FAMILY PRACTICES AND PERCEIVED IMPORTANCE OF HEALTHY LIFESTYLE BEHAVIORS IN PARENTS OF ADOLESCENTS

A Thesis

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By

Natalie D. Eader, BS, RD, LD

The Ohio State University
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Master’s Examination Committee:

Dr. Christopher A. Taylor, Advisor

Dr. Kay N. Wolf

Approved by

Dr. Jill E. Clutter

Advisor

Graduate Program in Allied Medical Professions
ABSTRACT

Creating effective wellness programs to promote healthy lifestyle behaviors to prevent obesity, it is critical to understand the factors that drive adolescent dietary and physical activity behaviors. Thus, effective promotion of healthful eating requires a detailed understanding of all the factors that influence dietary behaviors. Data was obtained from 66 caregivers of 93 high school students enrolled in a pilot summer wellness course. The questionnaire was divided into sections regarding: personal health behaviors; family and child behaviors; and challenges and desires related to healthy lifestyle behaviors of the family and child. Descriptive statistics were used to describe the responses. Only 6 people (9%) consistently eat 5 servings of fruits and vegetables daily, consider themselves to be physically fit, and try to balance food intake with physical activity. One-third indicated that they strongly agree that physical activity is important for them, whereas 60% indicated that they strongly agree that it is important for their child and encourage it. Also, 42% and 53% strongly agreed that eating a healthy diet is important for them and is important for their child, respectively. Most parents indicated that busy schedules or a lack of time was the primary challenge that prevents eating a healthy diet or being physically active. Although parents value the importance of nutrition and
physical activity many barriers exist, which preclude efforts of lifestyle modification interventions to prevent obesity and chronic disease. Future research should address these issues when developing programs that promote lifestyle changes.
DEDICATION

Dedicated to my supportive friends, family, and mentors.
VITA

March 9, 1983........................................Born – Columbus, Ohio

2006......................................................B.S. Medical Dietetics, The Ohio State University

2006......................................................American Dietetic Association, (ADA) Registered, Licensed Dietitian (RD, LD)

FIELD OF STUDY

Major Field: Allied Medical Professions, Clinical Nutrition and Community Health
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CHAPTER 1

INTRODUCTION

Background and Significance

Obesity has become a significant public health concern in the United States (US), especially among children and adolescents (1-6). The prevalence of childhood overweight has increased over the past three decades, and continues to rise. Child obesity is defined as having a body mass index (BMI) at or above the 95\textsuperscript{th} percentile for age and gender (3). The prevalence of obesity has increased among all age groups over the thirty-year period (1). In children, ages 6-11, rates increased from 4.0\% to 18.8\% and in adolescents, ages 12-19, rates increased from 6.1\% to 17.4\% (7-9). In response to these trends, goals set as part of the Healthy People 2010 initiative included a decrease in the prevalence of obesity among children to less than five percent (10). Left uncontrolled, overweight in children and adolescents, increases the risk of developing serious diseases that were once found primarily in adults, such as hypertension, cardiovascular disease and type 2 diabetes.

Metabolic syndrome is a growing health concern among adolescents, which is a constellation of physical and biochemical risk factors that are indicative of increased risk for several chronic diseases, including diabetes and cardiovascular disease. Metabolic
syndrome is diagnosed by abdominal obesity and the presence of two or more of the following clinical outcomes (14;15):

- elevated triglycerides;
- low HDL (high-density lipoproteins or good cholesterol);
- high blood pressure; and
- increased plasma glucose.

One of the primary risk factors defining metabolic syndrome is abdominal obesity. It is estimated that 10-31% of adolescents are affected by metabolic syndrome, with rates reaching up to 49% in morbidly obese youth (16).

Aside from the immediate health outcomes, metabolic syndrome can lead to serious, long-term health complications. The metabolic syndrome is positively associated with cardiovascular disease and diabetes, two of the leading health problems in the US. Those with metabolic syndrome are twice as likely to have a stroke or heart attack and five times more likely to develop diabetes than those who do not have the syndrome. In addition, people with metabolic syndrome have a five-fold greater risk of developing diabetes (6).

Metabolic syndrome is more common in overweight adolescents, those with poor diet quality and those with low physical activity. The primary means for preventing the syndrome is a moderate increase in physical activity, eating a diet lower in saturated fat, and a moderate decrease in caloric intake (20). With the rise of childhood obesity over the past decade, innovative approaches to promote healthy lifestyle behaviors in adolescents have become vital. High school students who adopt a healthy diet and
physical activity regimen for life may be successful in decreasing the syndrome (19). Left unchecked, the childhood obesity epidemic, heart disease and diabetes will be rampant within the foreseeable future.

Research provides strong evidence that a pattern of poor diet quality and lack of physical activity leads to overweight and obesity (11-13). Considering that overweight is linked to excessive caloric intake and an inadequate amount of physical activity, behavior modification is the key component to combating this epidemic. Primary interventions for adolescent weight control should focus on regular physical activity and healthy dietary practices.

As a student enters high school, they become more independent from the previous influence of the parents; as a result food choice and exercise behaviors become more of a personal freedom (11;12). A program targeting healthy lifestyle behaviors initiated during these years has the potential to promote habits that may be sustained over time (12;21;22).

**Program Background and Objectives**

The Local School Wellness Policy, part of the Child Nutrition and WIC Reauthorization Act of 2004 requires each school district participating in the National School Lunch Program and/or School Breakfast Program to develop a local wellness policy that promotes the health of students and addresses the growing problem of childhood obesity.

A wellness course was developed and implemented to promote wellness and behavior change as part of the high school summer physical education program. The course included creative nutrition education lessons and skill building activities and
physical education units including personal plans and activities. Students from the School of Allied Medical Professions (SAMP) provided wellness education through a public school system giving them an opportunity to experience the implementation of health promotion programs within a school-based environment through service learning. Participating teachers acquired skills and resources useful in health promotion and nutrition education. High school students completed pre and post questionnaires to evaluate changes in knowledge and self-efficacy regarding the skills needed to adhere to a lifestyle that includes physical activity and healthy eating. Parents and caregivers completed questionnaires regarding their health perceptions and lifestyle behaviors in order to evaluate how these may influence their adolescents.

The course implementation and the evaluation of knowledge, self-efficacy, and parental perceptions serve as a means to measure course value and effectiveness. Understanding the outcomes of the pilot course will aid in the development of future course offerings, infrastructure for the school district to promote physical health in the community, and a research publication and/or presentation related to the project outcomes.

The wellness course was a pilot program to promote lifelong physical activity and healthy eating habits in high school students. The wellness-focused curriculum served as a model program to address the lack of school health education, especially considering the pervasiveness of the obesity epidemic in the US and central Ohio. The goals of the wellness course were two-fold:
(1) determine the impact of a student-centered proactive approach by comparing the pre-and post-intervention changes in knowledge and self-efficacy regarding healthy lifestyle behaviors, and

(2) evaluate the external influences and develop infrastructure needed to support school-based intervention of metabolic syndrome in a school setting with the intent to replicate the protocol in similar settings.

**Rationale for Program**

Fit to be a Buckeye, a wellness-based healthy lifestyle course, was designed to focus on the key dietary and physical activity habits targeted in the prevention and management of metabolic syndrome. Although the choice becomes more that of the adolescent than the parent at this age, it is still necessary to explore the relationship between parents' perceptions of a healthy lifestyle, as it may be an influencing factor in their child. In addition to their adolescents' participation in the course, parents and caregivers completed questionnaires regarding their own health perceptions and lifestyle choices. The program served to be beneficial to three OSU missions, teaching, research and outreach.

Summer physical education programs are extremely popular and an excellent target market to pilot a school-based wellness regimen. The high school students that participated in the project had the potential to adopt the behaviors learned through the course, which could have a profound effect on their overall health and improve their contribution to society. The school district administration desires for the program to be expanded over the next few years to reach members of the community and become a model program for other school districts. This cooperation between the school district
and the SAMP also supported the established relationship of internships while beginning a new opportunity for faculty and students of the newly established Health Science Wellness track to become a more integrative partner in the community.

Childhood obesity has been the focus of much scientific inquiry and external funding in recent years, which is linked to cardiovascular disease and many other chronic diseases. The focus of this project on the newly defined metabolic syndrome in youth provided an opportunity for innovative and pioneering research to explore the potential for grassroots school-based programs to have an impact on adolescent health. This project provided valuable pilot data regarding the implementation and value of school-based programs that can be utilized to pursue future grants, or for the development or expansion of other school-based projects. This project also aligned with the National Institute of Health (NIH) initiative toward clinical translational science, a natural progression for the research efforts of the participating faculty.

The project represented a unique collaborative opportunity for the members of the Wellness and Physical Education subcommittee (formed by school district administration to address health concerns in the school district), the high school faculty and students and the SAMP faculty and students. The synergistic effect of collective planning drew upon the unique contributions of each of these entities toward the common goal of decreasing the risk of metabolic syndrome in high school students. As well, with the desires of the school district administration for expansion to promote wellness within the community, a partnership strengthens the potential for future development in community-based participatory research to achieve that goal.
Purpose of Research Study

For an educational program to be effective, external factors influencing lifestyle behaviors must be evaluated. Parents and families still impose influence on weight perception, healthy lifestyle perceptions, and dietary and exercise behaviors. The purpose of this study was to:

(1) assess perceptions of parents and caregivers understanding of the relationship between parental habits and influences on adolescent lifestyle behaviors.

(2) understand the perceptions and behaviors of parents and caregivers in regards to the healthy lifestyle components of nutrition and physical activity.

Therefore, this study was conducted to identify the existence of parental perceptions of a healthy lifestyle, as well as examine if parental perceptions and personal health behaviors influence adolescent lifestyle choices regarding nutrition and physical activity as part of a healthy lifestyle.

The data gathered from this questionnaire serves as a way to evaluate and identify various influences in an adolescents’ life, in order to restructure and improve the course. Depending on the needs and challenges, exploration into familial inclusion within a school wellness program may be necessary in overcoming challenges. The goal was to explore the barriers and influences in order to improve course implementation, increasing the capacity to achieve goals and to identify mechanisms for improvement of course delivery and outcomes.
### List of Definitions

<table>
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<th>Term</th>
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<tr>
<td><strong>Body Mass Index (BMI)</strong></td>
<td>Used to estimate risk of overweight in adults.</td>
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<td><strong>BMI-for-age percentile</strong></td>
<td>Body mass index adjusted for age and growth of children and adolescents age 2-19 years old</td>
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<td><strong>Dietary Guidelines</strong></td>
<td>General guidelines for a healthy diet and decreasing risk of dietary related diseases</td>
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<td><strong>Growth Charts</strong></td>
<td>Age and gender specific charts used by pediatricians and other health care providers to follow a child’s growth over time. They have been constructed by observing the growth of large numbers of normal children over time.</td>
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<td><strong>Healthy People 2010</strong></td>
<td>A set of health objectives for Americans to achieve over the first decade of the new century.</td>
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<tr>
<td><strong>MyPyramid</strong></td>
<td>Created by the American Dietetic Association to provide recommendations to Americans on food groups, portion sizes, variety of nutrients, and physical activity for a healthy lifestyle.</td>
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| **NHANES** | National Health and Nutrition Examination survey; a large US nationally representative cross-sectional survey |
| **Obesity** | BMI $\geq 30$ in adults and $>95^{th}$ BMI-for-age percentile in children and adolescents |
| **Overweight** | BMI-for-age between $85^{th}$ and $95^{th}$ percentile on 2000 CDC Growth Charts |
| **Team Nutrition** | An initiative of the USDA Food and Nutrition Service to support the Child Nutrition Programs through training and technical assistance for foodservice, nutrition education for children and their caregivers, and school and community support for healthy eating and physical activity. |
List of Abbreviations

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<td>ATP III</td>
<td>Third Adult Treatment Panel for Cardiovascular Disease</td>
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<td>BMI</td>
<td>Body Mass Index</td>
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<td>CDC</td>
<td>Center for Disease Control and Prevention</td>
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<td>HDL</td>
<td>High-density Lipoprotein</td>
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<td>IDF</td>
<td>International Diabetes Federation</td>
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<td>IRB</td>
<td>Institutional Review Board</td>
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<td>NCEP</td>
<td>National Cholesterol Education Program</td>
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<td>NHANES</td>
<td>National Health and Nutrition Examination Survey</td>
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<td>NIH</td>
<td>National Institutes of Health</td>
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<td>SAMP</td>
<td>School of Allied Medical Professions</td>
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<td>USDA</td>
<td>United States Department of Agriculture</td>
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<td>WIC</td>
<td>Women, Infant and Children Supplemental Nutrition Program</td>
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<td>WHO</td>
<td>World Health Organization</td>
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CHAPTER 2

REVIEW OF LITERATURE

Rates of Obesity

Overweight and obesity have become a major health concern in the United States. More specifically, the prevalence of childhood overweight has increased over the past three decades, and continues to rise. Overweight is defined as having a body mass index (BMI) at or above the 95th percentile for age and gender (3). Surveys collected from NHANES 1971-1974 and 2003-2004 found that the prevalence of obesity has increased among all age groups over the thirty-year period. In children, ages 6-11, rates increased from 4.0% to 18.8% and in adolescents, ages 12-19, rates increased from 6.1% to 17.4% (8;9). The Healthy People 2010 initiative would like to see a decrease in the prevalence of obesity among children to less than five percent. Left uncontrolled, overweight in children and adolescents, increases the risk of developing serious diseases that were once found primarily in adults, such as hypertension, cardiovascular disease, type 2 diabetes and metabolic syndrome (10).

The Rise of Metabolic Syndrome

The metabolic syndrome has received increased attention in the past few years (23). Metabolic syndrome is defined as abdominal obesity with two or more of the
following biochemical risk factors: elevated triglycerides; elevated fasting blood glucose; elevated blood pressure; and decreased HDL cholesterol. The number of people with metabolic syndrome is connected to the rise in obesity: as obesity rates continue to grow, the number of metabolic syndrome cases increases as well (24). It is estimated that 47 million adults in the United States (25%) have metabolic syndrome and the numbers continue to climb, which is significantly related to an increased risk for cardiovascular disease and diabetes in adults. A person with metabolic syndrome is twice as likely to develop heart disease and five times as likely to develop diabetes. It is predicted that metabolic syndrome will surpass smoking as the leading risk factor for heart disease (6).

**Metabolic Syndrome in Children and Adolescents**

The rate of obesity is not only increasing in the US adult population, children and adolescents are also experiencing unprecedented rates of obesity. As a result, the International Diabetes Federation (IDF) recently developed age-adjusted diagnostic criteria of metabolic syndrome for children and adolescents. Criteria have been developed for children age 6 years and younger, ages 10 to 16 years and 16 years and older. These guidelines are similar to the criteria for adults, but accounts for age-related differences and changes that occur during growth and development. Instead of using absolute values for the defining characteristic of abdominal obesity, a normative percentile of waist circumference has been established to compensate for the variations in child development, gender and ethnic origin. Specific waist circumference standards have been developed for European-American, African-American, and Mexican-American children and adolescents (25). Considering the recent development of the definition, little data is available regarding the rate and extent of metabolic syndrome in
children and adolescents. A limited amount of studies have been done on the prevalence of metabolic syndrome in adolescents under these newly released guidelines, with varied results (14;15;17;18).

The National Cholesterol Education Program (NCEP) used the adult criteria to estimate that 12.1% of the children/adolescents, ages 12-19 years, had metabolic syndrome (26). When using the newly defined criteria for adolescents, nearly one-third (31.3%) of adolescents were categorized with metabolic syndrome, a rate two-fold higher than those previously found to be at risk. An examination of 991 adolescents, using the National Health and Nutrition Examination Study (NHANES) 1999-2000 data, suggested that the prevalence of metabolic syndrome among US adolescents increased from 4.2% to 6.4% between 1988 and 2000, respectively. Based on population-weighted estimates, researchers estimated that more than 2 million adolescents currently have metabolic syndrome (27).

In another study (2003) comparing rates of metabolic syndrome in adolescents using the Adult Treatment Panel guidelines (ATP III) compared with the World Health Organization (WHO) criteria found that the overall prevalence in the ATP III-defined metabolic syndrome was 4.2% and the WHO-defined was 8.4%. Metabolic syndrome was found among obese teenagers, with prevalence in both the ATP III and WHO defined cases to 19.5% and 38.9%, respectively. These estimates may underestimate the current extent of the problem, because both the magnitude and prevalence of childhood obesity have increased in the past decade. Regardless of the discrepancies of prevalence in adolescents, it is evident that metabolic syndrome exists and persists, especially in those who are overweight or obese (28). The prevalence of metabolic syndrome is
greatest amongst obese children and adolescents, and it increases with worsening obesity. Biomarkers of an increased risk of adverse cardiovascular outcomes are already present in this population.

**Contributing Factors and Possible Solutions**

Research provides strong evidence that a pattern of poor diet quality and lack of physical activity leads to overweight and obesity. Considering that overweight is linked to excessive caloric intake and an inadequate amount of physical activity, behavior modification is the key component to combating this epidemic. Primary interventions for adolescent weight control should focus on regular physical activity and healthy dietary practices.

Urbanization, unhealthy diets and increasingly sedentary lifestyles have contributed to the increased prevalence of childhood obesity. It is possible to prevent or delay the metabolic syndrome, mainly with lifestyle changes (28). Practicing a healthy lifestyle is a lifelong commitment, thus controlling this disease takes life long effort. Programs to improve the outcomes of obesity in children and adolescents have included: school-based programs addressing physical activity and diet; pharmacotherapy; and bariatric surgery (14). Arguments exist for the safety and effectiveness of such initiatives; however, governments and society are in agreement that intervention efforts need to make the public more aware of health implications associated with obesity and the likelihood of progression into metabolic syndrome in children and adolescents. With the release of the new criteria for adolescents and children, the IDF also included recommendations for prevention, which include moderate calorie restriction (to achieve
5-10% loss of body weight in the first year), moderate increase in physical activity and a change in dietary composition. Sir George Alberti (14;15;18) released a statement for the IDF, stating:

“Early detection followed by treatment is vital to halt the progression of the metabolic syndrome and safeguard the future health of children and adolescents.”

Health Promotion & The School Wellness Policy

The link between healthy lifestyle behaviors and disease prevention, with a focus on the importance of a healthy diet and physical activity are not a new concept (29). Hippocrates once said, “If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health.” Nearly 2,500 years later, we continue to struggle with these fundamental truths as a nation today. The words of Hippocrates need to resonate now, more than ever.

The promotion of healthful diets among children and adolescents has become a priority for public health. An appropriate diet during childhood and adolescence can reduce the risk of immediate problems, such as overweight and obesity. Because healthful eating habits early in life are likely to be maintained in maturity (12), they can reduce the risk of developing cardiovascular diseases, diabetes, cancer and osteoporosis later in life (21;22). Current trends among children and adolescents reflect unhealthful eating behaviors, such as: high consumption of sweets, savory snacks, and soft drinks; skipping breakfast; and eating few fruits and vegetables (12).

In the fall of 2006, a federal mandate was implemented, requiring the development and implementation of a school wellness policy that promotes the health of students and addresses the growing problem of childhood obesity (30). This mandate
was a result of the alarming rates at which obesity continues to climb in US youth. Researchers from the US Centers for Disease Control and Prevention (CDC) found that 17.1\% of children (ages 5-18 years) were overweight in 2004, compared to 13.9\% in 2000 (30).

According to the policy, administered by the USDA, school districts must set goals for nutrition education and physical activity, set nutrition guidelines for all foods and beverages available on school campuses during the school day, and set goals for other school-based activities designed to promote school wellness. Instead of broadening the federal government mandate, the wellness policy requires local schools and communities to initiate the process, encouraging parents, students, school food authorities, school board, school administrators and the public to be active in the development and promotion of the wellness policy. The wellness policies can include limits on advertising of junk food and soda, encourage local farm-to-school connections, set guidelines for products sold at fundraisers, and encouraging participation in school nutrition education and physical activity programs (30).

The development of effective healthful diet promotion interventions should be based on knowledge about behavioral determinants, and for children and adolescents, family-environmental factors need to be of particular interest. Adolescents indicated their food choices are influenced by hunger and food cravings, food appeal, convenience, food availability, parental influences, media, cost, and lack of concern about eating healthy (31;32). Family-environmental factors that have been associated with the dietary intake of children and adolescents are food availability and accessibility at home, meal structure and duration, food modeling, food socialization practices (i.e., parents
preferences, beliefs, and attitudes shape their children’s food consumption), communication about food, shopping practices, food-related practices and rules, and general family characteristics (e.g., family cohesion, parenting style, family climate, education of parents) (12). To create an effective program that will ensure lifelong changes that adhere to a healthy lifestyle and prevent obesity and disease progression, it is integral to understand the factors that influence and drive adolescent dietary and physical activity behaviors (13).

**Parental Influence on Adolescent Behavior**

As in many cases, there are both controllable and uncontrollable factors that lead to a problem; obesity and disease are not exceptions to that rule. From birth and before, several factors can predispose a child to conditions such as obesity or dysglycemia (33;34). To enhance the nutritional quality of adolescents’ diets, an understanding of the factors that influence food behaviors is essential. The presence of maternal gestational diabetes, low birth weight, infant feeding practices, early adiposity rebound, and genetic factors may all contribute to a child’s future level of risk (33). However, being raised in an “obesogenic” environment can have a very strong impact, as can the influence of socioeconomic factors, with weight gain being observed as a positive correlate to affluence in developing countries (9). When examined, there are numerous family-environmental factors, and in various combinations, that influence children’s dietary intake, with mixed results. However, the majority of the findings found associations for at least some of the family-environmental factors, with parental intake and parental education having the most consistent association with children’s dietary habits (35).
One study examined the influences of the social environment in determining eating behavior. An investigation of the food choice and fat intake of adolescents (age 15 years old) within their social networks that included family members and peers indicated that within the nuclear family, food similarity of choices were significantly correlated among members. Fat intakes were moderately associated between parents, between mother and child, and between father and child; however, they found no significant correlations of fat intake between friends, and consumption of specific foods were only loosely related. In other words, there is a clear resemblance in habitual food and fat intake between parents and their adolescent children and between spouses; friends do not seem to have a lot of influence on their adolescent peers (36).

Another study examined the relationship between fruit and vegetable consumption, nutritional knowledge and health beliefs of mothers on their preteen children (ages 9-11 years). Children’s consumption of fruits and vegetables was predicted by their mother’s nutritional knowledge and concern for health, as well as her frequency of consumption of fruits and vegetables. Promotion of fruit and vegetable consumption may require the attention to nutritional education and child feeding strategies of parents (37).

Similarly, a cross-sectional study of 534 seventh and eighth graders and their parents investigated the influence of the family environment, food availability, rules and television habits on the eating behaviors of adolescents. Dietary fat, soft drink, and fruit consumption were specifically examined within this sample. Boys that had greater access to unhealthy products at home consumed significantly more fat and more soft drinks, while boys who watched less television consumed more fruit. Adolescent girls
had higher intakes of fruit if they had healthy products available at home, had more food rules or watched less television. However, environmental factors were poor predictors of soft drink consumption among girls. Findings concluded that availability of unhealthy food products, family food rules, and TV viewing habits were related to one or more eating behaviors in boys or girls. Thus, home environmental factors can play a significant role in shaping adolescents’ eating behaviors (11).

**How Parents Influence their Children**

Understanding children’s eating habits and behavior is important in terms of their health. Evidence indicates that dietary habits acquired in youth persist through adulthood (34). When examining children’s dietary habits, it is necessary to focus on the influence of significant others on their development of food preferences and eating habits (11). Parents play an integral role in shaping and guiding eating patterns, in that parental attitudes must certainly affect their children indirectly as well as directly, through foods purchased and served in the household, exposure that influences food habits and preferences out of the household. When evaluating how parents affect their adolescents’ eating attitudes and behavior, it is important to examine the different types of parental influence. A study comparing modeling and control theories of parental influence found results that support both (38). However, modeling seems to have a consistent impact, whereas parental control has a differential impact depending on whether this control is focused on the child’s diet or on other aspects of their behavior. Brown and Ogden concluded that a positive parental role model might be a better method for improving a child’s diet than attempts at dietary control (38).
However, modeling alone may not be sufficient; parenting by definition involves the task of care and feeding one’s children (33). Parenting practices and parent-child interaction during feeding vary in degree. These interactions can have a powerful influence on children’s food preferences, intake patterns, dietary quality, growth and weight status (33). It is optimal to find a balance between being a positive role model by example and exhibiting complete food control. One study examining parental influence on food selection and its relationship to childhood obesity, found that when children are allowed to freely choose a meal from a large variety of foods, they choose large amounts of food with poor nutritional value, mostly high in added sugars. When informed that parents would be monitoring their food selections, children modified their intakes, decreased the amount of food chosen or chose fewer foods high in sugar. Parental involvement yielded a meal lower in total calories, fewer calories from saturated fat and less sodium. Children left to their own devices will make poor nutritional choices than when monitored by a parent; however, parental control of feeding practices, especially restrictive feeding practices, tends to be associated with overeating and poorer self-regulation of energy intake in children. Parents have a strong influence on the food selections of their children. The goal is that children can be taught to make more nutritious choices naturally both with and without parental involvement (39).

**Communication between Parents and Adolescents**

When it comes to modeling behavior, social cognitive theory yields that household adults act as socializing agents, and children can be expected to model adults’ behavior. The question becomes are adults’ personal determinants of health also communicable to their children. Is there a relationship between household adults’ and
children’s intrapersonal predictors of health, such as self-efficacy and knowledge? There tends to be a disconnect between parents and youth about what it means to practice healthy eating behaviors. When evaluating intergenerational communication, family conversations, and decision making there tends to be frustration from both sides (21). When asked, families can describe a wide range of ways that communication is associated with healthful and unhealthful patterns of eating. However, parents tend to express anguish over their struggle and inability to help their children eat more healthfully. Parents and teens are in agreement that they need opportunities to learn together and communicate about ways to improve nutrition behaviors (22). As children grow, conversation about nutrition knowledge and self-efficacy between parents and children becomes an important factor in addition to behavior modeling (21).

**Healthy Lifestyle Barriers Faced by Families**

Many barriers exist that can explain why nutrition and exercise are not at the forefront of the family focus. A focus group study addressing parents and caregivers concerns and beliefs regarding children’s health habits identified that families face many challenges at multiple levels when helping their children maintain a healthy lifestyle (40). Among these findings, participants reported lack of time and difficulties with time management as a top obstacle. They also admitted feeling inadequate as healthy role models, and admitted a desire to avoid the conflict that arose around food and weight. Participants also felt unsupported by their children’s schools and doctors. The cost of healthy foods, exercise facilities and safety also interfered with developing healthy habits.
Participants demonstrated discrepancies and inconsistencies in knowledge; they blamed the lack of knowledge about nutrition and appropriate exercise and activities as reasons why they are not more proactive. They also demonstrated a desire for the community to provide activities for families to participate in health behaviors and activities. In particular, they wanted to see more healthy options provided in schools, stating that schools undermine healthy eating habits by offering high fat, high calorie lunches, snacks and rewards in the classroom. They also expressed concern that the school curricula made it difficult for their kids to get regular exercise and learn about nutrition in health classes, because they are not always available. The study confirmed that parents are concerned about their children’s weight status and health behaviors; however they sometimes lack the knowledge and skills, and face many layers of obstacles when it comes to supporting these behaviors. Thus, effective promotion of healthful eating requires a detailed understanding of all the factors that influence dietary behaviors.

**A Guided Focus for Health Inventions**

There is a growing body of evidence supporting the notion that family and social environments play an important role in the development of children’s eating patterns and diet quality. Promoting healthier eating patterns among children requires a multi-faceted approach targeting children, parents, families and schools. Children’s eating patterns are influenced by such a range of characteristics of the social and physical environments, it is important to develop interventions that target the different levels at which these influences occur: at the level of the child, family, and finally the community.
Interventions should target food exposure and preference, feeding styles and structure within the home, as well as schools and meal programs in order to foster healthy eating patterns among children both in and away from the home (41).
CHAPTER 3

METHODOLOGY

Overview of the Project

The Fit to be a Buckeye was a cooperative wellness program between the School of Allied Medical Professions (SAMP) and the Faculty and Wellness Initiative of a suburban school district to support the design, development and presentation of a high school course to promote lifelong physical activity and healthy eating habits. The goal of the program was to establish a model for a sustainable health and physical education courses that assist students to promote wellness and lifelong healthy habits. This project also served as way for undergraduate and graduate students to participate in a service-learning, community-based project. As a result of the proposed project, students in the school district learned invaluable life skills through the latest evidence-based approaches to health and wellness. Furthermore, SAMP students had an opportunity to apply theoretical concepts from their didactic curriculum in a real-life situation, which enriches the educational experience and prepares them for careers in Allied Health.

The program allowed SAMP students to participate in Service Learning by engaging students in the development and presentation of the course and the
understanding of the application of theory in a complex, real-world context. The SAMP students were required to engage in reflection exercises to ensure the vital link between service and learning was achieved.

The project was divided into three phases. The first phase involved course content planning and the development of the nutrition education curriculum. The second phase was program implementation, the pilot of the course was offered in the summer of 2008. The third phase was the evaluation of the program, which examined knowledge, self-efficacy and parental influences in relationship to adolescent’s perceptions of a healthy lifestyle.

**Course Development and Planning**

A community partnership was established between The School of Allied Medical Professions (SAMP) and the school District. SAMP faculty joined the Wellness Initiative Committee to collaborate on developing a pilot Physical Education course that emphasized a commitment and plan to promote healthy lifestyles in high school students. Currently, school district provides limited health education before the ninth grade. Noting the increased independence of the student and the new Wellness Initiatives, the school district is committed to providing innovative health classes to assist students and the community. The required physical education courses are an excellent venue to offer principles of a well-rounded healthy lifestyle to students. The district is located in central Ohio and includes 4,371 students within three high schools. Approximately 600 of these students participate in the summer physical education program.
The primary goal for the pilot wellness course was to emphasize physical activity, healthy eating and emotional well-being. Specific activities to be performed during class sessions were developed in collaboration with subcommittee members, SAMP faculty and students and the school district faculty. The general course outline was developed in February and March. A description was submitted to the district administration for program approval and was then advertised to potential students. This course description targeted all students interested in improving their overall lifestyle. A course syllabus was submitted to the curriculum committee for gym course approval. During this same time frame, The Ohio State faculty submitted a form to the Institutional Review Board (IRB) for approval of data collection.

From April to June, course lesson plans were developed. USDA Team Nutrition, My Pyramid and Fitness Gram were used to develop course content and lesson plans. Each class was divided into time slots, with two-thirds focusing on physical activity, and one-third on nutrition and healthy eating. One strategy used to encourage behavior change involved a collaborative process in which students chose a goal and clinicians and students negotiated a specific action plan to assist in the goal’s achievement (7). Lesson plans included the opportunity for students to negotiate their action plans.

Community partnerships were identified during this time to determine options for wellness activities during class. Arrangements were made to involve the community, such as cooking demonstrations, meal planning and preparation activities. Local grocery stores to be used for tours and innovative exercise sites within the community were utilized. The students explored a variety or options within the community to highlight plausible local physical activities in which they could participate.
Creative, interactive lesson plans, including presentations, activities, and interactive websites were developed to highlight health facts, food and exercise tips and encourage students to adhere to their personalized plan. Logs were developed for students to track their own progress in terms of nutrition and physical activities. SAMP dietetic graduate students were responsible for the creation and design of the content and topics for the course.

**Implementation**

The course was offered during the scheduling period prior to the summer school term. It was offered along with other physical education course options and was open to any student who needed to fulfill physical education credit. The capacity for the class was originally set for 30 students, but due to increased interest in this course, two additional sections were added, allowing the enrollment of 93 students. Students enrolled in the course received a packet on the first day of class, explaining the right to accept or deny participation in a supplemental research study as part of the pilot course. Students were informed that participation in the study in no way influenced their enrollment in the class. Along with the student consent form and parent permission slips, students also received a consent form and questionnaire to be completed by a parent or care giver. Parents were invited to participate in the research study by anonymously completing “The Parental Perceptions Questionnaire” and returning it to the school; parents were also given an explanation of the study and a consent form to accept or waive participation.

The initial course was offered as a pilot summer physical education course, five days per week for three weeks in June – four hours each day. Each day was comprised of both physical activity and nutrition components – physical activity components were
taught by school district physical education faculty. The activities presented during this portion of the course included strength and conditioning, aerobics, and stretching; students used pedometers as well as physical activity logs for students to track their progress in becoming more physically active. SAMP Health Science students were part of a summer service-learning project to assist school district faculty with the physical education components of the class.

Nutrition components were led by a Registered Dietitian and two Medical Dietetic graduate students. The primary focus of the nutrition lessons focused on the fundamentals of nutrition and energy balance, the importance of nutrition for health promotion and disease prevention, and practical lifestyle modifications for healthy dietary habits. Methods included: interactive lessons; Group activities; cooking demonstrations; grocery store tours and discussion sessions addressing challenges and encouraging students through the “Fit to be a Buckeye” plan.

At the beginning of the course, each child completed a Fitnessgram screening to assess their physical activity level and completed pre-test questionnaires regarding nutrition knowledge and self-efficacy to complete healthy lifestyle behaviors.

Students also received a questionnaire on parental perceptions of a healthy lifestyle to be signed, filled out by a parent of primary caregiver and returned to school. Students and their parents involved in the summer physical education class were encouraged but not required to complete the questionnaires regarding nutrition and physical fitness knowledge and attitudes, and self-efficacy toward life-long nutrition and physical activity and parental perceptions of a healthy lifestyle. Student measurements were used as data for graduate theses as well as to serve as outcome measures in
determining the effectiveness of the pilot course. The evaluations were summarized and the data generated was used by SAMP and school district faculty for future course revisions in the development of a model program to be shared with other schools.

**Evaluation**

The third phase of the project was the evaluation of course to determine success and identify areas for improvement. To evaluate the success of the multi-faceted project, several assessments were required before, during and after the course. Special emphasis was placed on course delivery and acceptance by the students; however measurement focused on the functional outcomes of the course content in terms of the knowledge and skills gained by the students, potential changes in lifestyle behaviors, and factors that influence adolescent lifestyle, all which could precipitate risk for chronic disease. The evaluation of the influence of parental perceptions of a healthy lifestyle on adolescents was one of several evaluations that were all part of this larger study.

**Parental Perceptions of a Healthy Lifestyle**

The focus of this study was to assess perceptions of parents and caregivers understanding of the relationship between parental habits and influences on adolescent lifestyle behaviors. At the beginning of the course, students were given questionnaires to be completed by their parents and returned to school. The questionnaires were sent home with each student along with a letter of explanation and the right to decline participation. Students were requested to return the questionnaires along with other course paperwork within the first week of the class. The purpose of the questionnaire was to understand the perceptions and behaviors of parents and caregivers in regards to the healthy lifestyle components of nutrition and physical activity.
Questionnaires were developed as measurements of self-efficacy, knowledge and parental perceptions of a healthy lifestyle by the dietetic graduate students in order to collect data for graduate theses. These measurements were pilot tested for reliability and expert panels reviewed them for validity. The questionnaire included both Likert-Scale questions and open-ended responses. The questionnaire also collected qualitative data about the parental intent and value placed on health behaviors for themselves and within the family.

The Parental Perceptions of a Healthy Lifestyle Questionnaire was one part of a larger study. Questionnaires were developed as measurements of self-efficacy, knowledge, and parental perceptions of a healthy lifestyle. The Parental Perceptions of a Healthy Lifestyle questionnaire consisted of questions that were chosen from a large pool of possible questions adapted from the NHANES survey questions; they were refined and categorized after being pilot tested for reliability and reviewed by an expert panel for validity. Questions were written to obtain parental behavior and perceptions of key elements related to the curriculum adapted from USDA Team Nutrition utilized in the wellness program.

The questionnaire consisted of 25 statements, broken into three sections. The first section contained 11 statements referring to personal health behaviors responses ranged on a scale from always, often, sometimes, rarely and never. The second section also had 11 statements, but related to health beliefs and behaviors of the child and family; responses included strongly agree, agree, disagree and strongly disagree. The final section included three open-ended questions, as follow: What things prevent you and your family from eating a healthy diet or being physically active?; What would make it
easier for you and your family to eat a healthy diet or be physically active?; and What would you like to see your son or daughter learn in the summer wellness course? The questionnaires were sent home with the students on the first day of class, along with the permission slip to participate, to be signed and completed by a parent of primary caregiver and returned to school.

By implementing this questionnaire, it was expected that parents and caregivers would have perceptions and concerns for the health and lifestyle behaviors of their adolescents. As well, we anticipated that parental perceptions and health behaviors were related to adolescent lifestyle choices of diet and exercise. It was also expected that these perceptions are potentially influential in how adolescents perceive nutrition and physical activity as part of a healthy lifestyle.

**Data Analysis**

After the parental perceptions questionnaires were returned, the data for the scale responses were entered into SPSS (SPSS Inc, version 15.0, Chicago, Il) for analysis. Frequency analyses were computed for the Likert-type responses to examine the trends. Open-ended responses were recorded as qualitative data and reviewed in order to identify common themes and concerns shared among the parent participants.
CHAPTER 4

FAMILY PRACTICES AND PERCEIVED IMPORTANCE OF HEALTHY LIFESTYLE BEHAVIORS IN PARENTS OF ADOLESCENTS

Abstract

Background: Creating effective wellness programs to promote healthy lifestyle behaviors to prevent obesity, it is critical to understand the factors that drive adolescent dietary and physical activity behaviors. Thus, effective promotion of healthful eating requires a detailed understanding of all the factors that influence dietary behaviors.

Methods: Data were obtained using a questionnaire from 66 caregivers of 93 high school students enrolled in a pilot summer wellness course. The questionnaire was divided into sections regarding: personal health behaviors; family and child behaviors; and challenges and desires related to healthy lifestyle behaviors of the family and child. Descriptive statistics were used to describe the responses.

Results: Only 6 people (9%) consistently eat 5 servings of fruits and vegetables daily, consider themselves to be physically fit, and try to balance food intake with physical activity. One-third indicated that they strongly agree that physical activity is important for them, whereas 60% indicated that they strongly agree that it is important for their child and encourage it. Also, 42% and 53% strongly agreed that eating a healthy diet is
important for them and is important for their child, respectively. Most parents indicated that busy schedules or a lack of time was the primary challenge that prevents eating a healthy diet or being physically active.

**Conclusion:** Although parents value the importance of nutrition and physical activity, many barriers exist, which preclude efforts of lifestyle modification interventions to prevent obesity and chronic disease. Future research should address these issues when developing programs that promote lifestyle changes.
Introduction

Overweight and obesity have become a major health concern in the United States (1-3). More specifically, the prevalence of childhood obesity, which has increased over the past three decades, continues to rise (1). Obesity, defined as having a body mass index (BMI) at or above the 95th percentile for age and gender (3), has increased four-fold in 6-11 year old children (4.0% to 18.8%) and has tripled in 12-18 year olds (6.1% to 17.4%) from 1974 to 2004, respectively (8;9). The Healthy People 2010 initiative established a goal to decrease the prevalence of child and adolescent obesity to less than five percent (10). Furthermore, overweight adolescents have a 70% chance of becoming overweight adults and an 80% chance if at least one parent is overweight (34;42). These data also suggest that with obesity in children there is an increased likelihood to develop obesity-related health problems in adulthood, such as diabetes and cardiovascular disease.

The nation’s youth are already experiencing the ramifications of obesity in children and adolescents; child and adolescent obesity increases the risk for developing serious diseases that were once found primarily in adults, such as hypertension, cardiovascular disease, type 2 diabetes and metabolic syndrome. A pattern of poor diet quality and lack of physical activity leads to overweight and obesity (11-13;20). Because overweight is linked to excessive caloric intake and inadequate amounts of physical activity, behavior modification is a critical component to combating this epidemic. Furthermore, healthful eating habits early in life are likely to be maintained throughout maturity (12); adolescents can mediate their risk for obesity-related chronic diseases by adopting healthy lifestyle behaviors early in life (21;22).
As a student enters high school, food and exercise habits become more his/her choice than that of a parent (11;12). Parents are not the only factor that drives adolescent eating habits; there are multiple influences on the food choices of adolescents, such as food preference, availability, cost and social environment. However, parents do play a major role because they influence the dietary behaviors in many different ways. These influences include: food accessibility at home; meal structure and duration; food modeling; food socialization practices (i.e. the parents’ preferences, beliefs, and attitudes shape their children’s conceptions of food); communication about food, shopping practices; food-related practices and rules; and general family characteristics (e.g. family cohesion, parenting style, family climate, education of the parents).

Many barriers exist that explain why nutrition and physical activity are not at the forefront of the family focus (11;22;40;41;43). Promotion efforts should target the barriers that impact food choices, including social and familial influences on dietary habits and food selection behaviors. Effective promotion of healthful eating requires a detailed understanding of the factors that influence dietary behavior (13). The purpose of this study was to identify parental lifestyle behaviors and perceptions regarding their child’s lifestyle behaviors.

**Methods**

*Overview of the Program*

The wellness program, which represented collaboration between a suburban school district’s Faculty and Wellness initiative and a large-Midwestern university support the design, development and presentation of a high school course to promote lifelong physical activity and healthy eating habits. The goal of the program was to
establish a model for a sustainable health and physical education course that assists students in developing healthy lifestyle behaviors that can persist after high school.

The process of course development and implementation was divided into three phases. The first phase involved course content planning and the development of the nutrition education curriculum. The US Department of Agriculture’s Team Nutrition curriculum was used to guide the classroom instruction and materials. The second phase was program implementation, the pilot of the course was offered in the summer of 2008. The third phase was the evaluation of the program, which examined knowledge, self-efficacy and parental influences in relationship to adolescent’s perceptions of a healthy lifestyle.

Subjects

Ninety-three high school students were enrolled in the summer physical education course. Students were permitted to enroll in the course if they lived in within city limits and were entering high school. Parental consent forms were sent home with each student for enrollment in the program as part of a packet of materials. Also included in the packet was a questionnaire to be completed by parents to assess their current lifestyle practices and concerns about the weight and lifestyle habits of their children. Parents had the option to defer or accept participation, by checking a corresponding box.

Questionnaire Development

The *Parental Perceptions of a Healthy Lifestyle* questionnaire was developed as measurements of knowledge and parental perceptions of a healthy lifestyle. The primary purpose of the questionnaire was to assess parental values and behaviors used in the development of course content. Questions were developed to evaluate parental values of
the role of diet and physical activity to promote the health of themselves as well as their children. Items were created to measure parental skills as well as the frequency of activity for specific lifestyle behaviors. To increase content validity, the list of tasks was developed to correspond to the behaviors from the Team Nutrition curriculum that was taught during the course. Finally, the questionnaire measured the extent to which parents encouraged or facilitated healthy eating and physical activity behaviors in their children. These items were developed using key factors about parental control of child behaviors from the literature (21;33;40;41).

The questionnaire was comprised of 28 items, divided into four sections (Table 1). The first section (Lifestyle Patterns) contained 10 statements referring to personal health behavior. Parents indicated their levels of performance for these tasks using a scale of always, often, sometimes, rarely and never. The second section (Parental Values) contained 10 statements related to health beliefs and behaviors of the child and family, to which agreement with responses including strongly agree, agree, disagree and strongly disagree. The third section (Health and Weight Valuation) was comprised of health and weight valuation items used in national nutrition monitoring surveys. These items measured parental perception of the health weight status of themselves and their child. The final section included three open-ended questions to identify the promoters and barriers to a healthy lifestyle for their family and what they hope their children will learn in the course.

Data Analysis

After the collection of the questionnaires, scale responses were entered and coded in SPSS (SPSS Inc, version 15.0, Chicago, IL). Frequency analyses were conducted to
identify frequency trends. Data are presented as the raw number of responses and the proportion (n, %). Open-ended responses were tabulated and reviewed to identify common themes and concerns shared among the parents.

**Results**

Ninety-three students were enrolled in three sections of the course, of which, 82 parents (88%) consented for their children to participate in the research portion of the course. The questionnaire that assessed parental values and behaviors about healthy lifestyles was completed by 66 parents (80%) of the 82 students enrolled in the study. Fourteen parents deferred the completion of the survey by checking the decline option, while two others did not return the survey. Responses to the Lifestyle Patterns are presented in Table 2. Parents presented a limited commitment to modeling healthy lifestyle behaviors for their children. Six parents (9%) reported that they consistently eat 5 servings of fruits and vegetables daily, consider themselves to be physically fit, and try to balance food intake with physical activity, respectively.

Responses from the Parental Values items found that 23 (35%) responded that they strongly agree that physical activity is important for them, whereas 40 (60%) indicated that they strongly agree that it is important for their child and encourage it. Also, 28 (42%) parents/caregivers strongly agree that eating a healthy diet is important for them, whereas 35 (53%) strongly agree that eating a healthy diet is important for their child. Similarly, responses to the Health and Weight Valuation items suggested parents were more likely to think positively about the health and weight of their children than about themselves (Figures 1 and 2, respectively)
Diet and physical activity were perceived to be important for the health of the parents and their children. Nearly all respondents feel eating a healthy diet is important to them and has an effect on overall health. In addition, parents feel eating a healthy diet and physical activity is important for their children. However, parents were less likely to discuss the importance of physical activity and healthy eating habits with their children. Busy schedules or a lack of time was the primary challenge (n=54, 81.8%) preventing themselves or their families from eating a healthy diet or being physically active. Other perceived barriers to eating healthy and being physically active included laziness, dislike/disinterest among family members and cost. Parents felt that having more time, being more organized by preplanning meals and scheduling exercise, family support, more knowledge about preparing healthy meals, and cost, ease, and availability of healthy foods as things that would make it easier to adhere to a healthy lifestyle.

**Discussion**

To create an effective program that will ensure lifelong changes that adhere to a healthy lifestyle and prevent obesity and disease progression, it is integral to understand the factors that influence and drive adolescent dietary and physical activity behaviors (13;43). Extensive research reveals that family members, especially parents, serve as the primary influence on children’s eating practices (22;39;41;43). Evidence supports that parents play an important role in shaping food selection behaviors, in that parental attitudes must certainly affect their children indirectly as well as directly, through foods purchased and served in the household, exposure that influences food habits and preferences out of the household (39;41).
Parents and caregivers do not perceive to have adequate time to incorporate physical activity and prepare nutritional meals for their families. Furthermore, a healthy lifestyle is not perceived as easily attainable and often gets displaced among other business and priorities, such as: work obligations; extracurricular/school commitments; household responsibilities; leisure and social activities; television time; and rest. This is reflective of other research findings that report time pressures, lack of time management, busy schedules, cost, accessibility/availability of healthy foods, lack of knowledge, lack of support, lack of motivation or self-control and preference and demand for unhealthy convenience foods as barriers for American families (40;41).

Parents and caregivers do value the importance of nutrition and exercise and desire for their children to learn how to live a healthy lifestyle. There is a request for schools to include programming and lessons that focus on health behaviors, more specifically nutrition and physical activity. This is similar to the research that demonstrates parents do make the connection between lifestyle behaviors and health outcomes, and it is a concern for their children and families (12;43).

While it is evident that parents value health and desire for their children to eat healthy foods and be physically active, the caregivers indicated that, personally and as a family, they do not have time to engage in these behaviors. Styles et al (40) reported that parents admitted that they faced many challenges at multiple levels in helping their families and children maintain a healthy weight. In every group, participants reported lack of time and difficulty with time management as the primary obstacles. Parents also admitted feeling inadequate as role models for their children, as well as feeling unsupported by their children’s schools in the efforts that they were making. Similarly,
healthy lifestyle behaviors of diet and exercise were not being modeled by parents/caregivers in the present study. However, it is clear that parents value health, especially for their children; the majority of parents/caregivers strongly agreed that their child should eat a healthy diet and be physically active.

Integrating the healthy lifestyle components of nutrition and physical activity into a daily routine requires change. These changes take time; time that the parents/caregivers do not perceive to have. For parents/caregivers to adhere to a healthy lifestyle, the practices of eating healthy and exercising cannot be perceived to take additional time. Parents have the ability to influence adolescents’ attitudes about food and eating behaviors (21;33); therefore, it is important to examine the parental perceptions and adoption of healthy lifestyle behaviors when promoting behavior change in adolescents. Parents/caregivers need to be included as an important facet of the education of their adolescents. Considering that parents are involved in the health behaviors and decisions of the family, parental involvement is a necessary component for sustainable lifestyle modifications for the family. Educating the children and adolescents, without including the parents creates a barrier for ongoing commitment to optimal dietary and exercise habits. Education focusing on ways to incorporate nutritious foods and physical activities that do not take a lot of time, and that involve the entire family need to be incorporated into the wellness curriculum or as part of supplemental education initiatives for parents and families.

Limitations

There are several limitations of the current study. This study draws on survey data collected from anonymous questionnaires. To improve response rates and decrease
respondent burden, no demographic information was collected. This prohibited the comparison of data based across parental gender, age, ethnicity or education. Also, because of the anonymous nature of the survey, there was no possibility for follow-up or to match the parental perceptions to student performance in the course. It would be useful to collect information from parents/caregivers to assess if their needs had been met with this course and to see if their adolescents’ behaviors had changed as well as identify weaknesses and challenges faced by the students, which could be better targeted by the education program.

**Conclusions**

A disconnect exists between the importance of lifestyle behaviors and the commitment of the family to promoting these behaviors. This study offered an opportunity to provide information about healthy lifestyles that parents perceived should be provided in schools. Nutrition education professionals should target family opportunities to develop time management skills that allow for better nutrition and physical activity habits and so that families can learn to incorporate these behaviors into everyday life.
**Frequency of Behavior**
I try to eat a balanced diet
I eat 5 servings of Fruit and Vegetable daily
I read food Labels while shopping
When I drink milk, I choose low fat milk such as skim or 1%
I try to limit my portion sizes at meals
I am physically active for at least 30 min most days of week
I would consider myself physically fit
I incorporate physical activity into my regular daily routine
I limit TV to no more than 2 hours per day
I try to balance my food intake with how much physical activity I get

**Level of Agreement**
We eat meals together as a family
I monitor what my child eats
It is important to me that my child eats a healthy diet
It is important to me that I eat a healthy diet
As a family, we discuss the importance of a healthy lifestyle
I allow my child to choose the foods he/she eats
Being physically active is important to me
I feel that how much physical activity I get has an effect on my health
I think my diet has an effect on my overall health
I encourage my child to be physically active

**Weight Valuation**
How would you describe your health?
How would you describe your weight?
What are you trying to do about your weight?
How would you describe your child’s health?
How would you describe your child’s weight?

**Open-ended Questions**
What things prevent you and your family from eating a healthy diet or being physically active?
What would make it easier for you and your family to eat a healthy diet or be physically active?
What would you like to see your son or daughter learn in the summer wellness course?

Table 4.1. Questionnaire items to assess lifestyle behaviors, values and perceptions
Table 4.2: Frequency distributions of the responses to the Lifestyle Pattern items

<table>
<thead>
<tr>
<th>Question</th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I try to eat a balanced diet</td>
<td>20 (30.3)</td>
<td>26 (39.4)</td>
<td>19 (28.8)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I eat 5 servings of fruits and vegetables daily</td>
<td>6 (9.1)</td>
<td>21 (31.8)</td>
<td>28 (42.4)</td>
<td>10 (15.2)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I read food labels while shopping</td>
<td>13 (19.7)</td>
<td>28 (42.4)</td>
<td>18 (27.3)</td>
<td>7 (10.6)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>When I drink milk, I choose low fat milk such as skim or 1%</td>
<td>47 (71.2)</td>
<td>1 (1.5)</td>
<td>4 (6.1)</td>
<td>6 (9.1)</td>
<td>8 (12.1)</td>
</tr>
<tr>
<td>I eat 5 servings of fruits and vegetables daily</td>
<td>14 (21.2)</td>
<td>17 (25.8)</td>
<td>28 (42.4)</td>
<td>13 (19.7)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>I try to balance my food intake with how much physical activity I get</td>
<td>16 (24.2)</td>
<td>23 (34.8)</td>
<td>17 (25.8)</td>
<td>10 (15.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I try to limit my portion sizes at meals</td>
<td>19 (28.8)</td>
<td>29 (43.9)</td>
<td>15 (22.7)</td>
<td>3 (4.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I try to limit physical activity to 2 hours per day</td>
<td>15 (22.7)</td>
<td>15 (22.7)</td>
<td>29 (43.9)</td>
<td>19 (28.8)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I limit TV to no more than 2 hours per day</td>
<td>10 (15.2)</td>
<td>18 (27.3)</td>
<td>20 (30.3)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I incorporate physical activity into my regular daily routine</td>
<td>113 (172)</td>
<td>17 (25.8)</td>
<td>28 (42.4)</td>
<td>13 (19.7)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>I would consider myself physically fit</td>
<td>15 (22.7)</td>
<td>15 (22.7)</td>
<td>29 (43.9)</td>
<td>19 (28.8)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I am physically active for at least 30 min most days of week</td>
<td>14 (21.2)</td>
<td>17 (25.8)</td>
<td>25 (37.9)</td>
<td>10 (15.2)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I try to balance my food intake with how much physical activity I get</td>
<td>14 (21.2)</td>
<td>17 (25.8)</td>
<td>25 (37.9)</td>
<td>10 (15.2)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I try to limit my portion sizes at meals</td>
<td>19 (28.8)</td>
<td>29 (43.9)</td>
<td>15 (22.7)</td>
<td>3 (4.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I try to limit physical activity to 2 hours per day</td>
<td>15 (22.7)</td>
<td>15 (22.7)</td>
<td>29 (43.9)</td>
<td>19 (28.8)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I limit TV to no more than 2 hours per day</td>
<td>10 (15.2)</td>
<td>18 (27.3)</td>
<td>20 (30.3)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>I incorporate physical activity into my regular daily routine</td>
<td>113 (172)</td>
<td>17 (25.8)</td>
<td>28 (42.4)</td>
<td>13 (19.7)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>I would consider myself physically fit</td>
<td>15 (22.7)</td>
<td>15 (22.7)</td>
<td>29 (43.9)</td>
<td>19 (28.8)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>I am physically active for at least 30 min most days of week</td>
<td>14 (21.2)</td>
<td>17 (25.8)</td>
<td>25 (37.9)</td>
<td>10 (15.2)</td>
<td>1 (1.5)</td>
</tr>
<tr>
<td>Question</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>----------------</td>
<td>-------</td>
<td>----------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>I feel that how much physical activity I get has an effect on my health</td>
<td>36 (50)</td>
<td>35 (49)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Being physically active is important to me</td>
<td>38 (53)</td>
<td>6 (8)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>As a family, we discuss the importance of a healthy lifestyle</td>
<td>38 (53)</td>
<td>6 (8)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>I allow my child to choose the foods he/she eats</td>
<td>38 (53)</td>
<td>6 (8)</td>
<td>1 (1.5)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>I encourage my child to be physically active</td>
<td>40 (55)</td>
<td>0 (0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
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<td>35 (49)</td>
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</tr>
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</tr>
<tr>
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<td>0 (0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3: Frequency distributions of the responses to the Parental Values items.
Figure 4.1. Health valuation questions about the perceived health status of the caregivers and that of their child
Figure 4.2. Weight valuation questions about the perceived weight status of the caregivers and that of their child
CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

Conclusions

Results from this study suggest that parents do value a healthy lifestyle of diet and physical activity; however, it is not always a priority and continues to be a struggle for many families. Parents understand the importance of eating a healthy diet and being physically active, especially for their children. It is also reasonable to conclude that parental desires for their families do not always match with the reality of behaviors. Parents feel overwhelmed with other tasks of working and raising a family. It is unrealistic to expect that parents can also teach and monitor their adolescents’ health behaviors. It would be optimal to include the entire family in the process, but either way parents would like to see nutrition and exercise integrated into their child’s general health curriculum.

The most common struggle identified by the parent/caregivers was lack of time and busy schedules. Regardless if this is a true lack of time or a perceived lack of time, it is a challenge for a school-based program to create more available time for preparation of nutritious foods and physical activity, if it is a value rather than a priority of the family (35;43). Educating the adolescent on how to incorporate physical activity and how to
make healthy food choices may be hindered if the family is unable to adapt to this lifestyle. While it may be true that adolescents have more freedoms than a child, rarely do they hold the responsibilities of an adult head-of-household when it comes to food shopping and preparation (33). In addition, lack of access to exercise facilities due to cost or transportation may leave limited options for physical activity (40).

Ideally, programming would target both the adolescents and their families. School-based educational intervention, as well as the creation of a healthy school environment (one that supports nutrition and physical activity) could greatly benefit students during the school day. One option to carry the changes in the school environment is to carry the model into the community by maximizing available resources.

In addition, community initiatives should support families in their quest to lead a lifestyle that is congruent with their values. Community programming should focus on increasing the families' access to healthy food choices, through farmer’s markets or school market days. Community recreation centers should offer a variety of year-round physical activities and nutrition classes for families, offering on-site activities for parents during the time that their child is practicing or participating in extra-curricular activities is one way to accommodate busy lifestyles. If access to these resources is made easily available, during convenient times, nutrition and exercise then become more practical and it is possible that more families could participate.

**Limitations**

The format of data collection and time were the two major limitations of this study. The pilot course being implemented in a shortened time frame as a summer
course, limited the ability to gather data or conduct follow-up. It was crucial that the data was collected prior to the end of the course, which was only three weeks long. Had more time been available, different or additional means of data collection would have been an option. It would have been beneficial to conduct focus groups or interviews with the students before and after the program in order to get feedback on their perceptions of a healthy lifestyle and how it changed after participating in the class. It would have also been interesting to see what they thought were strengths and weaknesses of the program, and how the program could better meet the needs of adolescents.

This draws on survey data collected from anonymous questionnaires. The questionnaires included no demographic information, which limits the comparison of data based on gender, age, ethnicity or education. It would have been interesting to see if differences or similarities existed based on demographic characteristics. Another limitation of collecting anonymous questionnaires is that there is no possibility of follow-up. It would be useful to collect information from parents/caregivers to assess if their needs had been met with this course and to see if their adolescents’ behaviors had changed. If there had been more time, a follow-up study looking behavior change as a result of the assimilation of the knowledge and the integration of health practices into personal lifestyle choices at three, six, nine, and twelve months would be optimal. A follow-up study could measure sustainability of such an intervention over time, as well as identify weaknesses and challenges faced by the students, that could be better targeted by the education program.
Recommendations

The data gathered from these questionnaires serve as a way to measure the magnitude of various influences in an adolescents’ life to restructure and improve a school-based wellness course. Based on the needs and challenges, exploration into familial inclusion within a school wellness program may be necessary to overcoming the potential challenges to promote and sustain healthy lifestyle changes. The goal of this study was to explore the barriers and influences to improve course implementation, increasing the capacity to achieve goals and to identify mechanisms for improvement of course delivery and outcomes.

From these data it is reasonable to recommend that schools utilize the results from this study and incorporate more nutrition education and physical activities at school. The data demonstrates that the desires of the parents for their children to lead a healthy lifestyle are unable to be solely met by the parents at home. It is seen as beneficial for the schools to supplement the parent’s efforts by devoting more time to wellness and health promotion.

It is also reasonable to recommend that the school, as a part of the greater community get involved in health promotion for families. There needs to be access to resources for adolescents and their parents outside of the school. Community programs should be created for families that encourage and support the components of a healthy lifestyle.

Future Research

In the future it would be helpful to identify other factors that affect adolescent eating behaviors in addition to parental influence, such as: peer pressure or social
influences; food availability; advertisements and media; athletic performance; other adult role-models, teachers or coaches; time; cost; etc. It would also be of interest to see if the adolescent perceives healthy lifestyle components similar to the perceptions of the caregiver. A similar questionnaire completed by parents, could also have been given to the adolescents. Similarities and differences in responses regarding perceptions and values as well as the health behaviors of the family, could serve as a way to enhance communication and overcome some of the challenges faced by the family. Trends identified by the questionnaire could serve as a foreground for discussion groups. Supplemental focus groups would allow for parents/caregivers and adolescent pairs to identify areas to work on as a family and how educational programming and community initiatives could help fulfill their needs.
REFERENCES CITED


