THE RELATIONSHIP OF SOCIOECONOMIC STATUS AND OBESITY IN YOUTH

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Abstract

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Childhood obesity has become epidemic in industrialized countries with increasing numbers of children considered overweight or obese. The heightened levels of obesity and obesity-related illness among children and adults have led to growing concern and governmental demand for preventative measures. Lower socioeconomic status has been linked to higher levels of obesity. Evidence has shown that specific social determinants can lead to vast inequities in health within society. The increase in scientific attention on the social determinants of health has led to an improved understanding of how sensitive health is to social environments. This paper reviews the relationship between socioeconomic status and childhood overweight and obesity. Further, it reviews and compares the impact of socioeconomic status on obesity/overweight levels between genders. Findings show that there is a relationship between socioeconomic status and overweight/obesity. There are differences between gender and the effect socioeconomic status has on weight patterns. In developing health care policy related to childhood overweight/obesity treatment studies are needed to further determine the benefits of early childhood environmental intervention.
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SES and Obesity in Youth

Socioeconomic Status and Childhood Obesity Levels

According to Centers for Disease Control and Prevention (CDC) statistics, childhood obesity has become epidemic in industrialized countries with increasing numbers of children considered overweight or obese. Statistics gathered from the 2005-2006 National Health and Nutrition Examination Survey (NHANES) study, indicate that 31.9% of U.S. children and adolescents ages 2-19 years are at or above the 85th percentile on the 2000 Body Mass Index (BMI) for age growth charts (CDC, 2008). The literature confirms that countries around the globe are reporting increasing levels of obesity. The International Obesity Task Force (IOTF) states that obesity is the “millennium disease” (MacDiarmid, 1998). A half century ago it was first listed as a disease and now it can be called an epidemic. The World Health Organization (WHO) predicts that by 2015, 2.3 billion adults will be overweight and 700 million will be obese. This problem obviously reaches further than the United States; obesity and overweight have been on the rise in middle and even low income countries (WHO, 2006).

The increase in child and adolescent obesity coincides with increasing rates of adult obesity levels, type II diabetes, and cardiovascular disease (CDC, 2008). The 2007 CDC statistics reported that over one-third of U.S. adults were obese in 2005-2006. These statistics include 33.3% of men and 35.3% of women (CDC). Childhood levels of BMI and skin fold thickness were positively related to increased levels of adult BMI and adiposity (Freedman et al., 2005).

Children who are obese can experience both physical and psychological health problems. Several studies have demonstrated that overweight children often go on to become overweight adults (James, Fowler-Brown, Raghunathan, & Van Hoewyk, 2006; Viner & Cole, 2005; Weiss & Kaufman, 2008). The increasing levels of obesity and obesity related illness among children and
adults around the world has led to mounting concern and governmental demand for the development of preventative measures. Overweight/obesity has been established by Healthy people 2010 as one of 10 major health concerns in the United States at the beginning of the 21st century (U.S. Department of Health and Human Services [US DHHS], 2000). This initiative established a goal of decreasing obesity levels to 5% in children and 15% in adults. Data from the Healthy People 2010 midcourse review showed that 33% of adults age 20 years and older remain obese. This number is an increase from the 2004 data which reported adult obesity at 30% and data from 1988-94 in which the obesity rate was only 23%. The data also shows elevations in the percentages of children with overweight or obesity. In 1988-94, 11% of children ages 6-19 years old were at or above the 95th percentile on weight for age growth charts in comparison to a 2006 rate of 17%.

The etiology of obesity for each individual is influenced by genetic characteristics and further enhanced by environmental factors. The most fundamental cause of obesity is an energy imbalance. Around the world there has been an increase in the consumption of calorie dense foods and a decrease in the daily energy expenditure. Activity levels have been shown to be decreased in children from lower socioeconomic classes (SES). Other groups that seem to be at risk for lower activity levels are females, non-English speaking and metropolitan children (Singh, Kogan, Siapush, & Van Dyck, 2008).

In several studies, lower SES has been associated with increased levels of childhood obesity (Kristensen et al., 2006; Singh, Kogan, Van Dyck, & Siahpush, 2008; Veugelers & Fitzgerald, 2005). Children from lower socioeconomic status levels are more likely to remain or become obese adults than children from higher SES levels (James et al., 2006; Viner & Cole, 2005; Weiss
Although the relationships of SES and obesity are known, a clear summary of findings, and the differences of the relationships among genders, are not known. This paper reviews the relationship between socioeconomic status and childhood overweight and obesity. Further, it reviews and compares the impact of socioeconomic status on obesity and overweight levels among genders.

**Definitions and Measurements**

Body mass index (BMI) is defined by the CDC as a statistical measurement that compares a person’s weight and height to estimate body fat. BMI is calculated by dividing the individual’s body weight in kilograms by the square of the height in meters. BMI is often used to classify a person as overweight or obese. Adults are considered overweight if they have a BMI of 25 to 29.9 and obese if BMI is 30 or greater. This measurement provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems. BMI growth charts for age and sex that provide percentiles developed by the CDC are recommended to assess weight in relation to stature during childhood from ages 2 to 20 years. Values above the 85th percentile are considered overweight, and those over the 95th percentile are obese. Some limitations of BMI are that it can overestimate body fat in people with a muscular build, and it can underestimate body fat in people who have lost muscle mass (CDC, 2008).

According to the *New Dictionary of Cultural Literacy* (Hirsch, Kett, & Trefil, 2002), socioeconomic status (SES) is defined as an individual’s or group’s position within a hierarchical social structure. SES depends on a combination of variables, consisting of occupation, education, income, wealth and place of residence.
Social Determinants of Health

In viewing the epidemic problem of childhood obesity it is relevant to consider the Social Determinants of Health Theory to help understand and deal with this complex issue. This theory focuses on the health implications of economic and social policies as well as with the benefits that investing in health policies can bring. Evidence has shown that specific social determinants can lead to vast inequities in health within society. The poor and the disadvantaged tend to have more health problems, less access to services, and die younger than the rich in all societies. The further down the social ladder one is, the shorter the life expectancy and the greater the likelihood of having disease. This is true even in the most affluent countries (Wilkinson & Marmot, 2003).

This theory was first proposed in 1848 by Rudolph Virchow, a physician from today’s Poland. Virchow is credited with founding “Social Medicine.” He theorized that outside stimuli affected cells and caused disease. He believed that disease could be caused by the external environment and he considered how to improve health by improving economic and social standing (Rudolph Virchow, 2002). The increase in scientific attention on the social determinants of health has led to a better understanding of how sensitive health is to social environments. The World Health Organization published The Solid Facts, (Wilkinson & Marmot, 2003) which lists what are now considered the social determinants of health. They can be briefly listed and described as:

1. The social gradient – Life expectancy is shorter and disease is greater further down the social ladder in any society.
2. **Stress** – Stressful circumstances, making people feel worried, anxious and unable to cope, are damaging to health and may lead to premature death.

3. **Early Life** – A good start in life means supporting mothers and young children: the health impact of early development and education lasts a lifetime.

4. **Social Exclusion** – Life is short where its quality is poor. By causing hardship and resentment, poverty, social exclusion and discrimination cost lives.

5. **Work** – Stress in the workplace increases the risk of disease. People who have more control over their work have better health.


7. **Social support** – Friendship, good social relations and strong supportive networks improve health at home, at work and in the community.

8. **Addiction** – Individuals turn to alcohol, drugs and tobacco and suffer from their use, but use is influenced by the wider social setting.

9. **Food** – Because global market forces control the food supply, healthy food is a political issue.

10. **Transport** – Healthy transport means less driving and more walking and cycling, backed up by better public transport.

**Literature Review**

**Methods**

A comprehensive review of the literature was performed using a broad search strategy that included multiple electronic databases and search engines. These included searches in CINAHL,
PubMed, Ovid, Medline, Google, and the CDC for studies published from 1980 through 2008. The key words that were used included “childhood,” “pediatric,” “adolescent,” “adult,” “obesity,” “overweight,” “weight,” “socioeconomic status,” “gender,” “level,” and “education”; the searches used these words in a variety of different combinations. Studies were selected that had specific information regarding the relationship of socioeconomic status to obesity or overweight in youth.

Relationships Between Socioeconomic Status and Weight

Several studies examined the relationship of socioeconomic status and overweight/obesity. James et al. (2006) examined independent associations between childhood and adulthood SES and the risk for obesity in adulthood in African American women. The study also evaluated the degree to which the risk for adult obesity could be changed after being initiated in childhood by changes in socioeconomic resources between childhood and adulthood. Six hundred sixty-nine African American women were interviewed for this study. Life course socioeconomic position (SEP) was determined by combining information from adulthood and childhood SEP. Adult SEP was determined using four variables including education level, occupation, employment status, and home ownership. Childhood SEP was determined by asking the participants to recall the occupation of their families’ primary earners during their childhood years. Each job was categorized 1 through 9 using the 1990 Census Occupational Classification. The jobs were then divided into two broad based categories of skilled and unskilled. They were then designated high or low SEP respectively. The study found that those African American women who had a lower SEP through childhood were more than twice as likely to be obese adults as the women from higher childhood SEP.
A recent study by Singh, Kogan, Van Dyck, et al. (2008) utilized data collected from the 2003 National Survey of Children’s Health, conducted by the National Center for Health Statistics (NCHS). They examined independent and joint relationships between socioeconomic, demographic, and behavioral characteristics and obesity prevalence of 46,707 children aged 10 to 17 years. The children came from each of the 50 states and the District of Columbia. The information was gathered in a telephone interview from the parent or guardian who knew the most information about the child’s health status and health care history. Logistic regression was used to estimate odds of obesity and adjusted prevalence. Of the entire group, about 15% were obese, with a rate of 18.1% for males versus 11.5% for females. Furthermore, children whose parents did not have a high school diploma were 50% more likely to be obese as children than those whose parents had college educations. Females in particular, had 91% higher odds of obesity if their parents had less than 12 years of education than if their parents were college educated. Females were more likely to be affected by parental education and socioeconomic status than males. Finally, when examining income, those children that were below the poverty level were 2.8 times as likely to be obese as children living in homes that exceeded 400% of the poverty level.

A second analysis by Singh, Kogan, Siahpush, et al. (2008) was performed using data collected from the 2003 National Survey of Children’s Health. This study examined the independent relationships between socioeconomic and behavioral characteristics and physical activity. It examined whether there were differences in these effects according to child age and gender. There was complete information on 68,288 children ages 6-17 years. This study used multivariate logistic regression to estimate the odds of activity and inactivity. Results of the
analysis showed that there were significant differences in activity levels between different socioeconomic classes. Children from lower socioeconomic classes had higher inactivity levels. Females, non-English speaking, and metropolitan children were also more likely to have decreased activity levels. Lower levels of neighborhood socioeconomic status and neighborhood safety were also related to increased inactivity levels. Considering gender alone, females had 43% lower odds of physical inactivity compared to males. The odds of regular physical activity were 22% lower for children whose parents did not have a high school diploma compared with those children with college educated parents.

Another study by Sherwood, Wall, Neumark-Sztainer and Story (2009) examined the prevalence of socioeconomic disparities of overweight boys and girls along with weight gain over a 5 year period. They followed 2,516 adolescents, from 1999 through 2004, who came from diverse ethnic backgrounds and were evenly dispersed among the SES levels. This study also reported that both genders in the lower SES categories were more likely to be overweight than the adolescents in the higher SES categories. There was a difference between genders and the longitudinal pattern of weight gain. Overweight status among boys in the high-SES category showed a significant decrease in overweight prevalence between 1999 and 2004, whereas boys in the low and middle-SES categories showed no change. The results for the girls were different. Girls, in the low-SES category showed a significant 5 year increase in the prevalence of overweight between 1999 and 2004, whereas there was a stable prevalence in the middle- and high-SES categories.

Haas et al. (2003) examined the relationship of socioeconomic status to overweight and obesity among 6-17 year olds. They also studied the relationships between race and health
insurance on levels of obesity. The analysis was based on data gathered in 1996 in the Medical Expenditure Panel Survey Household Component. Data were available for 8,652 families and 21,571 individuals. This study included 3,775 children and adolescents ages 6-17 years old. Ethnic groups of White, Black, Latino, or Asian Pacific Islanders were represented. Weighted logistic regression was used to examine the relationships of the factors with overweight and obesity, for 6-11 year olds and 12-17 year olds. Six to 11 year olds from homes with a lower parental education level and those who lived at 125% below poverty level had an increased likelihood of being overweight than did their non-socioeconomically challenged counterparts. For adolescents ages 12-17 years the results were different. Poverty was associated with a lower prevalence of overweight yet the lack of insurance or having public insurance was significantly associated with an increased prevalence of overweight. In both age groups, boys were more likely than girls to be overweight and Asian/Pacific Islanders and Latino were more likely than whites to be overweight.

This study suggests differences in the determinants of overweight for children and adolescents. Family circumstances may be a larger risk factor for overweight among children whereas individual characteristics may have more impact on adolescent overweight (Haas, et al. 2003).

Kristensen et al. (2006) studied the prevalence of cardiovascular risk factors across SES categories in Danish children and adolescents. Obesity, one of the main risk factors for cardiovascular disease, was tracked from childhood to adolescence. The study investigated the prevalence of obesity in high and low SES classes. Further it investigated the difference in prevalence across the age range of childhood to adolescence. Those in the study participated
in both European Youth Health Study (EYHS)-I, as 8–10 year old third grade children, and in the follow-up study, EYHS-II, in 2003 as 14-16-year-old ninth grade adolescents. A total of 384 children were followed. Overweight was determined by body mass index cut points that were proposed by the International Obesity Task Force. A BMI of 25-29.9 indicated overweight and 30 or above was classified as obese (MacDiarmid, 1998). Socioeconomic status was determined using the International Standard of Occupation Scheme and was based solely on the occupation of the adult female in the house. This study reported a social gradient in the prevalence of overweight in the 14-16 year old age group but not the 8-10 year old age group. However, the 8-10 year old group showed a relationship between lower physical activity and lower SES. Odds ratios found that the risk of being overweight was almost double for 14-16 year olds in the lower SES class as compared to those in the high SES class. A longitudinal analysis showed that the onset of the development towards a social gradient in the prevalence of overweight occurred during the ages of 8-16 years.

In Nova Scotia, Canada a survey of 4,298 grade 5 students in 282 schools was reported by Veugelers & Fitzgerald (2005). Information was gathered on height, weight, dietary habits, activity levels, and parental and school based risk factors. Multilevel logistic regression was used to evaluate the significance of these risk factors on obesity and overweight. They found that the rate of overweight was 32.9% and the obesity rate for these fifth graders was 9.9%. They estimated neighborhood income, per school, using data available through the 2001 Canadian census. Results of this study found that children from high income neighborhoods were half as likely to be obese as their peers living in lower income neighborhoods. Other risk
factors for overweight were sedentary behavior greater than 1 hour per day as well as being driven to school longer than 30 minutes every day.

A large cross sectional study in East and West Germany was reported by Apfelbacher et al. (2008) on the predictors of overweight and obesity in 5-7 year olds. The study included 35,434 participants from urban and rural areas of East and West Germany with 50.9% male participants. They participated in cross sectional studies between 1991 and 2000. This study found an inverse relationship between high parental education and childhood obesity. It also reported a relationship between living space and obesity. There was a protective association of living in a home that was greater than 75 m$^2$ in size. It was hypothesized that high social status reflected increased income, allowing for more living space. This inverse association was found in a model controlling for educational level, number of persons in household and being a single child.

In a study done by Hofferth and Curtain (2005) regarding poverty, the food program, and childhood obesity the results were different. The results did not show that children from lower SES levels had increased rates of overweight. The data came from the nationally representative 1997 Panel Study of Income Dynamics Child Development Supplement (PSID-CDS), and the total sample size was 1268 children. Hofferth and Curtain found that 16.4% of children were at or above the 95th percentile for weight. The relationship between poverty and overweight was not linear. Children from families that were 100 to 300% of federal poverty levels were 22-24% more likely to be overweight than children from families with incomes below 100% of the poverty line or children with family incomes at 300% or higher than the poverty line.
A review of the literature done by Sweeting (2008) focused on gender differences related to obesity. The review suggests that there are differences between the way males and females respond to “obesogenic environments.” Consistently there are minimal overall differences in the rates of obesity and overweight among male and female children and adolescents in the U.S. and other countries. However, even though overall the rate differences are small there is variability among ethnicities. British studies of females find the highest rates among black females with the lowest rates in South Asians. A study in the United Kingdom reported 11-13 year old females of black Caribbean and black African descent had higher BMI levels that other ethnic groups including White, Indian, Pakistani, Bangladeshi and others with mixed ethnicity. These studies found smaller and less consistent ethnic differences in obesity among males. In a US study it was found that there were higher levels of BMI among male and female Mexican Americans 6-11 years old and Non-Hispanic Blacks ages 12-17 years than other population groups. Other gender differences include the consequences of child and adolescent obesity, the patterning of body fat, the levels of resting energy expenditure and requirements along with the long term psychosocial effects of childhood obesity. Because males usually have a higher lean muscle mass they tend to have a higher rate of metabolism and consequently have higher energy requirements than most females. Males also tend to have more fat in the upper body while females have a relatively greater amount of fat on the hips and thighs. Male and female children are shown to have different levels of total energy expenditure which is due to differences in levels of physical activity. In contrast, studies show that adolescent females seem to pay more attention to food choice as a way to influence health and males tend to eat more fast food. These differences among the male and female gender are likely influenced by
both biological and social factors. To conclude, the studies reported lower levels of body satisfaction and general well being among obese adolescents versus children and females more than males. Finally, some studies have shown that obese females may be socially judged more negatively than obese males.

A longitudinal study performed in Great Britain by Viner and Cole (2005) focused on the social, socioeconomic and psychological consequences childhood obesity can lead to in adult life. There were 8490 participants with data on BMI at 10 and 30 years of age. Of these people 4.3% were obese at 10 years and 16.3% at 30 years. Of the participants who were obese in childhood, 52% remained obese as adults. Obesity that was limited to childhood years only was not associated with adult social class, income, years of schooling, educational attainment, relationships, or negative psychological effects in either sex. Persistent obesity was not found to be associated with any adverse adult outcomes in men. In women however, there was a relationship between persistent obesity and poorer employment and relationship outcomes. Women who had persistent obesity from childhood into adulthood were half as likely to ever be gainfully employed or even married as compared to those who were not obese at either time point.

Greenlund et al. (1996) conducted an analysis of relationships between parental educational attainment, parental body shape, and offspring’s education on the levels of the offspring’s adult BMI and their change in BMI over a 7 year period. Parental education was used as an indicator of childhood SES level. They used participants in the Coronary Artery Risk Development in Young Adults (CARDIA) study which included 5115 adults ages 18-30 years at baseline. The study was designed to include equal numbers of participants by age, educational
level, ethnicity and sex. The results of this study showed that for Black men and White women, there was an inverse relationship between father’s education level and offspring’s adult adiposity level. It was also associated with a 7-year change in BMI among White women. These relationships were independent of the participant’s own education, and lifestyle behaviors. When looking at other results there were positive relationships between parental body size and the levels of adult offspring BMI. This relationship was found for all groups, regardless of race or gender.

Discussion

Overweight and obesity in adults and children has been on the rise over the last 20 years. This is a problem that goes beyond the boundaries of the United States and includes most industrialized nations (CDC, 2008). The actual statistics are alarming. According to the CDC, based on the 2005-2006 NHANES study, in the United States the percentage of obese male adults was 33.3% and the percentage of obese female adults was 35.3%. Based on the same study the prevalence of obesity for the combined years of 2003-2006 was 16.3% in adolescents and children ages 2-19 years. These statistics do not include those who are considered overweight. Using data from the 2003-2004 NHANES an amazing 56% of U.S. adults are considered overweight or obese. In children and adolescents the total percentage of overweight and obesity is 31.9%.

There are many reasons to be concerned about the increasing numbers of people who are considered overweight or obese. In adults obesity is linked to coronary heart disease, type II diabetes, hypertension, and hypercholesterolemia among others (CDC, 2008; Hainer et al., 2008;). These health problems, which were once primarily adult health problems, are
becoming more prevalent in children as obesity rates increase (Veugelers & Fitzgerald, 2005). The medical cost associated with overweight and obesity has a significant economic impact on the U.S. health care system. It is estimated that in 2002 these costs were as high as $92.6 billion. Children who are overweight or obese can also experience significant social and psychological consequences during childhood and adolescence (Viner & Cole, 2005). According to a study by Garn, Sullivan, and Hawthorne (1989) obese children may face social discrimination which could influence their adult SES through the type of job or amount of education obtained. Additionally Schwimmer, Burwinkle, and Varni (2003) showed that children with obesity experience a quality of life similar to that of children going through cancer treatment. Other children may tease them, and their obesity may preclude them from keeping up with peers in daily physical activity and play. This may lead to withdrawal from activities and thus a decrease in daily exercise. Children can often have decreased self esteem and lower self worth.

A multitude of causes have been linked to obesity. There is likely a complex interaction between genetics, metabolism, diet and physical activity. Though genetics may increase an individual’s susceptibility to being overweight, the increased susceptibility is then influenced by each individual’s health behaviors such as diet, activity level, stress, and smoking (Hainer et al. 2008). Hill and Trowbridge (1998) state that “despite obesity having strong genetic determinants, the genetic composition of the population does not change rapidly. Therefore, the large increase in obesity must reflect major changes in non-genetic factors” (p. 571). To change non-genetic factors interventions which will promote health behavior change of individuals are needed.
According to the Social Determinants of Health Theory, each individual’s health behaviors are influenced by environment, including access to socioeconomic resources throughout a person’s life. This review of the literature investigated findings regarding the relationship between SES and overweight/obesity. A number of studies reported a relationship between lower SES and increased levels of overweight and obesity. For example, in a study from Singh, Kogan, Van Dyck et al. (2008) researchers found that children who lived 125% below poverty level were more likely to be obese than those children from high income families. Children whose parents did not have a high school diploma were 50% more likely to be obese than those with college educated parents. Another study of adolescents from lower SES levels showed both genders had increased levels of obesity (Sherwood et al., 2009). A large study in Germany of 35,434 children also showed an inverse relationship between parental education and childhood obesity (Apfelbacher et al., 2008) and a study in Canada of 4th and 5th grade students found that children from higher income neighborhoods were half as likely to be obese as their peers in lower income neighborhoods (Veugelers & Fitzgerald, 2005). However, inconsistent results were found between two different age groups in a study by Haas et al. (2003). In this study the 6-11 year old children from lower SES levels were more likely to be obese than those from higher income homes while the 12-17 year old adolescents from lower SES levels had decreased levels of overweight/obesity. Research by Kristensen et al. (2006) also report varied findings among age groups; however, their results report a social gradient in overweight levels among 14-16 year olds but not for the 8-10 year old children. Finally, a study by Hofferth and Curtain (2005) showed that those children from the poorest families had the lowest levels of obesity. The highest levels of obesity were in children from the near poor and...
moderate income families. These inconsistent results may be related to variations in the way SES level is determined in the studies.

Gender differences are important to note in the relationship of obesity to SES. Obesity in childhood that persists into adulthood, especially in women, has been shown to be related to a decrease in employment and relationship outcomes (Viner & Cole, 2005). In another study by Garn et al. (1989) it was also found that women who were obese were more likely to marry someone at a lower SES and have lower earned incomes than those leaner women. However, Viner & Cole also found that those from either gender who were obese as children but not as adults had no negative associations with social class, income level, years of schooling, educational attainment, relationships or negative psychological effects.

Studies by Viner & Cole (2005) and Singh, Kogan, and Van Dyck, et al. (2008) reported a greater effect of SES on the female gender. Singh, Kogan, and Van Dyck, et al. reported 91% higher odds of obesity in females if their parents had less than 12 years of education than those with parents who were college educated. A review of the literature done by Sweeting (2008) states that there is very little gender difference in overall rates of obesity but there are gender differences in the consequences of child and adolescent obesity and the long term psychosocial effects. There is a sociocultural bias that exists against obesity, which may have greater consequences for women that for men. Gender differences will be an important area for further study to help direct appropriate policies and obesity treatment programs.

This review reinforces the tremendous need for obesity prevention education and treatment in children of all ages. There appear to be differences in the way each gender responds to an environment as well as the way different environments can affect children and
adults. Unhealthy behaviors start in part as a response to a social environment that limits knowledge, alternative choices, food security, and safe physical activity. Changing that environment is the real challenge (Benjamin, 2003). SES has been identified as one of the determinants of childhood obesity. Social and economic conditions are important for the health of a population as they play a role in what makes people ill and in need of medical attention in the first place (Wilkinson & Marmot, 2003). Interventions will need to be tailored to meet the needs of different SES categories and genders. Our focus on overweight and obesity in children should be a priority in health care. Many risk factors of health develop in childhood and adolescence. A healthy childhood can be a foundation for health and wellbeing in later life.

Universal access to health care is at the core of developing a plan to improve obesity levels. It should be a priority to have the availability of health care services and child development classes to all mothers before pregnancy, during pregnancy and infancy. Primary practitioners are in an influential position to effect a change within families. They can provide instruction to parents on good nutrition, increased physical activity needs, preventative health care practices and provide community and other resources when poverty is an issue. Children learn from their surroundings, and the family unit is the most important influence on the development of children’s lifestyle habits. Increasing parental knowledge about good health related habits will help them set good examples for their children (Hearn, Miller, & Campbell-Pope, 2008). Any plan to tackle the obesity problem should be family oriented. Children and their parents should have access in their communities to safe places for physical activity involvement.
In conclusion the childhood obesity epidemic may need to be tackled at a grass roots level. Federal and state governments should support at risk local communities and schools in creating environments with safe opportunities for physical activity including parks, recreational facilities, swimming pools, walking and biking paths, and playgrounds. Communities with lower SES should have access to grocery stores or farmers markets where they can buy fresh fruits and vegetables. Schools should promote physical education and provide opportunities for children to have active play time. School food programs need to provide nutritious, lower fat meals and health education and nutrition should be required classes throughout school years. Daycare providers should receive yearly training related to nutritional requirements, importance of early development of healthy food choices and proper amounts of daily exercise. Parents need to be able to access culturally appropriate learning activities and written information about healthy diets and cooking. Finally, health practitioners need to provide education and care to those children who are already obese and preventative health instruction for those who are not. These measures may only just stem the tide as further study and research is performed to help guide our actions and policy.
References


SES and Obesity in Youth


