

**HEALTH ATTITUDES, KNOWLEDGE AND LITERACY OF
PRIMARY CAREGIVERS WITH ELEMENTARY SCHOOL CHILDREN**

by

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ABSTRACT

Previous research has indicated that physical activity and healthy eating in elementary school children are the exception rather than the norm. Increased attention to the rising rates of childhood obesity, coupled with the recognition that changes in the school environment are critical to reducing this trend, has intensified the need to adopt better practices in school nutrition, physical activity and physical education.

Apart from being physically active, children need to learn fundamental motor skills and develop health related physical fitness (cardiovascular endurance, muscular strength and endurance, flexibility, and body composition). Primary caregivers play an important part in developing and teaching children these things through example and through conversations with their children.

The purpose of this study was to examine the level of knowledge primary caregivers have about health and nutritional practices and whether primary caregivers' health practices, health knowledge or health literacy about nutrition and health affects their children's well-being and health practices. Based on the results from the questionnaire in this study targeted at primary caregivers of elementary school-age children, primary caregivers' health literacy, knowledge and attitudes of health were directly linked with their children's health and well-being and children's health practices.

This dissertation is dedicated for those who have influenced my life in the quest for greater understanding of the world's mysteries, my mother, Meta, my brother, Jonathan, and my son Jonathan. Thank you for your inspiration.

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“Travel on, travel free, travel by that brand new road. Meet what life has to offer.”

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The winds that blow, for leaves to fall to Earth, the flowery vests, o’er spring time vales. Life runs its course through sad and joyous tears. But still there comes a brighter day. For me there is no sense of being away (Jonathan Stuart, 1978).

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LIST OF ABBREVIATIONS

BMI	Body Mass Index
CP	Child Practice
CDC	Center for Disease Control
CW	Child Wellness
FDA	Food and Drug Administration
HHS	U.S. Department of Health and Human Services
PC(s)	Primary Caregiver(s)
PK	Parent Knowledge
PP	Parent Practice
SPSS	Statistical Package for the Social Sciences
Kg	Kilogram
USDA	United States Department of Agriculture

CHAPTER ONE INTRODUCTION

Background and Conceptual Framework

Based on recent multidisciplinary studies, children at an early age, as early as in elementary school, are suffering from low physical fitness and poor health (Corbin, 1996). Low activity levels and poor health habits have led to many serious general health risks to this population. Many of these risks may be minimized with better educational systems and programs targeted to the children and to their primary caregivers instructing them about the importance of maintaining a healthier lifestyle and, thereby, preventing disease.

Physical activity has been defined as "bodily movement produced by skeletal muscles that results in energy expenditure" (Pate & Pratt, 1995, p. 402). There is no question as to the importance of physical exercise. Regular exercise has significant health benefits, and even slight increments in energy output can enhance health drastically. Some of these effects include: reduction in chronic diseases and conditions such as, hypertension, type 2 diabetes, high blood lipids, cardiovascular disease, obesity, reduction in anxiety in the classroom, and, improvement of body image and mood.

Another important point to note is that schools should ensure that meals offered throughout the school meet federal nutrition standards and prohibit student access to vending machines, and other sources where children might find foods of low nutritional value. Schools should also provide children with sufficient daily physical education that will help them to develop the knowledge, attitudes, skills, behaviors and confidence needed to be physically active for life. Physical education in school is an ideal way to promote activity and fitness among

children, especially since it will be, at least for some, their only venue, where they will learn an active lifestyle.

For this reason, the National Center for Chronic Disease Prevention and Health Promotion, the National Association for Sport and Physical Education, and the American Heart Association have all recommended comprehensive daily physical education for elementary school children (Arbeit, 1992).

Pate & Pratt (1995) investigated the effects of a nutrition education program on dietary behavior and nutrition knowledge among elementary school children participating in a Social Cognitive Theory–based nutrition education program. Participants included 1100 second-grade and third-grade students selected by convenience-type sampling from public schools. They assessed dietary behavior and nutrition knowledge. Children that were placed in the treatment group exhibited significant improvement in overall dietary behavior and nutritional knowledge, such as consumption of dairy products, fruits, and vegetables, than children in the control group. They concluded that nutrition education programs that aim at teaching positive dietary practices can improve dietary behavior and nutritional knowledge in children.

Increasing obesity has been alarming politicians, health experts and the public. Latest estimates, made in the United States by the Centers for Disease Control and Prevention dealing with National Health and Nutrition Examination Survey, indicate that 64% of adults are overweight of which 31% are clinically obese (Gleason & Sutor, 2003). Although obesity has increased across all educational levels, the highest increase has been among the lowest educational levels (Gleason & Sutor, 2003).

The obesity of children is on the rise as well. 10-15% of children in the United States are overweight, compared to 5-6% in 1976-80 (Freedman, Dietz, Srinivasan & Berenson, 1999).

Obesity is associated with higher mortality, increased risk of high blood pressure and cardiac disease, even some forms of cancer (Freedman, Dietz, Srinivasan & Berenson, 1999). For children, obesity and poor health are associated with problems in the short run and long run, including childhood diabetes, increased blood pressure, cardiac problems and orthopedic disorders among other things (Freedman, Dietz, Srinivasan & Berenson, 1999). Obesity has other effects on children including developmental, social and psychological effects, like depression, discrimination and low self-esteem (Freedman, Dietz, Srinivasan & Berenson, 1999).

Significance of Study

The purpose of this study was to examine what the level of knowledge primary caregivers have about health and nutritional practices and whether primary caregivers' health practices, health knowledge or health literacy about nutrition and health affects their children's well-being and health practices. This study has derived useful data about primary caregivers' health literacy, attitudes and knowledge of their elementary school children's health. It is now well documented that children are experiencing a variety of health problems such as diabetes, obesity, etc. (O'Hara, 1999).

After an extensive research of pertinent resources and literature and clinical evaluations and investigation, it is apparent that there has not been a comprehensive study on the topic and issues raised in this study. The significance of this study and the conclusions drawn from it will help school administrators, health education teachers, primary caregivers and healthcare professionals monitor the health of the population of elementary school children. Furthermore, medical personnel in clinical settings can better understand the dichotomy between what the

primary caregivers think their children's health is like and what the actual health of the children is, so as to investigate and test children's health independently without too much emphasis on the primary caregivers' perception.

Problem Statement

Modern society, including many primary caregivers, deemphasize the importance of well balanced nutrition and physical activity. Many primary caregivers lack health knowledge and health literacy, as well as, adequate attitudes toward their health and their children's health. Other primary caregivers have some knowledge, but have also many misconceptions or are not ready to admit they do not know enough about health issues.

The problem studied in this dissertation was the knowledge, literacy and attitudes of primary caregivers in regard to health and fitness. School administrators should adopt appropriate measures in their schools to ensure physical activity and nutrition. Primary caregivers have to learn what their children's health is really like and not rely on their perception. Medical professionals have to investigate and study children's health and deemphasize the primary caregivers' perceptions in their clinical decisions and courses of action and treatment.

Definition of Terms

For the purpose of this study, the following definitions and terms that are used in the field of health education will be used:

Body Mass Index (BMI): BMI is a ratio of bodyweight and height. It is calculated as weight in kilograms divided by height in meters squared. Overweight for children and adolescents is defined as BMI at or above the sex-and age-specific 95th percentile BMI cut points from the revised CDC Growth Charts. Also referred to as *height/weight ratio*:

Chronic Condition: A chronic condition is any condition that lasts 3 months or more. .

Death Rate: A death rate is a certain number derived from the number of deaths in a population in a year by the population. Also referred to as mortality rate.

Demographic Information: the characteristics of a person, such as age, sex, race, and occupation.

Dental Caries (dental decay or cavities): An infectious disease that results in demineralization and ultimately cavitation of the tooth surface if not controlled or remineralized. Dental cavities may be either treated (filled) or untreated (unfilled).

Dependent variable in the study (effect) is the child well-being.

Fitness: The Good health or physical condition, especially, as the result of exercise and proper nutrition.

Epidemic: The occurrence of more cases of disease than expected in a given area or among a specific group of people over a particular period of time.

Epidemiology: Study of the recurrence and types of diseases and injuries, and their factors, distribution and causes in certain populations.

Health Insurance: Includes managed care such as health maintenance organizations (HMOs), public forms of health insurance such as Medicare, Medicaid, public assistance, a state-sponsored health plan, other government-sponsored programs, or a military health plan.

Health Maintenance Organization (HMO): An HMO is a prepaid health plan which delivers comprehensive care to policyholders through designated providers, in consideration of a fixed monthly payment for health care services.

Health: A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Also referred to as the general condition of body and mind of the individual.

Healthy Smart Choice school lunches: School lunches with low fat and low carbohydrate content.

Independent variables in the study: (cause) are Primary Caregiver Health Knowledge, Primary Caregiver Reported Personal Health Practice and Primary Caregiver Reported Child Health Practice.

Life Expectancy: Life expectancy is the average number of years of life remaining to a person at a particular age and is based on a given set of age-specific death rates, generally, the mortality conditions existing in the period mentioned. Life expectancy may be determined by race, sex, or other characteristics using age-specific death rates for the population with that characteristic.

Logistic regression: A form of regression analysis that is narrowly defined to a situation in which the dependent variable is binary.

Measurements used and conversions, **Volume:** 1 gallon (3.786 liters; 3,786 ml) 4 quarts, 1 quart (0.946 liter; 946 ml) 4 cups or 2 pints, 1 cup (237 ml) 8 fluid ounces. **Weight** 1 pound (16 ounces) 453.6 grams, 1 ounce 28.35 grams.

Morbidity: Any subjective or objective departure from a state of physiological or psychological well-being.

Overweight: Overweight for children and adolescents is defined as body mass index (as defined above) at or above the sex-and age-specific 95th percentile of body mass index cut points from the revised Center for Disease Control Growth Charts.

Obesity: To health professionals and researchers, it signifies a BMI equal to or greater than 30.0kg/meter square.

Physical activity: is defined as any bodily movement produced by skeletal muscles resulting in energy expenditure.

Pollutant: A pollutant is any substance that contaminates the atmosphere, water supply, or is generally harmful to an individual's health.

Population: The total number of inhabitants of a given specific area. In sampling, population may refer to the sample from which the test subjects are drawn, not the total population of people.

Poverty Level: Poverty level is based on statistics developed by the Social Security Administration and the Department of Labor. These include a set of income thresholds adjusted by family size and composition. Families or individuals with income that is below their appropriate levels are classified as below the poverty level. These thresholds are updated annually by the U.S. Census Bureau.

Prevalence: Prevalence is the number of cases of a disease, infected persons, or persons with some other attribute present during a particular interval of time. It is often expressed as a rate (for example, the prevalence of diabetes per 1,000 persons during a year).

Primary Caregiver(s): Individual(s) responsible for the overall well-being of the child.

Rate: A rate is a measure of some event, disease, or condition in relation to a unit of population, along with some specification of time.

Regression: The relationship between the mean value of a random variable and the corresponding values of one or more independent variables.

Risk Factor: An aspect of personal behavior or lifestyle, an environmental exposure, or an inborn or inherited characteristic that is associated with an increased occurrence of disease or other health-related event or condition.

Serving: Approximately 4 ounces of the particular food or fluid. A standardized amount of a food, such as a cup or an ounce, used in providing dietary guidance or in making comparisons.

Well-being: The degree of healthiness of an individual. In this study a healthy height/weight ratio was viewed as the deciding factor to determine the degree of healthiness.

Delimitations, Limitations and Assumptions

This study will be limited to the information obtained from questionnaires given to the primary caregivers of three Elementary Schools in Orange County, Florida. Results of this study are limited to the accuracy and truthfulness of the responses obtained on the questionnaires.

Sample size is also a limitation to this study.

Research Questions

1. What trends in the primary caregivers' responses may be identified by the descriptive statistics?
2. To what degree do primary caregivers' health knowledge, primary caregivers' health practices and child's health practices affect the child's weight status (well-being) as reported by the primary caregivers?
3. To what degree do primary caregivers' health knowledge, primary caregivers' health practices and child's health practices affect the child's number of sick days taken from school as reported by the primary caregivers?

Organization of the Remaining Dissertation

The remaining chapters were organized as follows:

Chapter Two consists of a review of the literature in the areas of nutrition, physical education, health, psychology, statistical data, primary caregiver education and child education dealing with health and nutrition. This chapter concludes with a section that briefly summarizes the chapter.

Chapter Three explains the methodology of this research. This chapter focuses on the methods used for the questionnaire used in this dissertation, the population, the instrumentation, procedures and measures. This chapter also concludes with a brief summary of the chapter.

Chapter Four presents the data analysis and results obtained in the study. This chapter includes relevant statistics derived from diverse statistical tests and procedures. This chapter also concludes with a brief summary of the chapter.

Chapter Five contains the conclusions, recommendations and implications of the study. This chapter also contains recommendations for future research and investigation. Lastly, this chapter also concludes with a brief summary of the chapter. The following chapter will explore the review of literature performed in this study.

CHAPTER TWO REVIEW OF LITERATURE

Introduction

A significant portion of the U.S. population has serious problems with both literacy and understanding of how to effectively use and understand health-related information. This lack of literacy in adults, not only affects their own health, but, that of their children, as well. An understanding of the breadth and significance of this problem and its impact on health outcomes are now clear based on scientific and medical research. Interventions and strategies for effectively working with patients with limited literacy must be developed and evaluated. An agenda for medical and public health workers, health educators, and researchers is suggested.

Illiteracy has become a wide spread problem. The National Adult Literacy Survey (NALS) found that 75% of respondents with a chronic disease, also, had limited literacy skills. People with limited literacy skills have problems accessing services and have worse health outcomes than patients with full literacy (Thompson, Midthune, Subar, McNeel, Berrigan & Kipnis, 2000). The U.S. healthcare system should attempt to better educate the public. Individuals should be able to access information, get health services, communicate with healthcare professionals about their illness, understand treatment options, and follow through on treatment plans.

Patients, who have low literacy, do not speak English, or have limited English fluency, are at a disadvantage and are consequently severely challenged, when they access health services for themselves and their families. According to Parker (2000), a public health approach to health literacy involves four steps. First, there must be an evaluation, in other words, what the problem

is. Second, risk factors should be identified, in other words, what the cause is. Third, there should be an intervention evaluation, or identify what works. Lastly, implement what has been learned from the process.

According to Parker (2000), poor health literacy exists because of lack of education and high reading level expectations in the medical setting. In order to elevate literacy levels, there must be effective and accessible teaching. Effective teaching requires communication skills that enable the clear transmission of information from teacher to student and the breakdown of complex ideas into understandable segments. Teaching children involves the additional challenge of conveying messages in age-appropriate terms.

The importance of activities that promote healthy lifestyle among children is irrefutable. The importance of this has been studied in several articles (Kolbe, Collins, & Cortese, 1997). According to these articles, health promotion and disease prevention activities in the area of nutrition education are important to begin early in childhood because of the well-established relationships between diet and health. Inadequate nutritional intake and poor dietary habits in childhood are directly related to children's health status and ability to learn. For children to develop lifelong, healthy nutritional habits, prevention activities should begin early, should involve active, participatory learning that capitalizes upon social learning principles, and should be novel. Additionally, a prevention message to be effective should be both culturally relevant, culturally sensitive and developmentally appropriate (Lytle, 1997).

The school environment is considered an optimal place for health promotion and disease prevention activities. Clinical settings are also excellent to target those children at risk. Large numbers of children can be targeted in elementary school setting. School personnel can be instrumental in the promotion of health.

According to a study performed by Jarvis (2005), data collected during this study suggested that while most primary caregivers were confident that their children were knowledgeable about healthy eating, exercise, etc., they felt they knew less about, arguably, the more contentious issues of alcohol and drug misuse, and dealing with risks. For example, over 65% of primary caregivers reported that they thought their children knew a lot about exercise and keeping healthy compared to less than 20% of primary caregivers, who thought their children knew a lot about alcohol and drug misuse. A more surprising result was that only 10% of primary caregivers reported that their children were well informed in first aid. Based on these results, Jarvis (2005) came to a conclusion that some primary caregivers believe their children know a lot about a particular health issue, but that the majority of primary caregivers only sometimes talk with their children about this issue. Jarvis (2005) stated that since there was a discrepancy of knowledge, it implied that children were learning about health issues from other sources, such as their teachers or the media, not necessarily from their parents. Jarvis (2005) also stated that children's main source of information about health issues are peers, health professionals, teachers and primary caregivers.

Nevertheless, the children in the study of Jarvis (2005) were more eager to report that their primary caregivers had talked to them about health issues, rather than teachers or health professionals. Furthermore, the majority of children in the study, which amounted to eighty percent, reported that they preferred to discuss health problems with primary caregivers.

In Jarvis (2005) when primary caregivers were asked, who had the responsibility of teaching children, some primary caregivers felt that they shared responsibility with teachers and health professionals. However, the majority of primary caregivers, sixty one percent, indicated

that they themselves should be the main source of information for their children, regarding health issues.

According to Reed & Jernstedt (2000), some primary caregivers feel uncomfortable about discussing health issues with their children and lack knowledge about these issues or may lack confidence to have these discussions with their children or feel their children do not need to have this information, or for some it may never occur to primary caregivers to talk to their children about any health issues whatsoever. Some primary caregivers look to the schools to teach children about the importance of health.

Undernutrition in childhood has been estimated to cause half of all preventable deaths in infants worldwide (Thompson, Midthune, Subar, McNeel, Berrigan & Kipnis, 2000). Large-scale educational interventions have also been effective in changing the way caregivers give food, increasing dietary intake, and in improving child growth, although results have usually been based on preintervention versus postintervention assessments or on comparisons with children, not included in the education program (Reed, 2000).

Another study by Derri (2004) investigated the effect of an eight-week health-related fitness and nutrition education program on fitness components and dietary habits in upper elementary school children. Forty children from the fifth and sixth grade, ages 10 to 12, participated in the study. The experimental group consisted of 20 children, who participated in the program three days per week for one hour outside the time allotted for school physical education. The control group participated in the typical school physical education program.

Health-related fitness components (cardiorespiratory endurance, abdominal strength and endurance, flexibility, and body composition) were examined (Kolbe, 1997). Certain health-

related fitness components and dietary habits, as well, can be improved with a three hour a week program, consisting of physical fitness and nutrition education activities.

Fitness has become synonymous with cardiorespiratory fitness, especially in the context of health. However, other fitness components, such as muscle strength and endurance, flexibility, and body composition may be related to health, particularly in pediatric populations, but, are often ignored (Pate, 1995). Therefore, a broader definition of fitness needs to be adopted, in which, all the above components considered to reduce risk factors for chronic diseases and contribute to the retention of fitness and health in every day life, are included.

Caring for children's health carries some important benefits including: an increase in the children's physical ability and increase in their willingness to become more physically active. Children may be able to self-regulate their physical activity levels. The development of positive attitudes toward physical activity and fitness during childhood may affect the level of fitness during adulthood (Sallis, 1997). Substantial evidence also indicates that unfit and overweight children exhibit early signs of coronary artery disease, high blood pressure, and high cholesterol (Sallis, 1997).

Pate (1995) stressed that school physical education has the primary role in promoting physical activity in youth. The goal of physical education programs is also to provide students the opportunity to be active. Pate (1995) also pointed out that recess is very important, since recess encourages children to be physically active.

Werner and Durham (1988) conducted a study to identify the effect of a 9-week supplemental physical education program, based on health-related fitness factors on fourth, fifth and sixth grade children. The experimental group received extra physical education three days per week for twenty minutes each day. Information about nutrition was also given. The results of

this study showed a treatment effect in favor of the experimental group in all four health-related fitness components studied. More specifically, the fourth grade experimental group had significantly better scores for the mile run at the end of the 9-week period than the other groups. Fourth and fifth grade experimental groups had also significant gains in sit-up scores, while other groups showed no significant gain. Concerning the sit and reach test, the experimental group had a positive gain score, while the control group had a negative gain score. Moreover, the experimental group reduced its skinfold measurements, while the control group actually showed larger scores.

Sallis (1997) conducted a two-year supervised program, which was implemented with elementary school children to show the effects of physical education programs in cardiorespiratory endurance, abdominal strength and endurance of children. In these studies, nutrition education was not included in the health-related fitness programs. However, on the contrary, in the current study by Sallis (1997), found that children received nutrition education during the implementation of the health-related fitness program and this might have contributed to the earlier improvement of the two fitness components mentioned above.

At the end of this study by Sallis (1997), children significantly improved their dietary habits. The improvement of these habits was shown by the children's reports on their food preferences. In the study of Pate (1995), children, who participated in nutrition education classes improved their knowledge and their attitudes toward nutrition, but not their dietary habits.

It seems that providing information about nutrition through physical activities is more effective than providing it in the absence of physical activity. Children learn differently from adults. Providing knowledge about nutrition through game-type activities is also recommended in the model of nutrition education of Mass (1997).

According to Pate (1995) the education of primary caregivers on healthy foods might be necessary for the enhancement of the effectiveness of a health- related fitness program and the improvement of fitness and health. He suggests that such programs could be successfully incorporated in the physical education curriculum, in order to achieve goals oriented to health improvement. Schools, according to Pate (1995), have a role in guiding children to participate in aerobic activities, such as walking and housework, in order to improve health and to develop positive attitudes for physical exercise for a lifetime. Apart from improving health, a health-related fitness program could promote participation in physical exercise during adulthood (Corbin, 1996).

Though cognitive development is a major internal factor of health awareness in primary school children, the prime external influence may be the dominant primary caregiver. Primary caregivers serve as health role-models for their children (Pate, 1995).

During adolescence, primary caregiver power over food choices may be displaced by the effects of advertising and peer pressure, but, younger children copy their primary caregivers' attitudes and habits. Qualitative studies have been used in order to investigate health and nutrition of children (Dietz, 1997). Dietz (1997) studied the aspects of primary caregiver control over food choices and food rules that interact with food provision; how diet and diseases are connected, specifically, dental health and obesity; and the categorization of food into groups and the schemes children use to do this.

In this article, Dietz (1997) discusses wellness for children from a developmental perspective and presents the results of the effects of wellness promotion guidance activities among fifth-grade children. According to the article, children need to learn ways of promoting

wellness at an early age. Wellness promotion can assist children in their academic, social, emotional, and physical development (Corbin, 1996).

According to Dietz (1997), there are many definitions of wellness. He describes wellness, as an attitude about one's own process of self-care, involving understanding of basic emotional and physical needs and the kind of habits and life-style necessary to meet those needs. From this perspective, the primary purpose of promoting wellness is to reach high levels of physical, psychological, and emotional fitness and to increase resistance to both minor illness and life-threatening disease. Wellness typically includes the provision of nutritional information, services designed to improve value clarification and self-understanding, stress management, physical fitness, and self-care. Because both healthy and unhealthy habits are frequently established early in life and are often difficult to break, it makes invaluable sense to teach youngsters how to live healthy lives, as a part of their elementary school experiences. To further underscore the rationale for this sort of recommendation, it is noted that many adults are not good role models, when it comes to demonstrating a healthy, well-balanced life-style.

According to Pate (1995), primary caregivers, teachers, administrators, and counselors are all responsible for promoting children's wellness. Building on this latter point, it is suggested, that using classroom guidance activities, is a particularly effective format for promoting children's wellness and personal development.

During the elementary school years, a child's wellness and personal development are manifested in a number of similar and complementary ways. At this stage of the life span, healthy children are characterized by the emergence of a variety of interdependent physical, cognitive, and psychological competencies. For instance, middle childhood is highlighted by a noticeable increase in a child's physical strength, coordination, agility, and flexibility in

comparison to early childhood. During middle childhood, youngsters are, indeed, busy building a host of physical, psychological, and cognitive competencies that have a significant impact on their later development in adolescence and adulthood.

As pointed out by Dewey (1938) in “Experience and Education,” facilitating healthy child development requires more than attending to children’s academic potential. It necessitates that children be given the opportunity to develop a broader wellness mindset that will influence both their present and future ways of thinking and acting. In short, children need schools that will help prepare them to deal with a complex society that is rapidly changing. Schools should also teach about life itself and not just be a place of acquiring skills such as reading and writing necessary to make a living.

During the elementary school years, children demonstrate a growth in intellectual abilities in what Piaget (1958) called a transition from preoperational thinking to concrete operational thinking. As a result of this developmental change, school-age children begin to demonstrate an increased understanding of themselves and the consequences of their behaviors and the environment that surrounds them. During these years Piaget also pointed out that children manifest improvement in memory, concentration, verbal expression, and problem-solving abilities.

According to Reed (2000), the increasing incidence of overweight and obesity and the emergence of type II diabetes as a childhood condition, mean that children represent an important target for health promotion. Primary caregivers represent a potentially powerful intermediary in behavior change strategies, aimed at improving the lifestyle behaviors of their young children. However, to fulfill this role, primary caregivers need to have the necessary knowledge and motivation to change their habits and adopt better practices.

Reed (2000) aimed to assess the psychosocial factors mentioned above, it studied parental receptiveness to nutrition education, barriers that might exist to primary caregivers and the primary caregivers' perceived benefits to change and to adopt a healthy diet and adequate exercise for themselves and their children. This study used a qualitative methodology, and 41 primary caregivers took part in seven focus groups separated by socio-economic status. What was observed was that across all groups there appeared to be a combination of reported external barriers and unconscious internal barriers, stemming from high optimistic bias, low perceived control and unrealistic health expectations. Reed concluded that defining appropriate behavior and empowering primary caregivers to tackle children's health issues should be targeted in future education programs.

In Reed (2000) primary caregivers indicated that they were aware of their potentially powerful education impact upon their children's developing food behaviors and attitudes and health practices. Primary caregivers understood that their children's health was impacted by their behaviors and the models they gave to their children. Primary caregivers also reported that willingness to adopt health recommendations for themselves and their children would affect their health. However, they also reported that their desire to comply with external guidance about food choices or health practices were influenced by internal and external factors, some of which were not in their control, such as socio-economic status of the family, food availability and so on. Reed (2000) reported that socio-economic status differences in access to affordable healthy food, nutrition knowledge and uptake of health services are well-documented, resulting in the current social inequalities in health.

Reed (2000) suggested that a way to counter inequalities in health was to investigate parental feeding practices, nutrition awareness and perceived barriers to behavior change, and

pinpointing overall health disparities in the population, in order to develop tailored health promotion programs, which can stabilize existing levels of motivation and understanding and support behavior change.

Reed (2000) also found that primary caregivers appeared to have some difficulty in expressing what they would need to adopt better health behaviors. Among primary caregivers, it was found that there was a reliance on short-term health issues such as healthy hair, skin and teeth, not on long-term issues such as diabetes, cholesterol, cardiac problems and such. There appeared to be as well some misinformation about health benefits of certain health practices such as exercise. Based on the results, Reed (2000) found that primary caregivers answered that the physical health benefits of exercise for children were largely deemed less important than the psychological benefits, in terms of improving social skills and providing a break from the mental exertion of academic work, which, of course, is only partially accurate, since the overall physical benefits outweigh, social benefits.

In Reed (2000) primary caregivers unanimously accepted responsibility for providing a healthy diet for their children, but, responsibility for exercise was less decisively accepted. The school also occupied an equivocal position, with those primary caregivers from lower economic status areas less likely to attribute responsibility to the school than their high economic status counterparts, despite viewing its influence more positively: Primary caregivers from different socio-economic classes seemed in general to answer differently to some questions.

Reed (2000) is not the only one that has viewed these discrepancies. It is important to note at this time that Pate (1995) also saw these discrepancies in some of his results. Pate found that higher socio-economic status primary caregivers were more likely to report enforcing food rules in the home, with soda and chips or other “junk” food being restricted and fruit or

vegetables frequently served instead. In contrast, primary caregivers from the low economic status groups, appeared more concerned with protecting the social aspects of mealtimes and ensuring an adequate quantity of food was consumed, rather than with enforcing specific restrictions or prescriptions. These findings are significant and curious since it seemed that higher socio-economic classes were more likely to be concerned as to the quality of food and its' nutritional value rather than the quantity. On the other hand, lower socio-economic classes were concerned with quantity not quality. In other words, lower socio-economic classes seemed to be more likely to consume more food than their higher socio-economic counterparts. As it will be seen later on, there is a higher number of low socio-economic individuals and children that are overweight and obese which is consistent with the results obtained by Pate (1995), regarding quality and quantity of food being consumed by low and high socio-economic classes.

Reed (2000) concludes that primary caregivers occupy a key position in their children's food and health behaviors and attitudes. Reed suggested that primary caregivers have a short-term health focus, similar to that previously described for children, with little concern regarding the potential long-term consequences of their actions.

Reed (2000) also suggested that exercise is not only afforded lower priority within family lifestyle decisions, but, is also perceived to be subject to greater external inhibitory factors and a lower requirement for parental involvement. By absolving themselves of personal responsibility in this way, because of low perceived control and significant optimistic bias in favor of their current behavior, primary caregivers are constructing a major barrier to the impact of intervention campaigns.

Primary caregivers, according to Reed (2000), need to be encouraged to assert their own control alongside these concurrent environmental influences, rather than assuming an 'all or

nothing' approach, whereby anything less than complete control is deemed inadequate. It also appeared important to Reed to raise awareness, amongst primary caregivers, of the power of their unconscious actions, i.e., the behavior they model and the attitudes they express, in order to promote an effective, whole-family approach to behavior modifications.

Reed (2000) suggests that key parent-targeted strategies should include: awareness raising interventions to promote an internal focus for health behaviors and encourage family responsibility for diet and exercise; a move away from specific food rules towards more generic, whole-diet, whole-family advice, concerning positive feeding behavior and positive food environments; promotion of dietary variety to tackle the myth of healthy eating as restrictive, expensive and unattainable and finally, promoting everyday activity, as a vital, yet achievable, component of a healthy lifestyle.

Piaget (1958) noted that many factors contribute to a child's good health and development. Genetics and environment are both factors in healthy development of children. Humans are physical, social and emotional beings, therefore, these factors ultimately affect their development. For example, economic status of a child, leads to poor nutrition, inadequate housing, exposure to environmental hazards and other health and developmental problems.

Piaget (1958) also points out that active participation of primary caregivers and other adults such as teachers, relatives, religious leaders and neighbors are also crucial in a child's development and realization of their potential. It is not surprising that primary caregivers that engage in destructive behavior either directly or indirectly ruin the lives of their children. Child abuse, domestic violence, alcoholism, and smoking destroy the safe-haven of the family home and, ultimately, everyone that lives in such environments.

The elementary school age child makes a big transition from living at home and being primarily only with family to school and interacting with others and learning and being influenced by others other than family members. After learning from primary caregivers basic social habits and physical practices, the school environment comes into children's lives and expects them to use symbols and letters, to be one of a group, to be judged in comparison to the work of others and to learn in a group setting (Piaget, 1958).

Piaget (1958) stated that a family's health habits and socioeconomic conditions become apparent and visible when children enter elementary school. For example, some children come to school hungry, with inadequate clothing, without a bath and without the necessary basic care needs being provided. On the other hand, some come into elementary school knowing how to read already proficiently, while others do not, some may have dental caries and some will not, some will have behavioral and emotional health problems. From the very beginning, elementary school children that are in at-risk families come with certain health problems either psychological or physical or social that preclude them from achieving their potential and school success. Nevertheless, not all these problems are apparent and will be identified at a later time, when the harm is more difficult to abate.

Reed (2000) reported that elementary school children had the lowest mortality rates of all age groups in 2000 and there was a significant drop in the number of children hospitalized. Falls were the primary cause for injury hospitalization. While elementary age children were less likely to die from child abuse than younger children, they were more likely to sustain moderate physical injury when abused. Traffic related motor vehicle crashes were the major cause of death and an important reason for hospitalization. The second leading cause of death was cancer.

From a public health perspective, the elementary school years offer a wonderful opportunity to provide primary and specialized health care services (Telfar, & Kotch, 1997).. Children with health care problems can receive school health screenings and, once identified, appropriate school health services and referrals can be initiated. The basics of personal health care and the promotion of healthy lifestyles and behaviors can be taught through health education curriculum in the schools.

Psychological, Emotional and Behavioral Health of Children

Children's psychological, emotional and behavioral health are linked to physiological, social and higher needs. Maslow's theory of Human Motivation clearly explains how a person needs certain things before achieving self-actualization, in other words, "being" all that we can be (Maslow, 1943). Maslow's Hierarchy of Needs is a theory in psychology, which contends that as humans meet basic needs, they seek to satisfy successively higher needs that occupy a set hierarchy (Maslow, 1943). Maslow's hierarchy of needs is often depicted as a pyramid consisting of five levels: the four lower levels are grouped together as *deficiency needs* associated with physiological needs, while the top level is termed *growth needs*, associated with psychological needs (Maslow, 1943). While our deficiency needs must be met, our *being* needs are continually shaping our behavior. The basic concept is that the higher needs in this hierarchy only come into focus once all the needs that are lower down in the pyramid are mainly or entirely satisfied. Growth forces create upward movement in the hierarchy, whereas regressive forces push prepotent needs further down the hierarchy (Maslow, 1943).

The physiological needs of the organism, those enabling homeostasis, take first precedence (Maslow, 1943). These include things such as proper food and water nourishment, sleep, etc. When some of these needs are unmet, a human's physiological needs take the highest priority. Maslow indicated that as a result of the prepotency of physiological needs, an individual will deprioritize all other desires and capacities. Physiological needs can control thoughts and behaviors, and can cause people to feel sickness, pain, and discomfort. Maslow also placed such things as bodily comfort, activity, exercise in this category.

When the physiological needs are met, the need for safety will emerge. Safety and security rank above all other desires. These include security of resources, physical security (safety from violence, delinquency and aggressions), moral and physiological security, family security and health security (Maslow, 1943).

After physiological and safety needs are fulfilled, the third layer of human needs is social. This involves emotionally-based relationships in general, such as friendship and having a family. Humans are social beings and as such, they want to be accepted and to have a sense of belonging. In the absence of these elements, people become increasingly susceptible to loneliness, social anxiety and depression (Maslow, 1943).

The next level of needs are esteem needs. Humans have a need to be respected, to self-respect and to respect others. People need to engage themselves in order to gain recognition and have an activity or activities that give the person a sense of contribution and self-value. Imbalances at this level can result in low self-esteem, inferiority complexes or an inflated sense of self-importance (Maslow, 1943).

Finally, being needs, self-actualization and transcendence are "being" or "growth needs," they are enduring motivations or drivers of behavior. Self-actualization is the *instinctual* need of

humans to make the most of their unique abilities and to strive to be the best they can be.

Maslow describes self-actualization as follows: “*Self Actualization is the intrinsic growth of what is already in the organism, or more accurately, of what the organism is.*” (Maslow, 1943).

Maslow describes people that have attained self-actualization, as people who embrace facts and realities of the world rather than denying or avoiding them, they are spontaneous and creative; they are interested in solving problems (including those of others) and appreciate life, they judge others without prejudice and they possess an internal independent system of morality.

Causes of mental health problems are both biological and environmental or can be a mixture of both (Telfar & Kotch, 1997). Some events or a mixture of events that have been found to lead to serious mental health problems according to Telfar and Kotch for children and youth include: 1. Lead or mercury poisoning and environmental toxins. 2. Witnessing or being the victim of violence, such as abuse or domestic violence. 3. Mental illness or depression in a parent or guardian. 4. A natural trauma, such as hospitalization, death of a parent, divorce, or discrimination. 5. Being relentlessly bullied or socially ostracized by peers or adults. 6. Poor attachment and bonding between infants and their caregivers. 7. Child/caregiver difficulties with behavior and development such as eating, toileting, sleeping are important issues for infants and young children. 8. Factors related to being a child with a disability or special health care need.

Telfar and Kotch further indicated that mental health problems that are recognized early can prevent the cycle of increasing risk factors that may cause serious disruption of a child's healthy social and emotional development and ability to function. For instance, they point out that children with conduct/behavioral disorders such as Attention Deficit Hyperactivity Disorder (ADHD) or severe trauma may display impulsive anti-social and disruptive behaviors that significantly affect their learning and social interactions with families and peers. Identifying the

cause, treating behavior disorders and supporting caregivers early, regardless of original source (nutritional, biological, social emotional or environmental), may prevent school failure, violence, drug misuse and suicide (Telfar & Kotch, 1997). The CDC reported that about 5% of children ages 4-12, were reported by a parent to have a severe emotional or behavioral problem in the United States in 2004 (CDC, 2004).

Eating Habits of Children

Eating fruits and vegetables is important to provide growing bodies the vitamins, minerals, and fiber needed for healthy growth and development. Adequate calcium consumption is important for the prevention of osteoporosis later in life. Establishing healthy dietary patterns in childhood is correlated with a healthier diet in adulthood and the prevention of chronic disease, obesity, and poor birth outcomes. Results from the 2001 Youth Behavioral Risk Survey showed that less than 25 percent of the Florida high school students surveyed had consumed five or more vegetables and fruit per day and less than 20 percent of the boys and only 10 percent of the girls consumed three or more glasses of milk per day (Florida Department of Health Family Health Services School Health. 2005).

. Benefits of Physical Activity

Physical activity is critical to the overall health and well-being of children and youth. The primary benefits include greater flexibility, balance, and the stimulation of developing muscle and bones, muscle strength, endurance, maintenance of weight and prevention in the

