich foods. Commercials showing low nutrient-density foods, along with foods in the fats, sweets and alcohol group, exceeded the advertisements to both high and moderate nutrition-density foods combined. There were 527 visual references, the most frequent being vegetables. This was primarily due to salad dressing advertisements that showed a variety of salad ingredients and pizza advertisements featuring vegetable toppings. In addition, references to fruits and dairy products almost never occurred (Byrd-Bredbenner & Grasso, 1999).

Children ages 2 to 17 watch an average of 22 hours of television per week and are exposed to approximately 20,000 commercials a year. Studies have shown that 56% of these advertisements are for food (Boynton-Jarrett, Thomas, Peterson, Wiecha, Sobol & Gortmaker, 2003). In one study researchers analyzed programming on ABC, CBS, NBC, Fox and Nickelodeon between 7 a.m. and 10:30 a.m. on three different Saturdays in 1991 and 1992. Of the 997 total commercials, 11 of those advertisements per hour were for food. More than 43% of the commercials were for foods belonging to the fats, oils, and sweet food group (candy; cereals

with sugar as main ingredient; soft drinks; chocolate products; whipped topping; cakes, cookies and pastries; and flavored gelatin). Bread, cereals, rice and pasta represented more than 37% of the ads and more than 10% were fast-food restaurant ads. There were no advertisements for fruits or vegetables (Getty & Evers, 2004).

It is interesting to note the type of nutrition information that African Americans may be receiving through television advertising and entertainment programming. Studies have shown that African Americans watch more television and have a higher prevalence of obesity than the average American. Research also reveals they are more likely to watch shows with predominantly African American characters. In a study of the four most-watched situation comedy television shows among the general population ("general prime time") and among the African American population ("black prime time"), black prime time shows featured a greater number of overweight characters than programs intended for a general audience. Food advertisements, particularly those for candy and soft drinks, were also run more often during African American entertainment television programs than during other programs (Tirodkaar & Jain, 2003).

Nutrition Coverage in Newspapers

The second most popular media source among consumers for nutrition information is newspapers. In a study of newspaper coverage of childhood nutrition policies, a sample of news reports, editorials, letters and opinion pieces printed in California newspapers from July 1998 through August 2000 were analyzed. Almost one-third of the articles appeared on the front page of their section, and 14% appeared on A1 of the newspaper. The prominent placement of food and nutrition coverage in newspapers may indicate a strong appeal and newsworthiness for these types of stories (Woodruff & Dorfman, 2001).

It is also interesting to examine which sources newspaper reporters rely on for nutrition stories. This study showed that the most commonly quoted sources were advocates, which included nutritionists, researchers or other public health professionals, for various food policies and other professionals from the field. Nutritionists and dieticians were also quoted in 23% of the newspaper stories. This seems to indicate that nutrition advocates and professionals are often well represented and are giving important input regarding nutritional issues in newspaper stories (Woodruff & Dorfman, 2001).

The largest single topic in this sample of newspaper articles was advice on what to pack in children's lunch boxes and how to please finicky eaters. Food safety, including articles on pesticides and regulation of food processing plants that make foods that are served in school cafeterias, and milk pricing and other issues related to the regulation of the dairy industry in California followed in frequency. Other articles regarding new research on obesity and school breakfast programs and other food service issues ranked fourth and fifth in frequency of appearance in newspaper articles. One quarter of the stories in this sample had a specific local angle, such as stories about soda pouring contracts in schools or organic-only policies for school food service. In general, smaller newspapers were more likely to use wire services such as Associated Press or Reuters, indicating they may not have the staff to dedicate to researching and writing about nutrition issues (Woodruff & Dorfman, 2001).

Nutrition Coverage in Magazines

Another print medium from which the public receives nutrition information is magazines. Four experts in nutrition and food science independently judged the quality of 200 nutrition articles in 20 top-circulating magazines between January 2000 and December 2002. Articles were rated according to factual accuracy, presentation and recommendations. The magazines were ranked as excellent (100-90%), good (89-90%), fair (79-70%), or poor (below 70%). Four-

fifths of the magazines included in the survey were rated good sources of nutrition information. Only one-fifth scored in the fair or poor range; however, none of the magazines nutrition content was considered excellent (Meister, 2004).

This study revealed that the quality of the nutrition articles in the "consumer" and "home" magazine categories (e.g. *Parents, Consumers Reports, Cooking Light, Better Homes and Gardens*, etc.) was significantly better than that in the "girls" category (e.g. *Ladies Home Journal, Redbook,* etc). However, three of the four magazines that received fair or poor ratings were primarily aimed at male readers (e.g. *Men's Fitness, Muscle and Fitness*, etc). These magazines had a tendency to exaggerate the significance of questionable scientific links between foods and health effects and to omit important health information regarding dietary supplements (Meister, 2004).

Researchers found that the magazines with the highest scores included some articles with noticeable errors and weaknesses regarding health and nutrition topics. However, the lowest-scoring magazines also included some well-researched articles. The results apparently indicate that many of today's magazines are providing consumers with scientifically sound articles about nutrition. However, there seems to be need for improvement, particularly in magazines aimed at male readers (Meister, 2004).

A content analysis of 30 issues of three popular teen magazines, *Seventeen, Sassy*, and *Young Miss*, each published during January 1988 to March 1989, revealed that 5% of the articles were health-related. The proportion of advertisements in all the magazines was 46% with health and hygiene representing 4% of that total. Miscellaneous ads for weight loss and "fat camp" services were also included in two of the magazines (Evans, 1991). Another study was conducted of 132 *Seventeen* magazines published in even years from 1970 to 1990. Articles over

one page in length where the primary subject was nutrition-related, focused either on weight loss plans, or on nutrition information such as vitamins, fiber or fat. Brief highlights, columns, and advertisements primarily featured cooking tips and food information, nutrition information, or career opportunities in foods or nutrition (Guillen & Barr, 1994).

Nutrition Coverage on the Internet

People seeking nutritional information are also turning to the Internet. A recent research poll found that nearly 100 million American adults use this source to find health-related information (Bergeron, 2003). Sixty-six percent of Internet users said they use the Internet to get health information (Madden & Rainie, 2003).

One study conducted in 2001 revealed that the major media Web sites involved had partnered with other Web-based health news providers such as WebMD and Medscape, providing links to a wider array of reliable health information. Unfortunately, much of the health and nutrition information remains on the partner sites and not in the media Web site content. This indicates that reliable nutrition information is available but the consumer must search past the original Web site to find it (CMPA, 2002).

Cumulative Study of Nutrition Information in the Media

One particular scientific content analysis that has been conducted at two-year intervals from 1995 through 2001 has revealed both consistencies and changes in media coverage of nutrition information. In 2001, 40 media outlets were examined including 10 major newspapers, two news wires, 12 national magazines, 13 national television news programs, seven local television news stations and five major media Web sites. Thirty-nine outlets were sampled in 1999, 38 in 1997 and 37 in 1995 (CMPA, 2002).

Each time researchers have conducted this study, they have found important contextual information often was not included in nutrition articles. Five specific factors that were omitted

regarding nutritional information were: the amount of food consumed; the frequency of consumption; the cumulative effect of regular consumption; the difference of effects on particular groups; and the use of scientific evidence to reinforce an argument. Consumers' ability to make sound nutrition decisions was hampered more by the lack of information than from misinformation (CMPA, 2002).

The fluctuation in priority of topics that the media chose to address was also revealed as a result of these studies. In 1999, fiber was the most prominent nutrition subject in the media. However, that changed in 2001 when "functional" foods became the most covered nutritional topic. Functional foods include general advice to eat more fruits and vegetables containing vitamins, minerals and antioxidants (CMPA, 2002).

Coverage of genetically modified foods and organisms doubled in 2001 from 1999. This was a result of claims of allergic reactions to a genetically engineered corn called Starlink that was accidentally put into taco shells (CMPA, 2002; Jacobs, 2003). Biotechnology components in food, food labels and food allergens also became popular nutrition topics in 2001. Eggs were the most commonly discussed food allergen followed by peanuts, other tree nuts, shellfish, milk, and lactose intolerance (CMPA, 2002).

Weight management and obesity were also significant topics of food news in 2001. The angle of articles changed from 1999 to 2001, by a margin of almost three-to-one, from the benefits of losing weight to warnings about the dangers of being overweight. However, the most commonly mentioned causes of obesity were eating too much and eating poorly. These discussions were often linked to the oversized restaurant portions and poor nutrition control when eating at home. Consuming too much sugar, carbohydrates, and fat also were cited as causes of weight gain (CMPA, 2002).

These studies also revealed that scientists, dieticians, and other experts are the sources most often quoted to substantiate information used in food and nutrition coverage. In 2001, approximately two-thirds of these references were unnamed scientists. Food producers and culinary groups followed in frequency due to the prevalence of articles about functional foods and debates over food biotechnology. Federal government sources, environmental and consumer groups were also often cited as sources (CMPA, 2002).

The results of this study seem to indicate that improvement is needed in the nutrition information that television, print media and the Internet provide consumers. Although the media primarily rely on health and nutrition experts as sources in their nutrition articles, they collectively choose to focus on a narrow range of topics. The media apparently also need to provide consumers with more information to help them make sound nutrition choices.

Impact of Media on Children

It is also interesting to examine the influence of media on children's behavior. Since children often copy behavior that is modeled for them, it is possible to posit that there is a strong relation between children's exposure to media and their behavior. Ted Baehr, president of the Christian Film & Television Commission states, *"Children learn in part by teachers presenting information and/or behavior, repeating the information and/or behavior and rewarding the accurate feedback of the information and/or behavior"* (1998, pg. 16). Baehr also states that media occupies more of a child's time, delivers more information per second than parents or teachers, and children find it more entertaining, exciting and captivating (Baehr, 1998).

Children can also learn behavior at an early age. A recent Tufts University study showed that 10-month-old and 12-month-old infants could make decisions based on the emotional reactions of adults around them. The infants were shown a 20-second videotape of an actress reacting to a toy with a positive or negative emotion. When the actress responded to a toy with

fear, the babies avoided playing with it and were more likely to appear worried, frown, scowl or cry. When the actress was enthusiastic, the infants usually played with the toy (Tufts, 2003; Baehr, 1998). Research has also shown that children younger than six can sing commercial jingles and correctly identify company logos and trade characters (Borzekowski & Robinson, 2001; AAP, 2004).

Research has also shown that food advertisements have an immediate effect on children's short-term food preferences. In one study, 46 two to six-year-olds from a Head Start program in California viewed a videotape of a popular children's cartoon either with or without commercials. The children were exposed to only one or two 10- to 30-second food commercials. The advertisements were for popular brands of juice, doughnuts, sandwich bread, remote-control toy cars, breakfast cereal, snack cake, fast-food chicken and candy. All the commercials were 30 seconds long, except for one juice commercial which lasted only 10 seconds. After viewing the cartoon, the children identified their preferences from pairs of similar products, one of which was advertised in the videotape with embedded commercials. As a result, the children who watched the videotape with commercials were significantly more likely to choose the advertised items than the children who were not exposed to the commercials (Borzekowski & Robinson, 2001; AAP, 2004).

Even though the participants were from low-income households, the majority had several televisions and other media technology in their homes. Sixty-two percent had a television on most of the morning, 46% during dinner, 81% during most of the evening, and 12% during all these time periods. Forty-six percent of parents said their child occasionally ate or drank while watching television. Thirty percent said their child often or always ate or drank while watching

television. Thirty-two percent watched television during breakfast and 30% during dinner four or more days per week (Borzekowski & Robinson, 2001; AAP, 2004).

During the week after the children watched the videotape, 49% requested a food item advertised on television and 56% requested to go to a store or restaurant advertised on television. Children who made these requests did not usually watch significantly more television than the other participants. Only one-third of the parents surveyed thought their children knew that advertisements "were to make people buy things" (Borzekowski & Robinson, 2001; AAP, 2004).

It is also apparent there may be a relationship between children's and teenagers' exposure to media and their poor dietary choices and obesity. A National Health and Nutrition Examination Survey revealed that children who watched five or more hours of television a day also consumed more calories, higher dietary fat, less nutrient-rich food, and were more likely to be obese (Iowa State, 2002; Boynton-Jarrett et al., 2003).

According to the U.S. Department of Health and Human Services, most children and youth do not meet Healthy People 2010 objectives and the USDA's Dietary Guidelines of consuming five or more fruit and vegetables a day. In fact, surveys have found that only one in five children meet the guidelines and one-quarter of the vegetables consumed reportedly are French fries (Krebs-Smith, S., Cook, A., Subar et al., 1996; Boynton-Jarrett et al., 2003; AAP, 2004; Kaiser, 2004). Studies also show that a child who watched three hours of television per day consumed fewer servings of fruits and vegetables per week than those who did not watch television (Boynton-Jarrett et al., 2003).

Ninety-one parent-child pairs from suburbs adjacent to Washington, DC, were studied from September 1993 through June 1995 to examine relationships between the presence of television during meals and children's food consumption. The children were in the fourth, fifth

or sixth grades. In this analysis, the children who viewed television frequently consumed six percent more meats; five percent more pizza, salty snacks and soda; and nearly five percent less fruits, vegetables and juices than children from families with low television use. The children from high television-use families also consumed twice as much caffeine as children from low television-use families (Coon, Goldberg, Rogers & Tuckers, 2001). According to another study, the two minutes of daily advertising targeted to students in their classrooms through Channel One exposed them to fast foods, candy, soft drinks and snack chips in 7 out of 10 commercials (Kaiser, 2004).

One study found that students in 7th through 12th grades who frequently ate fast food watched more television than other students (French, Story, Neumark-Sztainer, Fulkerson and Hannan, 2001; Kaiser, 2004). Fast food companies spend billion of dollars advertising to children, and marketing executives anticipate that children under 12 will spend $35 billion of their own money and influence their parents to spend $200 billion in 2004. Fast food companies often have promotions that include toys that are included with the meal based on media characters. In fact, one study found that about one in six food commercials aimed at children promise a free toy. Many commercials use cartoon characters, which research has shown to be effective in helping children to identify the product (Kotz & Story,1994; Kaiser, 2004).

Media advertisements may also contribute to children's perceptions about nutrition. One study found that 70% of six-to-eight-year-olds believed that fast food was more nutritious than home-cooked meals (Donahue, Meyer & Henke, 1978; Kaiser, 2004). Another study of fourth-and-fifth-graders revealed that children who watched more television indicated that the less healthy food choice was healthier when shown a pair of food items (Signorelli & Staples, 1997; Kaiser, 2004).

Implementing Nutrition in School

Research has shown that raising nutritional standards in schools also may have an important impact on children's health and dietary choices. Appleton Central Alternative Charter High School in Appleton, Wisconsin is an example. Students struggling with severe disciplinary problems were sent to Appleton from twelve area schools. However, Appleton did not have a kitchen, lunchroom or tables and chairs for students to sit and eat. The only food and beverages available were from vending machines. These items included sodas, candy bars, chips and other snacks. Then Appleton received a grant, teamed up with a local business, and implemented a Nutrition and Wellness Program. The importance of proper nutrition was included throughout the students' course work. A kitchen was installed and healthy food choices were provided for breakfast and lunch each school day. Whole-grain breads, fresh fruits and vegetables, and a salad bar were served. Fresh entrées with only natural spices and flavors, and free of additives and chemicals, were never fried. As a result, students' disruptive behavior and health complaints diminished substantially. Negative behaviors such as vandalism, drug and weapons violations, dropout and expulsion rates, and suicide attempts became virtually nonexistent. Students also seemed to concentrate better (Michael Fields Agricultural Institute, 2004; Good News Network, 2002).

Role of Peers, Parents and Caretakers

Researchers have noted a number of important factors that influence children's dietary choices. Food acceptance, or the appearance, texture and flavor of food is one factor. Children's knowledge and beliefs about food, such as which foods are thought to be "good for you," also influence food choice. Another factor is social pressure. Researchers have shown that peers' and teachers' food choices influence the choices made by children. Family structure is also an important factor. The types of foods selected for children who live in single-parent households

and homes with two working parents where time is often limited may also be a consideration in the kind of nutrition they receive (Bordi et al., 2002). Therefore, parents and children's caretakers play an important role in their food choices. However, if children are not receiving quality time and sound nutrition information from these role models, then perhaps they are learning more negative nutrition information from the media.

According to a recent survey approximately 9 out of 10 parents believe that today's media negatively affect their children (Kaiser, 2003). However, even though The American Academy of Pediatrics recommends no television or videos for children under age two, and suggests limiting all other children's media time to one to two hours of quality programming a day (Kaiser, 2004), most children have plenty of media available to them, often without supervision. In a recent poll, 65% of parents admitted they could do a better job of supervising their children's media use (Kaiser, 2003).

These issues suggest a need for continued research to understand thoroughly and to determine how the media affect adolescents' nutrition choices and dietary behavior. A further analysis of adolescents' exposure to television, print media and Internet advertisements, articles and programming, and how their attitudes and behaviors are affected, could be helpful.

Research Questions

- Research Question 1: What do adolescent girls know about organic fruits and vegetables?
- Research Question 2: What are adolescent girls' attitudes about consuming organic fruits and vegetables?
- Research Question 3: Where do adolescent girls receive information from which to base their knowledge, attitudes, and beliefs about organic fruits and vegetables?
- Research Question 4: What are the significant barriers or obstacles that would prevent adolescent girls from eating organic fruits and vegetables?
- Research Question 5: What overall themes regarding consumption of organic food emerge from the interviews and the focus groups with the adolescent girls?

CHAPTER 3
METHODOLOGY

Qualitative Versus Quantitative Research

This study employs a qualitative approach. The purpose of qualitative research is primarily to put information into context, to establish interpretations and to better understand people's perspectives. Qualitative research ends with hypotheses and grounded theory, is inductive, and makes minor use of numerical indices (Glesne & Peshkin, 1992).

The purpose of quantitative research is primarily to draw general conclusions, predictions, and causal explanations. The approach begins with hypotheses and theories, uses formal instruments, experimentation, and reduces data to numerical indices (Glesne & Peshkin, 1992).

One of the most important differences between qualitative and quantitative research is the role of the researcher. The quantitative researcher's role is detached, objective and impartial (Glesne & Peshkin, 1992). In qualitative research there is a more complex relationship between investigator and respondent (McCracken, 1988). The researcher is personally involved (Glesne & Peshkin, 1992).

Metaphors that could describe the qualitative researcher are that of an "intelligent homing device," a "cultural detective" and a "professional stranger" (Bingham & Moore, 1959). Researchers are the primary "instrument" for data collection and analysis in a qualitative study (McCracken, 1988). The researcher physically goes to the people to observe or record behavior in its natural setting. The research is descriptive and the investigator is interested in process, meaning, and understanding gained through words or pictures (Merriam, 1988; & Creswell, 1994).

Types of Qualitative Research Interviews

Because question crafting lies at the core of conducting qualitative research, researchers often use interviews as a primary means of collecting data. Interviews can be in-depth, semi-structured, intensive, collaborative, and ethonographic (study of human culture) interviews. Qualitative researchers interview people to better understand their individual, interpersonal, or cultural perspectives. Interviews can retrieve past experiences, gain personal insight, obtain descriptions of events, foster trust, understand sensitive relationships, and create a record of discourse for analysis (Lindlof & Taylor, 2002; Bingham & Moore, 1959). The qualitative interview is a remarkably adaptable method and can be done most anywhere two people can talk in relative privacy. It is sometimes called a "conversation with a purpose."

There are several types of interviews in qualitative research. One of these is the respondent interview (Bingham & Moore, 1959). The purpose of the respondent interview is to elicit open-ended responses. Respondents are usually asked to express themselves on an issue or situation, or to explain what they think or how they feel about their social world. They help the interviewer view the interaction of an individual's internal states (social attitudes and motives) with the outer environment (Lindlof & Taylor, 2002).

Paul Lazarsfeld (1944) described five goals of this interview type: 1) to clarify the meanings of common concepts and opinions; 2) to distinguish elements of an expressed opinion; 3) to determine what influenced a person's opinion or to action; 4) to classify complex attitude patterns; and 5) to understand the interpretations that people attribute to their motivations for action (Lindlof & Taylor, 2002).

Not only are respondent interviews used in qualitative research, but also there are situations that call for interviewing several people at once. This type of method is known as focus groups. The interviewer plays a major role in the success of focus group interviews.

Interviewers try to achieve a fine balance between enfranchising individuals to speak out and promoting "good group feeling" (Lindlof & Taylor, 2002).

A focus group discussion usually consists of eight to ten participants and lasts approximately 90 minutes. Discussions in focus groups provide direct evidence about similarities and differences in the participants' opinions and experiences. Focus group interview structure varies between either giving control to the group and possibly hearing less about the topic of interest or taking direct control over the group guiding a free-flowing discussion (Morgan, 1997).

Methods Employed

For this study, 26 sixth-grade girls[1], ages 11 and 12, were recruited from a private school in a suburban area of Orlando, Florida. The annual tuition for a sixth-grade student is $8,135. These participants were interviewed during regular school hours over a three-day period. A teacher sent the twenty-six consent forms home to parents and all of them were signed and returned. This teacher also assisted with coordinating the schedules for the interviews and focus groups.

Sixth-grade girls were selected because nutrition is generally taught in the fifth grade according to the Sunshine State Standards. The Sunshine State Standards were established by the State Board of Education to provide expectations for student achievement in Florida schools. The Standards approved in 1996 were written in seven subject areas and each divided into four separate grade clusters (PreK-2, 3-5, 6-8, and 9-12). Topics such as health behaviors and disease prevention, health habits, and the nutritional value of various foods are included in the curriculum for grades third through fifth (Florida Department of Health, 2008).

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[1] **girl** Applicable until 18th birthday is reached according to AP Stylebook, 2000.

The Sunshine State Standards are mandated in the public school curriculum and not required for private schools. Since this study was done in a private school, research was done to determine what kind of nutrition is taught in that school in the fifth grade. According to the elementary school principal, a new curriculum had just been implemented in the science classes. The principal said the material included reference to the importance of exercise and eating right; however, there were no specific units which included specifics about nutrition (Brenda Oliver, personal communication, March 24, 2008). The physical education teacher, who teaches the students twice a week, said he discusses the five basic food groups, appropriate meals, and healthy snacks during grades kindergarten through second grade (Mark Rickard, personal communication, March 24, 2008). A monthly cafeteria menu from this school also was provided. Entrées such as Salisbury steak with gravy, spaghetti with meat sauce, macaroni and cheese, teriyaki chicken and pizza were served during a week. Rice and/or vegetables and bread accompanied the entrée. Fruit and/or a side salad was included once or twice a week and a dessert once a week.

This research study involved a triangulation of various methods. Triangulation involves comparing two or more approaches to enhance the credibility and authenticity of findings in investigative research. The most familiar kind of triangulation is multiple methods (Lindlof & Taylor, 2002). In order to interact with adolescent girls and better ascertain their attitudes, knowledge and beliefs about the benefits of eating organic fruits and vegetables, this study will employ triangulation through the methods of focus groups and in-depth interviews.

The first method used was individual in-depth interviews conducted on school premises with six individual girls for approximately 30 minutes each. This method elicited open-ended responses with greater detail from a sample of diverse participants. The second method used

consisted of three focus groups of five, eight, and seven adolescent girls. The ideal size of a focus group consists of six to 12 participants. Fewer than six people in a group may lead to a less diverse range of comments, and more than twelve people may limit participation and feedback (Lindlof & Taylor, 2002). These focus groups lasted for approximately one hour.

An interview guide was used as the basis for the in-depth interviews and for the focus groups. The purpose of the questionnaire in the qualitative interview is to ensure all participants are asked the same questions and in the same order. The questions establish direction for the interviews as well as allow the interviewer to give attention to the participants' testimony. Prompts within questions also create an open-ended nature to allow the participants to give details (McCracken, 1998). The interview guide for this study (Appendix B) consisted of 20 questions. The types of participant questions concerned issues such as what they typically eat during a day, how their food choices are made, what types of media they use, where they get health, diet and nutrition information, and their knowledge and attitudes of organic fruits and vegetables.

The participants also were given an individual written survey to complete after the interviews and focus groups. Surveys can be a valuable exploratory method used in qualitative interviews. *"Surveys and depth interviews can be used in a two-stage design in which the survey provides public normative opinions about a topic while the qualitative study yields data about actual practices and processes"* (Lindlof & Taylor, 2002, p.119). The survey in this study (Appendix E) consisted of 13 statements. A scale with choices ranging from "strongly agree" to "strongly disagree" followed each statement. In this survey, the statements questioned the participants' opinions about the advantages and disadvantages of eating organic fruits and

vegetables, and whether they would pursue further information about organic fruits and vegetables.

Because adolescents may not have much control over family food purchases, the Theory of Planned Behavior was used as a basis in this study. Using the perceived behavioral control construct, adolescent girls were interviewed to examine how difficult they perceive consuming organic fruits and vegetables to be, as well as how successfully they could perform it on a regular basis.

A simple explanation of organically grown produce was clarified during each focus group and interview. Each participant was first asked to define organic foods. Then organic fruits and vegetables were described as those fruits and vegetables which are grown without the use of any artificial chemicals or fertilizers and treated without any pesticides.

In an attempt to encourage adolescent girls to consume a plant-based diet of primarily organic fruits and vegetables, measuring the attitudes and subjective norms that affect adolescent girls' food choice behaviors could be a positive step toward this goal. Determining what girls perceive about healthy eating and organic produce is an important factor in this study. In addition, since the media, parents, and peers may influence adolescent girls' eating behavior, this information was helpful for this study as well as have implications for further research in these areas.

CHAPTER 4
FINDINGS

Twenty-six adolescent girls, ages 11 and 12, participated in this research study. Twenty-two of the girls were Caucasian, three were Hispanic, and one was African American. All of the girls attended the same private school in Orlando, Florida. Through focus groups and individual interviews, the researcher found substantial information about how these young girls perceive organic fruits and vegetables and where they receive health, diet, and nutrition information. The names of the girls have been changed in this study to protect their privacy. Results of this study address the following five research questions:

1. What do adolescent girls know about organic fruits and vegetables?
2. What are adolescent girls' attitudes about consuming organic fruits and vegetables?
3: Where do adolescent girls receive information from which to base their knowledge, attitudes, and beliefs about organic fruits and vegetables?
4. What are the significant barriers or obstacles that would prevent adolescent girls from eating organic fruits and vegetables?
5. What overall themes regarding consumption of organic food emerge from the interviews and the focus groups with the adolescent girls?

Research Question 1: What do adolescent girls know about organic fruits and vegetables?

When this group of adolescent girls was asked the definition of organic food, the answers varied. However, most participants associated organic food as a healthy food choice. Seven girls commented that it was food that was grown without pesticides or chemicals. Twelve-year-old Ally said "living things," and Becky, 12, noted "just healthy food like fruit and vegetables." Debbie, 12, commented, "When I think of organic food I think of things to help your body grow." Three girls described organic food as "without any artificial stuff;" while Carol, 12, said organic food "grows in the ground and then you put it on your plate."

Three participants associated organic food with milk that did not contain "bad stuff." For example, Elizabeth, 12, said, "I don't think they give these cows like spray or something like that." Eleven-year-old Francie also defined organic food as "like healthy without sugar and stuff" and Gayle, 12, said "something that's natural and doesn't have any acids in it." Heidi, 12, commented "fruit and vegetables" and Jenna, 12, noted "food that's good for the organs." Twelve-year-old Lisa was the only participant who said, "I have no idea."

The participants were then shown the USDA seal for organic food and given a brief explanation that is it food that is grown with only natural fertilizers and treated without chemicals or pesticides. Seven girls said they had knowingly eaten organic fruits and vegetables like apples, strawberries, bananas and cucumbers. Three participants' mothers regularly purchase organic fruits and vegetables at Whole Foods Market or in the organic section at Publix supermarkets.

Twelve-year-old Mary said, "Everything in my refrigerator and pantry is organic" and Elizabeth, 12, commented, "My mom gets all organic fruits and vegetables. She's told me, 'I try to get all organic fruits.'" Becky stated, "We used to have a garden that we'd eat out of" and Nikki, 12, said, "I mean I eat fruits and vegetables but my mom hasn't really told me like, 'Oh, this is organic.'"

Nine girls mentioned they eat other organic foods such as dairy products, meat, cookies, salsa, pasta, and tortilla chips. The remaining participants stated they had not or were not sure if they had eaten organic fruits and vegetables. However, according to the survey given after the interviews, 35% of the participants strongly agreed, and 31% agreed that they were interested in knowing more about organic fruits and vegetables.

In summary, most of the adolescent girls in this study associated organic fruits and vegetables as a healthy food choice. Many of them knew specifically that organic fruits and vegetables were grown without the use of chemicals or pesticides, and believed that organic fruits and vegetables were better for them than conventional fruits and vegetables.

Research Question 2: What are adolescent girls' attitudes about consuming organic fruits and vegetables?

For 18 of the participants in this study, their mother or both parents were the primary decision-makers regarding the food purchases for the home. However, 22 of the girls regularly participated in the food shopping. Even at their young ages of 11 and 12, these adolescent girls seemed to have established particular attitudes about food. These participants expressed specific opinions about the benefits of and consumers of organic fruits and vegetables.

This group of adolescent girls expressed how they would visualize someone who often purchases these products. Most of the study participants chose the 20- to 30-year-old as the mean age range of this type of consumer. Peggi, 11, said "it could be like an older person, probably 20 or older 'cause usually kids under like 18 would rather have junk food."

Jenna, 12, associated someone who purchases organic fruits and vegetables with her grandmother "cause she always eat healthy foods," and Debbie related to her 50-year-old neighbors "who run five miles literally every single day." Rachel, 12, imagined "a really fat guy like in his 40s running on a treadmill watching TV." Elizabeth, 12, pictured "a normal lady that's about 40, short and skinny… just a normal person."

Fourteen participants pictured a female as regularly purchasing organic fruits and vegetables. Two girls visualized a male and the remaining participants said it could be either

female or male. Eleven-year-old Sally said, "I picture both and probably any age because if you're like my age I can eat a lot of fruits and vegetables and organic stuff…"

Eleven girls mentioned that someone who purchases organic fruits and vegetables would be thin. Tara, 12, commented, "She's really quiet but has long hair and she's really skinny and tall" and Lisa, 12, said, "She'd be normal, maybe a little skinnier."

Seven participants mentioned that a person who purchases organic fruit and vegetables would be healthy. Heidi, 12, stated "they would be really healthy" and Vanna visualized someone "healthy and fit." Eleven-year-old Yolly stated "they could do a lot of activities and have more healthy things in their body."

Six girls also pictured an athletic person as someone who buys organic fruits and vegetables. Nikki, 12, commented, "They would be kind of athletic and female 'cause girls are more concerned about what they eat and guys just think it's food." Twelve-year-old Michelle said, "They can be athletic… so they like want to look good" and Yolly, 11, said "They would probably be athletic and are really in shape."

Three participants associated a "hippie" image with someone who purchases organic fruits and vegetables. Chris, 12, said, "I'd picture a female, and she'd always be wearing a T-shirt with a peace sign on it." Mary, 12, commented, "She's kinda like a hippie and likes to meditate and is a vegetarian." Cindy noted, "She probably does yoga or palates and has a little bandana on her head and she's probably meditating while walking. Just real peaceful."

This group of adolescent girls not only expressed their visual perception of an organic fruits and vegetables consumer; they also acknowledged positive benefits to consuming these foods. In fact, according to the survey given after the interviews, 46% agreed, 23% strongly agreed and 23% somewhat agreed that it is important to eat organic fruits and vegetables every

day. In addition, 42% strongly agreed, 35% agreed and 19% somewhat agreed that "it is important to eat organic fruits and vegetables whenever I can." As a result of the interviews and surveys, the participants revealed their attitudes about specific benefits from consuming organic fruits and vegetables.

A prominent benefit this group of adolescent girls associated with consuming organic fruits and vegetables was having more energy. Many of the girls were involved in sports and communicated this as an important benefit. In fact, 50% of the girls surveyed strongly agreed and 31% agreed that eating organic fruits and vegetables would give them more energy. Sally, 11, stated, "The most important one would be energy 'cause I do volleyball and you like need a lot of energy to run on the court and stuff." Leah, 12, commented, "You'd have more energy and not be tired."

Fourteen of the 26 participants volunteered the belief that organic fruits and vegetables would make them healthier. Vanna, 11, said, "Like you might be a little bit more healthy" and Peggi, 11, stated, "Longer life maybe from healthier choices instead of fast food all the time." Jeannie, 12, commented, "You wouldn't have all those chemicals in you."

Being thinner or "skinny" was also another important benefit to the participants. In fact, the survey results revealed that 50% strongly agreed, 26% somewhat agreed, and 19% agreed that eating organic fruits and vegetables will help their bodies be thin. Twelve-year-old Lisa commented, "You wouldn't be fat." Gayle, 12, pointed out, "You don't have more of a chance of gaining extra weight" and Cindy, 12, said, "You'd be skinny."

The adolescent girls in this study also considered having clearer skin as a benefit. Survey answers showed that 46% agreed and 23% strongly agreed that "your skin would be better" as a result of eating organic fruits and vegetables.

The girls in this study also considered the prevention of disease as a benefit of consuming these types of foods. From this group of adolescent girls' survey results, 38% agreed, 31% strongly agreed, and 19% somewhat agreed that eating organic fruits and vegetables would prevent disease.

Having better concentration was another benefit these adolescent girls considered important. Five of the participants in this study specifically stated that they believed that eating organic fruits and vegetables would help them concentrate more effectively.

In summary, these participants had specific attitudes about consuming organic fruits and vegetables. Their perception of someone who consumes these foods was typically a female in her 20s to 30s. They perceived this female to be thin, healthy, athletic, and in good physical shape. The participants agreed that eating these foods daily would give them more energy, make them healthier, help their bodies be thin, give them clearer skin, prevent disease, and help them concentrate more effectively.

Research Question 3: Where do adolescent girls receive information from which to base their knowledge, attitudes, and beliefs about organic fruits and vegetables?

The 26 adolescent girls in this study revealed they obtained their knowledge, attitudes, and beliefs about organic fruits and vegetables from various sources. Primarily the information they received came from the media and from individuals.

The Internet

Every participant in this study regularly spent time using the Internet. These adolescent girls mainly used the Internet for entertainment purposes such as watching music videos, playing games, virtual shopping, or creating fashion designs. Eight girls said they often visited YouTube.com, 10 regularly visited DisneyChannel.com., and two visited (Nickelodeon) nick.com. Three participants often visited addictinggames.com and seven girls visited

webkinz.com. In addition, four adolescent girls in this study often visited MySpace.com. Other sites mentioned by the participants were neopets.com, millsbury.com, kiddonet.com, Abercrombie.com, OldNavy.com. One girl also said that she visited a softball Web site but did not mention the site address.

When the participants were asked if they have ever used the Internet to find health, diet or nutrition information, 11 stated they had looked up information for a class project, or for personal reasons such as finding a healthy snack or researching types of exercises. Web sites such as WeightWatchers.com, RachaelRae.com, HealthCare.com, Oprah.com, DrPhil.com were mentioned in these interviews.

Magazines

Eight of the 26 participants in this study did not regularly read magazines. Ten girls read celebrity magazines like *People* or *Teen People* and 11 girls read teen magazines like *Seventeen*, *PB Teen*, *Girl's Life*, and *Teen Vogue*. The participants stated the main reason they read these magazines is for the "gossip" or fashion and decorating ideas.

Only 5 girls stated they have read magazine articles on health, diet and nutrition. Finding information about healthy snacks was one topic mentioned. For example, Chari, 12, said, "Every once in a while you'll find a page that has some… like diet snacks or just snacks that are kind of healthy." Jeannie, 12, mentioned she has used magazines to find information about "what you eat when you go to the movies… popcorn without butter was better than popcorn with butter and gummy worms was better 'cause it takes a while to eat because it's chewy." Sally, 11, had read a magazine by Rachael Rae and said it's "all about food and healthy diets and stuff."

Two girls also stated they had read magazine articles about anorexia and bulimia. Michelle, 12, said, "Just like how to be healthy and how to eat healthy… you can still be skinny

without going anorexic or bulimic." Jenna, 12, said her mother did not allow her to read celebrity magazines "'cause there's too much stuff about crash diets."

Television

The most popular television programs among the participants in this study were viewed on the Disney Channel, Nickelodeon, MTV, The Learning Channel, and the Cartoon Network. American Idol and Animal Planet also were two popular programs mentioned.

Twenty of the adolescent girls have watched a television program on health, diet, or nutrition. Some of these programs were on the Health Channel, Discovery Health, Nickelodeon, and Dr. Phil. Thirteen have watched either the Food Network or a cooking program. Maureen, 12, said, "This guy was making a sculpture out of pineapples and all these fruits and vegetables and it all fell." Nikki, 12, stated, "There's a show like Rachael Rae. They like give you tips to be healthy and stuff… you can eat and still be healthy." Peggi, 11, said, "I just watch them designing those cakes and the big sugar sculptures."

Family Members

Twenty-two of the 26 adolescent girls in this study stated they have received information about health, diet, and nutrition from a family member. Twelve girls mentioned their mother, four their father, three their aunt, three their sister and one mentioned both parents.

Jeannie, 12, stated that her aunt "is a vegetarian and eats really healthy" and has told her "to eat organic food and stuff like that." Lisa, 12, said that her dad has influenced her to exercise and eat healthy. "We normally eat stuff that's healthy and it's unusual if we get a plate with a pie, ice cream cup or cupcake on the side." Heidi, 12, cited her mother as a source of information. Heidi stated, "We usually have mixed vegetables at home so if we don't like them she still makes us eat them because she knows it good for us."

Vanna, 11, cited her sister as a source of nutrition information. Vanna said, "She'll buy like organic foods sometimes and she really likes to stay healthy and fit and eat good foods." Michelle, 12, stated that her dad was a source. Michelle said, "He's on a diet right now and he asked my mom to cook special stuff for his diet and so he tells me it's good for me." Peggi, 11, stated her mom was a source of nutrition information because "She says we need to stop eating so much crap around the house and we need to eat more fruits and vegetables and stuff like that." Mary, 12, who also cited her mother, said, "She's a health nut and she really likes to eat healthy things so she's got me to kind of get used to organic stuff…. Now my taste buds aren't like 'whoa' when I eat like healthy stuff."

Further Information about Organic Fruits and Vegetables

When the participants in this study were asked where they would seek information about organic fruits and vegetables, the media, family members, and health professionals were their choices. Forty-six percent of the girls said they would use the Internet to find this information. In addition, 35% somewhat agreed, and 19% agreed that they would read an article about organic fruits and vegetables on the Internet. Participants were asked in the survey if they would watch a television program about organic fruits and vegetables, 19% strongly agreed and 19% agreed. When participants were asked whether they would read a magazine article about organic fruits and vegetables, 31% agreed, and 15% strongly agreed that they would probably read it.

Forty-six percent of the participants also said they would seek out family members for more information about organic fruits and vegetables. Fathers, mothers, aunts and sisters were mentioned in this category. In addition, 8% of the girls mentioned they would seek a health professional for more information about organic fruits and vegetables.

In summary, the participants in this study revealed they obtained their knowledge,

attitudes, and beliefs about organic fruits and vegetables primarily from media sources such as television and Web sites. Most of the 26 adolescent girls also stated that they have received information about health, diet, and nutrition from a family member such as their mother.

Research Question 4: What are the significant barriers or obstacles that would prevent adolescent girls from eating organic fruits and vegetables?

Adolescent girls may believe there are many benefits to consuming organic fruits and vegetables. However, it may be important to consider any significant barriers or obstacles that would prevent them from eating these foods. After interviewing and surveying the 26 adolescent girls in this study, several factors were revealed.

According to the survey used in this study, more than 50% of the adolescent girls thought that cost is a disadvantage of eating organic fruits and vegetables. Peggi, 11, said, "They are kind of expensive but that's bad because most of America is overweight and if they raised the prices of junk food and lower the prices of healthier stuff most of America would probably be healthier then what it is now." Carol, 12, stated "they're more expensive" and Chris, 12, said, "I think it's too expensive."

Another disadvantage of eating organic fruits and vegetables that 46% of the participants mentioned when interviewed was taste. Lisa, 12, stated, "People like candy more than green beans," and Rachel, 12, said, "I don't think they taste as good." Chari, 12, said, "My mom used to buy like organic food… and the food kind of taste like metal." Cindy, 12, stated, "They're going to taste different so if you want to be healthy you might just have to get used to them or something."

Since all of these participants did not purchase the household groceries, convenience may be considered a barrier to them eating organic fruits and vegetables. Nineteen of the participants stated either their mother or their father made the primary food choices in the home. However,

22 of the girls said they either participated in the food shopping process or had input as to what food choices were made.

Another barrier to the participants consuming organic fruits and vegetables could be lack of knowledge. Only seven participants understood organic food to be that which is grown without chemicals or pesticides. However, the survey results suggested that 35% strongly agreed and 31% agreed that they were interested in knowing more about these types of foods.

In summary, the adolescent girls in this study revealed several significant barriers or obstacles that may prevent them from eating organic fruits and vegetables. The participants stated factors such as cost, taste, convenience, and lack of knowledge may prevent them from consuming these foods.

Research Question 5: What overall themes emerge from the interviews and the focus groups with the adolescent girls regarding the consumption of organic foods?

Additional dimensions of conducting research using qualitative methods such as focus groups and interviews are the dominant themes which become apparent. Key themes often emerge through the comparison and review of the data and the notes from research studies. This research study of the 26 adolescent girls was not an exception. After an evaluation of the findings from the interviews and the focus groups, several prominent themes emerged as a result.

The first dominant theme in this study was an "awareness" theme. It seems that these adolescent girls were basically aware which food choices were healthy options for them to consume, and which food choices were not. The girls categorized unhealthy or "bad foods" as those which are "treated with hormones, chemicals, and fertilizers," and those foods which contain "artificial stuff." The participants also believed that "junk food" is food which is "greasy and fried" and contains "saturated fats and trans fats." Foods that have high sugar content such

as chocolate, ice cream, candy and cake, were also considered unhealthy by the adolescents in this study.

The participants seem to understand that consuming organic food was a healthy food option. Many of them knew specifically that organic fruits and vegetables were grown without the use of chemicals or pesticides, and believed that organic fruits and vegetables were better for them than conventional fruits and vegetables.

These adolescent girls were cognizant that eating organic food, particularly organic fruits and vegetables, would help them look, feel, and act healthier. The girls recognized they would be thinner, have clearer skin, have more energy, and prevent disease as a result of consuming these foods.

The second dominant theme in this study was a "cultural" theme. The concept that people are a product of their social environment seems evident throughout the results of this study. The adolescent girls were often influenced by their parents' food choices. When the participants were questioned why particular food habits were established in their household, they stated it came from their "culture." Therefore, the food choices of the girls' parents often seemed to be established from the grandparents and other relatives.

Since the participants were adolescents, they were very dependant upon parents for purchasing and preparing their food. This fact also had an influence on their food choices. However, the girls admired their family members who advocated good nutrition and were interested in following their advice about food choices.

Another theme that was dominant in this research study is a "cost versus benefit" theme. These adolescent girls were certainly aware of the various benefits of consuming organic fruits

and vegetables. However, even though they did not purchase the household food, more than 50% of the girls believed that cost is a deterring factor in consuming these foods.

In addition to the awareness, cultural, and cost versus benefit themes, a “receptivity” theme also emerged in this study. The adolescent girls expressed a dislike for the “greasy food” served in their school cafeteria and wanted healthier options. In addition, none of the participants expressed any complaints because their parents would not allow them to eat more junk food. In fact, they were compliant with limiting their “bad choices” and focusing on healthier options.

Sixty-six percent of the participants expressed an interest in knowing more about organic fruits and vegetables. The adolescent girls were receptive about the idea of watching a television program or going on the Internet to learn more about organic fruits and vegetables. Many of the participants were involved in athletics and were particularly interested in the positive effect consuming organic fruits and vegetables would have on their overall energy levels and on their performance in sports.

CHAPTER 5
DISCUSSION

The Theory of Planned Behavior

The purpose of this study was to examine adolescent girls' attitudes, knowledge, and beliefs about the benefits of eating organic fruits and vegetables. This topic has been discussed continually in the media. However, despite public concern about the quality of health of today's youth, relatively little research has been done about the impact of children's consumption of these products. In fact, there were no qualitative studies that specifically addressed the attitudes, knowledge, and beliefs of adolescent girls consuming organic fruits and vegetables.

Prior research suggests that organic fruits and vegetables are healthier for adolescents than conventional produce (Sullivan, 2003; Hood, 2003; Cropper, 2004; Mangels, 2006). However, no research has focused on the probability of adolescents consuming these foods. In this study, Ajzen's Theory of Planned Behavior provided a framework from which to view the beliefs that may impact adolescent's likelihood of eating organic fruits and vegetables.

The purpose of the Theory of Planned Behavior is a framework to examine whether an individual intends to perform a specific action. Although there is not a perfect relationship between behavioral intention and actual behavior, this theory can be used as a measure to help predict behavior. There are three constructs involved in this theory: attitude, subjective norm, and perceived behavioral control (Francis et al., 2004).

In this research study of 26 adolescent girls, the Theory of Planned Behavior may be helpful as a framework to view the participant's responses. The first construct, which is attitude, concerns whether a person is in favor of performing the desired action. The attitude toward the behavior and the possible consequences is a person's overall evaluation of the behavior (Francis et al., 2004).

Based on the findings in this study of sixth-grade girls, the participants seemed to have a positive perception of someone who consumes organic fruits and vegetables. Most participants visualized an athletic, healthy female as someone who would purchase and consume these foods. The adolescent girls in this study also acknowledged several positive benefits from consuming organic fruits and vegetables. In fact, this group recognized the potential to have more energy, have clearer skin, be healthier, be thinner, and prevent diseases. However, their attitude about the taste and the cost of these products also may have a negative influence on their consumption of them.

More than half of the participants thought it was important that they consume organic fruits and vegetables on a daily basis and "whenever I can." In addition, a majority of the adolescent girls stated that they were willing to learn more about these foods. In a survey completed after the interviews, 35% "strongly agreed" that they were interested in knowing more about organic produce. Therefore, by examining the first construct of the Theory of Planned Behavior in this study, the adolescent girls appeared to have a positive attitude toward the idea of consuming these foods. As a result, this participants' attitude may have a positive affect on their behavioral intention to consume organic fruits and vegetables.

The second construct in the Theory of Planned Behavior is the subjective norm; it measures how much a person feels social pressure to perform a specific action (Francis et al., 2004). Results of this study suggest this framework may be appropriate to view this behavior. The participants in this study seemed to have a positive social pressure to eat organic fruits and vegetables and the relationships between subjective norm and behavioral intention seem to be strong.

Individual interviews and focus groups with 22 of the 26 adolescent girls revealed they had received information about health, diet, and nutrition from a family member. The majority of adolescent girls in this study received health, diet, and nutrition information from their mothers. However, other participants mentioned a father, aunt, sister or both parents. One girl stated her aunt "is a vegetarian and eats really healthy" and has told her "to eat organic food." Another participant's sister said she buys organic food. One adolescent woman said her mother has encouraged her to eat organic food. In addition, one participant stated her mother "gets all organic fruits and vegetables" and another girl said everything in her refrigerator and pantry was organic.

Five of the participants' mothers regularly shopped at the organic section at the grocery store or at Whole Foods Market. The adolescent girls in this study admired their family members who advocated good nutrition and were interested in following their advice about health food choices. The participants also seemed positive about their parents' encouragement to make healthy food choices rather than eating junk food and making unhealthy food choices.

In conclusion, it appears there is a positive influence from family members to consume organic fruits and vegetables. The participants' intention to eat a healthy diet suggests that family members, particularly mothers, were important influencers in their food choices. The girls often adhered to the advice of family members regarding health and diet.

Other factors in addition to family relations could also have an impact on the subjective norm in this study. Peer influence among the participants during the focus groups may have influenced their answers during this study. The adolescent girls also may have felt influenced by the interviewer to answer questions a certain way during the interviews and focus groups. However, in the survey given to the adolescent girls after the interviews, they were asked

whether they felt pressured to respond to questions in a particular manner. In response, 31% neither agreed or disagreed and 31% disagreed that they had to answer the questions a certain way. Therefore, the participants seemed to feel a positive social pressure to consume organic fruits and vegetables. In addition, the influence of the social pressure could be a positive motivation for the participants in this study to comply.

In addition to attitude and subjective norm, another construct in the Theory of Planned Behavior is perceived behavioral control. This construct is the person's belief about his control over the behavior and how easy or difficult it will be to perform. Perceived behavioral control can also influence behavior directly in situations where behavior is not under the total control of the person (Montano & Kasprzyk, 2002; Brown, 1999).

In this study, the adolescent girls had influence in their food choices but not total control in this area. The participants did not purchase the household groceries and the mothers or fathers primarily made the food choices in the home. Twenty-two of the 26 girls said they either participated in the food shopping or had input as to what food choices were made. However, in a survey given to the participants, 31% neither agreed or disagreed, and 31% disagreed that organic fruits and vegetables were not easily available to them.

The factor of cost may also have an impact on the perceived behavioral control in this study. Based on the findings in a survey, more than 50% of the adolescent girls perceived that organic fruits and vegetables were too expensive. Therefore, the participants' belief about the disadvantage of cost may have an affect on their purchasing organic fruits and vegetables.

In conclusion, by examining the Theory of Planned Behavior's construct of perceived behavioral control in this study, the participants appeared to have some, but not total control regarding their ability to consume organic fruits and vegetables. The two factors of availability and cost may

have an influence on the adolescent girls' perceived behavioral control toward purchasing and eating these foods.

Implications

Adolescents make decisions and develop habits that often continue into adulthood. In fact, evidence indicates that dietary patterns established during adolescence can be a significant predictor of food intake in adulthood (Lake, et al., 2006; Adamson, et al., 2004). Encouraging adolescents to consume organic fruits and vegetables as part of a plant-based diet also could have positive implications for their health and prevention of obesity and disease.

This study seems to indicate that in this cohort of sixth-grade girls, Ajzen's Theory of Planned Behavior is a helpful guide to view their intention to consume organic fruits and vegetables. Subjective norms and attitude could be especially important influences in examining their intention to eat these products. However, practitioners could attempt to strengthen attitude by allowing adolescent girls to taste more organic foods, including fruits and vegetables. Practitioners also could try to facilitate consumption of organic produce by strengthening perceived behavioral control while being aware of adolescents' accessibility to these foods.

The present data from this study reveals the need for media literacy curriculum specifically designed to reach adolescent girls. The information from this study could provide information to teach young girls how to analyze and evaluate media messages about nutrition and food choices. The Kaiser Family Foundation conducted the largest study of television advertising and found that children ages 8 to 12 years watch the most food ads of any age group. Kaiser Foundation Vice President Vicky Rideout said, "In this era when we are so concerned about childhood obesity, it's surprising that food advertisements aimed at children are so overwhelmingly on the side of foods that kids should be eating less of, not more of "(Hellmich,

p.2). Therefore, media literacy could be created as a positive influence to help adolescent girls make nutritious food choices.

The present data substantiates the need for the media to be used as effective avenues to educate adolescents and their parents about the benefits of consuming organic fruits and vegetables. Since the Internet, television, and magazines are media heavily used by adolescents, content analyses of Web sites, advertising, programs and articles with health, diet, and nutrition information could be helpful. Food-related television programs such as Rachel Ray were often viewed by the participants and their parents. Therefore, information about the benefits of consuming these foods could be included in these programs, as well as in Web sites and magazines.

Findings from this study suggest that media campaigns promoting organic produce could be effective in encouraging adolescent girls to consume these foods. Contemporary programming that attracts adolescents could be used. In addition, since the participants perceived healthy and athletic people as those who consumed organic fruits and vegetables, professional athletes could be used as role models in the media messages.

This research study could provide information for schools to implement better nutrition teaching for students. These findings, along with organizations such as the Organic Consumers Association and Whole Foods Markets, could help develop curriculum which could be implemented into students' course work about the importance of eating organic produce. Based on these findings, changes also could be made to offer students healthier food choices, which included organic fruits and vegetables, in the school cafeteria. These positive changes would educate students and also help them discover the tastes and other benefits of these foods.

Limitations of the Study

Limitations of this study include factors of availability, school selection, time, peer influence and demand characteristic. The sample population used in this study is not representative of the entire adolescent female population in Orlando, Florida. The 26 adolescent girls were only a small sample of the sixth-grade female population in Central Florida. The adolescent girls in this study were recruited by a sixth-grade teacher employed by the private school. The participants interviewed consisted of those girls who were present in school during those times.

This study was conducted at a private school. The participants seemed to have good access to media and technology. The girls also seemed to good parental involvement and support. Therefore, the selection and location of school may be considered a limitation as does not include public school students and those from lower socio-economic areas.

Time was also a limitation in this study. Interviews and focus groups were conducted over three weekdays during school hours. This study was conducted during school hours and there were time constraints imposed. Limited time may have prevented in-depth answers or details otherwise discussed, particularly during the focus group that consisted of eight girls.

Another limitation factor may be peer influence. During the focus groups, the participants sometimes repeated the previous person's response. Hence, some of the participants may have been influenced by each other's answers.

Demand characteristic may also be considered as a limitation in this study. Demand characteristic occur when participants are aware of what the researcher expects to find or how they are expected to behave. This factor may affect the outcome of the study since participants may change their behavior to conform to the researcher's expectations (Wagner, 2008).

During the individual interviews and focus groups, the participants were asked where they would go to find more information about organic fruits and vegetables. They were prompted with options such as friends, family, a health professional, or the media. However, the option of "school" was not presented. This also may have affected their answers and therefore be considered a limitation factor.

Future Research

As obesity and diseases increase, there is a national concern for improving the dietary behaviors of adolescents. Studies show that a plant-based diet which includes organic fruits and vegetables is a healthy diet for adolescent girls. However, the development of effective strategies to educate and encourage them in this lifestyle requires an understanding of their eating behaviors and other factors which influence these behaviors.

Parents, particularly mothers, apparently influence adolescent girls' food choices. Therefore, future research should focus on the attitudes, knowledge and underlying beliefs of the mothers of adolescent girls. Questions such as where these mothers obtain their information about nutrition, health and diet could be explored. In addition, the barriers and obstacles that prevent mothers of adolescent girls from purchasing organic produce could be researched. It also might be of interest to investigate whether the adolescent girls influence their parents' food choices.

Since the media have such a powerful influence on adolescents, they could be used as effective tools to educate and encourage adolescent girls to consume these foods. However, it may be helpful to examine how the media may be influencing adolescent girls' dietary choices and behaviors. For example, it could be interesting to examine how the Internet, magazines, and television portray the value of organic fruits and vegetables. Questions such as "What do Web

sites, celebrity magazines and television programs specifically communicate about health, diet and nutrition?" could also be explored.

The findings from this study substantiate the need for researchers to determine how the media could be used to influence positive perceptions of organic fruits and vegetables. Studies also could be done to explore the potential of developing television and web-based advertising to promote these products. In addition, an analysis of how professional athletes could be used as positive role models to encourage adolescent girls to eat organic produce could be included.

The findings from this study, as well as the example of Appleton Central Alternative Charter High School, show the need for future case studies which could implement better nutritional information and dietary choices in schools. Principals, teachers, and parents could be given this information at parent/teacher meetings. They could be encouraged to implement health and wellness programs and offer better nutritional food choices in the school cafeterias.

The students in this study seemed to have media access and excellent parental involvement. Therefore, future research could include conducting this study in a public school in a lower socio-economic area. Findings from both studies could be compared to determine similarities and differences in the data.

The 26 adolescent girls in this study were part of a pioneer study which can have a positive impact on the health of their generation and those young people in the future. It could be interesting to revisit each of the participants in this study in a few years and interview them again. The purpose would be to re-evaluate their attitudes, knowledge, and beliefs about consuming organic fruits and vegetables and determine any changes that have occurred since the first study.

America's young people are not exempt from today's health crisis. The incidence of disease among youth is steadily increasing. Yet, it appears to be a crisis that is somewhat preventable. Poor dietary practices are a leading contributor to the development of obesity and chronic diseases. These issues could be effectively addressed during adolescence by teaching and encouraging good nutritional habits to young people, as well as to their parents. America is a nation that abounds with the latest technology. The media and the educational system can be an effective avenue for educating and promoting healthier food choices so young people are given the tools to make healthier food choices now and in the future.

APPENDIX A
INTERVIEW CONENT FORM

College of Journalism and Communications
University of Florida
Gainesville, FL 32611
Parental Consent

Dear Parent/Guardian,
I am a graduate student in the College of Journalism and Communications at the University of Florida, conducting research on the attitudes, knowledge and beliefs of consuming organic fruits and vegetables on adolescent girls. The purpose of the study is to ascertain adolescent girls' knowledge and assumptions about organic fruits and vegetables and where they get their information about health, diet and nutrition. The results of the study may help researchers better understand the amount of knowledge gained and allow them to design instructional practices accordingly. These results may not directly help your child today, but may benefit future students. With your permission, I would like to ask your child to volunteer for this research.

I will interview all of the participating children either individually or in a group of approximately six other children. I will ask them a set of questions and tape record their answers for transcription. After each interview, I will give them a short questionnaire to answer. The estimated time needed for this study is an hour.

With your permission, your child may also be videotaped during this period. The video will be accessible only to the research team for verification purposes. At the end of the study, the tape will be erased. Although the children will be asked to write their names on the questionnaires for matching purposes, their identity will be kept confidential to the extent provided by law. We will replace their names with code names. Results will only be reported in the form of group data.

You and your child have the right to withdraw consent for your child's participation at any time without consequence. There are no known risks or immediate benefits to the participants. No compensation is offered for participation. Group results of this study will be available in December upon request. If you have any questions about this research protocol, please contact me at 407-928-9618 or my faculty supervisor, Dr. Debbie Treise, at (352)392-6557. Questions or concerns about your child's rights as research participants may be directed to the UFIRB office, University of Florida, Box 112250, Gainesville, FL 32611, (352) 392-0433.

Holly L. Meade

I have read the procedure described above. I voluntarily give my consent for my child, _____, to participate in Holly Meade's study of adolescent girls' attitudes, knowledge, and beliefs about consuming organic fruits and vegetables. I have received a copy of this description.

_____ _____
Parent/Guardian Date

_____ _____
2nd Parent/Witness Date

APPENDIX B
INTERVIEW QUESTIONS

1. What do you eat in a typical day?
    a. Breakfast?
    b. Lunch?
    c. Dinner?
    d. Snacks?
2. Tell me how food choices are made in your home?
3. Do you participate in the food shopping in your home? Talk to me about this.
4. Where do you think your parents get information about the food you eat at home?
5. When you are on the Internet, what sites do you typically visit most often?
6. Would you ever visit or have you ever visited the Web for health, diet or nutrition information? Talk to me about this.
7. Do you typically read magazines?
8. Which magazines do you read?
    a. (Ask for each magazine) What kind of information are you looking for?
    b. (Ask for each magazine) What articles do you usually read first?
    c. (Ask for each magazine) Have you ever looked for health, diet and nutrition information?
9. Do you watch television?
10. What programs do you typically watch?
11. Have you ever watched a television program on health, diet or nutrition? If so, tell me about it.
12. What is your definition of organic food?
13. Talk to me about organic fruits and vegetables.
14. What do you know about them?
    a. Have you ever eaten them?
15. Picture someone who buys organic fruits and vegetables. Tell me about that person.
    a. Male or female?
    b. Age?
    c. Appearance?
    d. Interests?
    e. Job, income?
16. What do you think are the advantages/benefits of eating organic fruits and vegetables?
17. These are the actual benefits. Which of these benefits from eating organic fruits and vegetables are most important to you? (Have individual participants rank in order)
    a. Keeps you thinner
    b. Keeps your skin clearer
    c. Gives you more energy
    d. Helps prevent disease
    e. Helps you concentrate
18. What do you think are the disadvantages of eating organic fruits and vegetables?
    a. Not convenient to buy?
    b. Too expensive?
19. If you wanted to find more information about organic fruits and vegetables, where would you go?

    a. Friends?
    b. Family?
    c. Health professional?
    d. Media?
20. Please share an example of when you learned something helpful about health, diet and nutrition.
21. Is there someone you admire who says that health, diet and nutrition are important? Tell me about that person?
    a. What is his/her relation to you?
    b. How does he/she influence you?
    c. Do you listen to his/her advice?

APPENDIX C
SAMPLE TRANSCRIPT – INDIVIDUAL INTERVIEW

HM: Ok. Well just kind of tell me basically what you typically eat in a day – beginning with breakfast?
Gayle: Breakfast I usually eat snack – ah like snack bars. Like Nutrition Fax or I eat cereal, like Corn Pops, Apple Jacks, ah Honey Nut Cheerios.
HM: Ok – how about lunch?
Gayle: Lunch I usually eat salads and sometimes I eat um like ah usually sometimes I eat fruits.
HM: Ok and how about dinner.
Gayle: Dinner I usually eat meats. Ah I eat vegetables – ah sometimes ah daily products.
HM: What about snacks?
Gayle: Snacks I usually eat like sometimes I eat plums, apples, oranges, sometimes I eat broccoli, lettuce.
HM: Ok – did you ever have snacks here at school?
Gayle: No.
HM: So you eat pretty much fruits and vegetables for your snacks?
Gayle: Yeah.
HM: And that's pretty typical of what you eat. Ok. Tell me how the food choices are made in your home. Who normally decides what your going to eat.
Gayle: My mom usually decides.
HM: She does. Ok and do you ever go shopping with her when she goes shopping for food?
Gayle: Yes.
HM: Tell me about that – like how often you usually go.
Gayle: Usually we go every Sunday.
HM: And do you ah tell her ah like what kind of choices you like and kind of pick – tell me what kind of things you choose to have.
Gayle: Usually I pick ah the – usually I pick the cereals of what we eat and usually I ah pick what we're going to have – pick out for lunch and so –
HM: What kinds of things do you pick up then?
Gayle: Usually I pick out ah kind of like ah snack bars and also I pick out water – like Propel and also I – well we usually pick up bananas or oranges and then we also have that a little – like dessert.
HM: Ok – what kind of things for dessert.
Gayle: Usually we have like brownies or ah like little Zero cakes and we have Pringles or something.
HM: Ok, all right. Where do you think like your mom gets information about the food that you eat? Where do you think she goes?
Gayle: She ah usually goes to ah like the pyramid chart – yeah like what foods to eat that are most important.
HM: Does she have one like in the house or something.
Gayle: No-ah she like – there's a food program that she to follow for the day-care that we own. So she knows from that chart she has.
HM: Oh, so she picks the different foods from the different parts of the pyramid?
Gayle: Um hum.

APPENDIX D
SAMPLE TRANSCRIPT – FOCUS GROUP

Sally, Laurel, Yolly, Maureen, and Debbie
HM: Let's just talk about what you guys specifically eat in a day – breakfast, lunch and dinner and snacks. Sally, tell me about what you have?
Sally: Like for just breakfast>
HM: Tell more for breakfast – we'll start with breakfast.
Sally: Um I have either a Special K cereal – like breakfast or ah like I'll have like a bagel and I'll have Ovaltine.
HM: How about Lunch:
Sally: For lunch I'll either have like a Lean Cuisine Meal, a turkey sandwich from my mom or ah like something healthy from the cafeteria.
HM: What kinds of things do you eat in the cafeteria?
Sally: Like they make turkey sandwiches – so I'd have like a turkey sandwich from them and if they didn't make it I'll have like a grilled chicken sandwich.
HM: Ok. How about you Yolly? What do you have for breakfast. Oh, I'm sorry – let me ask you – any snacks?
Sally: Yeah, like my mom has what we bought like a hundred calorie packs. So we'll have like a 100 calorie packs from different things.
HM: Are they like cookies or crackers or
Sally: Like some of them are like little cookies from other place and ah like ones but I don't really know.
HM: Ok, Yolly – breakfast what do you have?
Yolly: Ah for breakfast I usually eat like cereal or, or bread
HM: How about lunch
Yolly: For lunch I usually I most bring my lunch here or
HM: What kind of things do you bring?
Yolly: I could bring like ah snacks because I don't eat here I eat at my house.
HM: You eat at home – when you get home.
Yolly: Yeah. So I just like to …then I eat usually at my house.
HM: So what kind of things do you bring to snack on?
Yolly: Like cookies, fruits, ah I think.
HM: Then what do you eat when you get home?
Yolly: Well we get spaghetti or something or go out to restaurants on special occasions.
HM: Eat out and what do you kind of eat when you go out.
Yolly: We go to Chinese or Italian restaurants – different things.
HM: Ok. Ok Laurel, how about you. What do you have for breakfast?
Laurel: I usually have like cereal or like on special occasions we make pancakes.
HM: Like on the weekends pancakes or
Laurel: Yeah – better like a birthday or Mother's Day kind of thing we make pancakes. So ah and or cereal ah for lunch I usually have like a peanut butter and jelly – occasional honey when I like been to the grocery store.
HM: Peanut butter and jelly and honey – ok
Laurel: Occasionally honey. Ah grapes, yogurt and chocolate milk.
HM: Ok – dinner?

Laurel: Dinner I usually have macaroni and cheese.
HM: That's your favorite – huh? Ok. How about snacks – any snacks?
Laurel: Like snacks – I really don't eat that much snacks. Just like a cookie or something. When I really hungry I like a cookie or like a bag of chips. If I've really like hungry I'll eat like those little Luna thingies.
HM: Those little what?
Laurel: Luna thingies.
HM: Ok – Maureen how about you. What do you have for breakfast?
Maureen: I have – we have little omelets and we microwave them or sometimes today we ate cereal – that's only if we have enough time and like just ah banana or an apple or some turkey. Something like protein –
HM: How about lunch?
Maureen: Ah – like sometimes like their food is really greasy and fried so – we/I try to get like healthy meals, but
HM: Like what would you choose.
Maureen: Like either grilled chicken or or salad or sometimes I'll bring my lunch and my mom and me will like share a salad – cause my mom works here – so we would like share a salad.
HM: And then dinner?
Maureen: Ah my mom normally doesn't really cook. So I make either like some oatmeal for dinner for me and my sister or maybe eat some cereal or peanut butter and jelly. Something like that?
HM: Do you ever have any snacks?
Maureen: Ah probably bananas.
HM: How about you Debbie? What's for breakfast?
Debbie: Sometimes I eat like Quaker things – like this morning I had like a Quaker's banana nut bar – yeah and like everything kinda by Quaker's or something or I just have fruit or cause I really don't have time cause I live a little far away from here.
HM: So you don't always do breakfast – fast?
Debbie: Well I do it on the – to go like in the car and stuff and then ah for lunch I – actually today I brought my lunch and it's whatever we had for dinner.
HM: Leftovers.
Debbie: and also ah same thing – healthy food here cause some of their sandwiches and like some of their food – they're a little disgusting and have like – sometimes they're even molded.
HM: Moldy and greasy – that kind of thing.
Group remarks: They have this disgusting little fruit cup thingie – I've never eaten them cause You can see mold inside the cup.
Debbie: But like they put juice – like juice in and then they put like little pieces of like peaches or pineapple or something and then sprinkles on top.
HM: How about dinner what would have?
Debbie: Um kind of whatever my mom feels like cooking. Like if she feels ok she'll do like something big like – last night – oh yeah, last night she loves getting stuff from Costco – the big value sized meal – loves it. So last night she brought home this pasta thing. It was actually pretty good and then also sometimes we just have fruit with it. On the go to volleyball practice.
HM: So a lot of times pasta
Debbie: Or like Chinese food, Italian – like whatever she feels like making she makes it.
HM: How about any snacks? Do you eat snacks?

APPENDIX E
SURVEY QUESTIONS

1. I think it's important to eat organic fruits and vegetables every day.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

2. I think eating organic fruits and vegetables will help my body be thin.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

3. I think eating organic fruits and vegetables will give me clearer skin.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

4. I think eating organic fruits and vegetables will give me more energy.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

5. I think eating organic fruits and vegetables will keep me from getting a disease.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

6. If there was an article about organic fruits and vegetables on the Internet, I would probably read it.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

7. If there was an article about organic fruits and vegetables in a magazine, I would probably read it.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

8. If there was a television program about organic fruits and vegetables, I would probably watch it.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

9. I think organic fruits and vegetables cost too much.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

10. I think organic fruits and vegetables are not easily available to me.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

11. I think it's important to eat organic fruits and vegetables whenever I can.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

12. I am interested in knowing more about organic fruits and vegetables.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

13. After the earlier interview, I felt I had to answer these questions a certain way.
Strongly Agree Somewhat Agree Agree Neither Agree or Disagree Disagree Strongly Disagree

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BIOGRAPHICAL SKETCH

Holly Meade received her undergraduate degree in speech and drama and communications at Mercer University in Macon, Georgia. Holly also has completed a long-time goal of her master's degree in mass communication in the College of Journalism and Communications at the University of Florida. She currently produces a daily radio program called, *The Lighthouse Report*, in addition to her freelance work writing, *Beyond the Call*. Holly has written other radio programs and promos and done voiceovers. She has worked behind the scenes producing television programs as well as on-camera stand-ups. Holly also has enjoyed spending many years in live theatre acting in plays and monologues. She continues her passion to encourage others to pursue spiritual, physical, and emotional excellence.