Ethical analysis of childhood obesity and physical activity levels in American children

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Introduction

Over the past thirty years, obesity rates have steadily increased in the United States including childhood obesity. The National Health and Nutrition Examination Study (NHANES) conducted in 2009-2010 indicated that over 15 percent of American children aged 2-19 are obese (National Heart, Lung, and Blood Institute, 2012). The obesity is trend is likely to continue without taking drastic measures in the field of public health. To illustrate, a projection model of U.S. obesity rates indicates that by 2030, approximately 90 percent of all American adults will become overweight or obese with over 50 percent of the adult population being considered obese. In the same year, childhood overweight and obesity would increase to nearly 30 percent. Furthermore, black adolescent girls and Mexican American adolescent boys would be at the highest risk for obesity with estimated obesity levels over 40 percent. By 2070, half of America’s youth population will be considered to be obese. Nonetheless, African American girls and Mexican American boys will reach this level by 2050 (Wang, Beydoun, Liang, Caballero, & Kumanyika, 2008). If these trends continue as projected, the overall health of the U.S. will decline thereby resulting in shorter lifespans, increased medical costs, and increased prevalence of chronic diseases. Therefore, winning the battle of the bulge is crucial to improving the healthiness of all Americans, present and future.

Childhood obesity may result in several severe health risks that can continue into adulthood. According to UC San Diego Health System, obese children are more likely to suffer from high blood pressure, high cholesterol, breathing problems, joint problems, fatty liver disease, gallstones, gastro-esophageal reflux, insulin resistance, and type 2 diabetes (2014). In addition, obese children that become obese adults are more likely to develop serious health conditions such as heart disease, diabetes, and stroke, osteoarthritis, and some cancers (Centers
for Disease Control and Prevention, 2014). These potential health risks further impact the overall health of our nation. Therefore, overcoming childhood obesity now will result in fewer health problems for future generations.

The economic costs of obesity are taking a large toll on the United States. Over 9 percent of medical expenditures in 1998 were attributed to overweight and obesity totaling over $75 billion (Wang et al., 2008). These costs have continued to steadily rise over the past 15 years. For example, the annual medical costs of obesity and obesity related illnesses in 2008 was $147 billion dollars (Centers for Disease Control and Prevention, 2014). An estimated $14 billion of these were the direct result of childhood obesity. According to the National League of Cities, if obesity rates had remained at 2010 levels, then the estimated savings for obesity related medical costs would be nearly $550 billion over the next 20 years (n.d.). By 2030, obesity related healthcare costs are estimated to range anywhere from $860 to $956 billion (Wang et al., 2008). The financial and health costs associated with childhood obesity indicate that current obesity prevention techniques are not enough to control the epidemic.

Significant disparities in obesity prevalence among children and adolescents exist due to race and age. For example, in 2011-2012 Hispanics and black youth had the highest rates of obesity with 22.4 and 20.2 percent respectively. Non-Hispanic white youth had prevalence rates of only 14.1 percent while Asian youth were the least likely to be obese with prevalence rates of less than 9 percent (Centers for Disease Control and Prevention, 2014). In addition, children of lower socioeconomic status, American Indians, and children living in the southern portion of the U.S. are also more likely to be affected by obesity than their peers (The Partnership for a Healthier America, n.d.). As a result, overcoming socioeconomic and racial disparities is critical to reducing childhood obesity rates.
Public health officials face numerous challenges in promoting healthful living and physical activity to decrease obesity prevalence. Many low income communities struggle with the obesity epidemic due to limited access to nutritional foods and safe places for children to participate in physical activities. According to Bassett & Perl, public health officials dispute how to fight the battle against obesity. Individual behavioral changes promote better eating and exercise habits at the personal level. However, environmental changes help entire communities by ensuring access to fresh produce and increasing the number of green spaces that can be used for physical activities (2004). While both schools of thought aim to decrease obesity levels, true behavior modification will not happen without both types of changes. Until health policy and environmental changes occur that make individual change easier, our nation will not win the battle of the bulge.

**Causes of Obesity**

Obesity is caused by a myriad of factors including genetics, environment, lifestyle, and culture. Dehghan, Akhtar-Danesh, & Merchant, stated that increases in caloric and fat intake are assumed to be the number one causes of overweight and obesity (2005). However, increased portion sizes, sugary soft drink consumption, and decline and physical activity have further increased the prevalence of obesity across the nation and around the world.

According to Cawley, Meyerhoefer, & Newhouse, reduction in physical education (PE) requirements in American schools have result in increased obesity rates (2007). The 2003 Youth Risk Behavior Survey indicated that less than 30 percent of students attended PE classes on a daily basis. Similarly, over one-third of the children surveyed did not participate in at least 20 minutes of vigorous physical activity 3 or more times and at least 30 minutes of moderate physical activity 5 or more times in the past week (Sharma, 2006).
Lack of physical activity in children can be attributed to reduced decreased PE requirements in school systems. From 1991 to 2003, the number of high school students enrolled in daily PE classes dropped from 41.6 to 28.4 percent. Daily PE requirements for middle school age students decreased from 1994 to 2000 from 17 to 6.4 percent respectively (Cawley et al., 2007). Moreover, lack of physical activity outside school and poor nutrition are known causes of childhood obesity. Demographics and socioeconomic status that affect a child’s lifestyle can greatly affect body weight (Veugelers & Fitzgerald, 2005b). Therefore, childhood obesity can be the result of numerous factors including physical activity levels, caloric intake, and socioeconomic status.

**Literature Review**

Veugelers & Fitzgerald (2005a) conducted a study to determine the association between obese and overweight children and risk factors related to diet, physical activity, parents, and schools. Fifth grade students in Nova Scotia were questioned, along with their parents and school principals, about their diet, physical and sedentary activities, body measurements, and other social risk factors. In addition to the survey information, estimated neighborhood mean incomes for children attending the schools were obtained in order to determine socioeconomic status. By using multilevel logistic regression, the researchers were able to determine if the various factors significantly impacted the likelihood of obesity and overweight. Children that received physical education at least 2 times a week were found to have a decreased risk of overweight and obesity. Moreover, increased risk of overweight and obesity was found in children with more than one hour per day of sedentary activity and drive times to school of more than 30 minutes. Also, children of lower socioeconomic status were two times more likely to become overweight or obese than their high socioeconomic status peers (Veugelers & Fitzgerald, 2005a). On the whole,
this study indicates that increasing physical activity with the inclusion of parents and schools
may help in reducing the childhood overweight and obesity in the United States.

Jansen et al., implemented a health promotion program (Lekker Fit!) in order to reduce
inactivity and overweight in children ages 6-12 in inner-city kids of Rotterdam by addressing
both behavioral and environmental factors. The program aimed to reestablish the physical
education curriculum by increasing the number of PE classes the children receive per week from
two to three. Furthermore, additional physical activities outside school, fitness testing, healthy
living classes, and parental involvement were included in the Lekker Fit! program. The
randomized control trial targeted individual behaviors and the environment; therefore, the
researchers used both the theory of planned behavior and the ecological model to implement
their promotion program. Program outcome measures included BMI, waist circumference,
fitness, and assessment of nutrition and physical activity via classroom surveys (2008). Due to
the self-report questionnaires, the results of the nutrition and physical activity surveys may be
inaccurate. However, the design of the study and primary measurements of BMI, waist
circumference, and fitness levels provided accurate measures on the effectiveness of the
program. The study resulted in an increase in overweight/obesity in the control group of 4.3
percent while the intervention group increased by only 1.3 percent. Similarly, the program
significantly decreased the percentage of overweight children and average waist circumference
of the intervention versus the control group for students in grades 3-5 (Jansen et al., 2011). The
Lekker Fit! program indicates that increasing physical education requirements in conjunction
with health education in American schools may be the solution to the growing childhood obesity
epidemic.
Gortmaker et al., (1999), implemented a two year program Planet Health in for nearly 1,300 sixth and seventh grade students in Massachusetts. The program used an interdisciplinary approach to provide education sessions on “decreasing television viewing, decreasing consumption of high-fat foods, increasing fruit and vegetable intake, and increasing moderate and vigorous physical activity” (p. 409). Furthermore, physical activity education was focused on activity versus inactivity with levels monitored by student self-report questionnaires. Students were encouraged to replace inactivity with moderate to vigorous activity of the students’ choice. The results of this study indicated that Planet Health had a more significant impact on obesity for young girls versus the boys in the study. The girls in the control schools obesity prevalence increased from 21.5 to 23.7 percent. However, the girls of schools in the intervention group saw a decrease in obesity from 23.6 to 20.3 percent over the two year period. When comparing the two groups, the girls that attended the intervention schools were 47 percent less likely to be obese than those in the control schools. Both girls and boys in the intervention schools saw significant reductions in television time (Gortmaker et al., 1999). This study provides evidence that increasing physical activity and healthy eating habits via school-based interventions can significantly reduce obesity levels in children.

National Physical Education Requirements

The national physical education requirements for the United States are not enough to reduce childhood obesity levels. According to the National Association for Sport and Physical Education (NASPE), children ages 5 – 12 should participate in at least 60 minutes of physical activity daily. Furthermore, NAPSE recommends that elementary schools provide a minimum of 150 minutes of PE weekly. For middle school and high schools, NAPSE recommends that students attend at least 225 minutes of PE classes each week (Nebraska Department of
Education, 2006). However, the requirements set forth by NAPSE are not adhered to in every state. The Nebraska Association for Health, Physical Education, Recreation and Dance (NAHPERD) determined that of all 50 states, less than 75 percent of states require that students attend PE classes from elementary through high school. Moreover, only six states require PE in every grade. The national recommendation of 150 minutes of PE per week is only meet by three states: New Jersey, Louisiana, and Florida. Similarly, only Utah, Montana, and West Virginia meet the national recommendation of providing middle school and high school students with at least 225 minutes of PE each week (Nebraska Association for Health, Physical Education, Recreation and Dance, n.d.). To further illustrate, 8 percent of elementary schools and 6 percent of middle and high schools meet NAPSE recommendations for 150 and 225 minutes of PE weekly respectively (Story, Kaphingst, & French, 2006). The high percentage of schools not meeting the national recommendations

Lack of adherence to national recommendations for PE time per week is not the only problem with the nation’s physical education requirements. More than half of the states in the nation allow exemptions or waivers that would excuse children from participating in PE. These exemptions have greatly influenced the lack of physical activity in our nation’s youth. In addition to PE exemptions, only 22 states require a specific amount of time be allotted for PE classes (Nebraska Association for Health, Physical Education, Recreation and Dance, n.d.). Until the deficiencies in PE requirements around the nation are resolved, the prevalence of childhood obesity is likely to increase.

**Role of the School System in Childhood Obesity**

The school systems have the potential to be a vital aspect of childhood obesity prevention programs throughout the nation. Most importantly, schools have the advantage of continuous and
intensive contact with America’s youth (Baranowski, Cullen, Nicklas, Thompson, & Baranowski, 2002). According to Story, over 95 percent of American youth are enrolled in school from ages 5 to 17. High enrollment of America’s youth in the school systems includes children of all races and socioeconomic status. Schools not only have the opportunity to provide children with at least one possibly two nutritious meals, they also have gyms, playgrounds, and PE classes to further improve the health of our nation’s children (1999). Improving PE standards across the nation has the potential to reduce childhood obesity and other health disparities.

The amount of time that children spend inside school, provides educators with ideal circumstances to educate children on the importance of proper nutrition and physical activity. Moreover, schools have the opportunity to improve existing programs that help to develop “student knowledge, attitudes, and skills essential for healthy lifestyles” (Katz et al., 2005). By ensuring that all children are educated on healthy living practices including diet and physical activity, America’s school systems have the potential to greatly reduce obesity rates. Schools have the capacity to offer children more opportunities to engage in physical activity than just PE. According to Story et al., school-based physical activity to programs should consist of “PE, health education that includes information about physical activity, recess time for elementary school students, intramural sport programs and physical activity clubs, and interscholastic sports for high school students” (2006, p. 118). The vast amount of resources available to educators indicate that American schools are the ideal location to implement childhood obesity prevention programs.

**Ethical Dilemmas**

Childhood obesity programs and prevention techniques aim to reduce obesity levels and thereby improving health of all children. However, like all public health promotion programs,
obesity prevention can have negative connotations. For example, obesity prevention programs can lead to stigmatization, discrimination, and other negative psychosocial consequences. Similarly, imposing dietary restrictions and physical activity requirements in school systems, reduce personal freedoms in relation to lifestyle choices, parenting style, and school policies (ten Have, de Beaufort, Teixeira, Mackenbach, & van der Heide, 2011). Increasing PE requirements may result in negatives reactions in the student body and community. These negative reactions may lead to rebellion against the obesity prevention program. Thus, it is critical that increased PE requirements would be supported by the school system and community before it could ethically be implemented.

Requiring every state to meet or exceed the NASPE recommendation for PE may not significantly reduce childhood obesity. According to Cawley et al., over one-fourth of all PE classes in the U.S. do not meet national and/or state requirements (2003). Moreover, a study conducted by Simons-Morton, Taylor, Snider, & Huang found that students are moderately to vigorously active for approximately 9 percent of the time during a PE class (Cawley et al., 2003). This activity rate equates to less than 4 minutes per 40 minutes of PE time. Increasing PE spending and decreasing time outside of the classroom may not ultimately reduce body weight and childhood obesity prevalence as projected. If increasing PE requirements does not significantly reduce childhood obesity prevalence in children ages 5-17, it should not be ethically implemented. Furthermore, if the other means exist to significantly reduce obesity using school-based interventions other than increasing weekly PE requirements, these methods should be enforce over PE standards. School administrators cannot ethically enforce the national recommendations for PE time in schools without first having evidence that the proposed plan will be effective at reducing obesity and cost-effective for taxpayers and the school system.
Increasing the amount of time that children are required to participate in PE classes has the potential to impact academic performance and quality. According to the Centers for Disease Control and Prevention (CDC), 50 school-based obesity prevention studies found over 250 associations between physical activity and academic performance. Over half of the associations discovered between increased PE time and school performance were positive, 48 percent were not significant, and 1.5 percent were negative (2010). Although it appears the increasing physical activity levels is most likely to improve academic performance, it is still possible that the obesity prevention initiative would take away from other school subjects. Furthermore, the cost of implementing new or improve PE programs is substantial. Establishing a new PE program would cost the school an estimated $500,000 (Dakss, 2005). Unfortunately, school districts do not have that kind of money to improve the existing PE programs. In order to fund these programs, school districts will have to either reduce spending by means of cutting programs and activities or increase tax payer contributions. For instance, in 2007 the California government reserved $40 million annually to hire PE specialists for kindergarten through eighth grade (The California Endowment, 2008). Since PE is not required by the federal government, funding the programs poses huge burdens on schools, governments, and tax payers.

**Recommendations**

To solve America’s childhood obesity crisis, several steps need to be taken. First and foremost, the federal government needs to require that all elementary schools and middle and high schools meet the national recommendation for PE time per week of 150 and 225 minutes respectively. Until the state and federal governments require that schools meet the national recommendations of physical activity per week, obesity prevalence will continue to rise. Federal mandates for PE would decrease the financial burdens of the schools and taxpayers throughout
the nation. Federal governments would have the capacity to provide grant money to help improve PE programs in poor neighborhoods. The “national recommendation” for PE standards allow schools to make student health a low priority. Therefore, the U.S. needs to have clearly defined national requirements for PE for grades K-12.

Second, PE classes should aim to reach moderate to vigorous activity levels for the entire class session. As mentioned above, students are moderately to vigorously active for less than 10 percent of the time during PE (Cawley et al., 2003). Until students are fully engaged in physical activity for at least 85 – 90 percent of a PE class, obesity rates will remain high. In addition, PE classes should incorporate different types of exercises from aerobics to games to yoga. Giving students a diverse background of physical activities will help them find exercises that they enjoy inside and outside of school. School-based obesity prevention aimed at improving physical activity levels have the opportunity to help students choose healthier lifestyles. On the whole, PE time should be more focused on being physically active for longer periods of time.

Lastly, improving physical activity levels is not the sole solution to school-based obesity prevention programs. Schools have the ability to shape how children view the world. By only allowing healthy food options to students, school districts can further educate on healthy living. Middle school and high school students should be required to take at least one healthy living course upon graduation. This multi-prong attack on obesity will not only decrease obesity prevalence, but it will also help students live healthier lives. Many students receive at least one meal a day at school. The meals provided by the school should meet national nutritional guidelines. Moreover, by providing the healthiest options available, schools will be creating healthier children. Thus, increasing PE time alone is not enough to help children create healthy lifestyles.
Discussion

School-based obesity prevention programs provide the ideal solution to decreased obesity rates in children ages 5-17. First, school-based initiatives provide opportunities for children to learn and create healthy behaviors. Second, improved physical activity levels and eating habits are critical to improve the health of children during growth and maturation periods. Lastly, these programs may reduce the risk of chronic diseases in childhood and adulthood (Veugelers & Fitzgerald, 2005a). Moreover, increasing physical activity levels in school age children has shown to significantly reduce obesity levels for the immediate future. However, requiring all students K-12 to participate in weekly PE classes, might be the permanent solution to preventing and reducing obesity. Therefore, school-based obesity programs help children to create healthy lifestyles that are necessary to reduce and prevent obesity.

Mandating that schools increasing PE requirements does pose ethical issues. Improving PE requirements throughout the nation may not be enough to reduce obesity rates. Furthermore, increasing the number of days children attend PE classes may result in budget and program cuts. School administrators, educators, and parents may feel that the costs to implement school-based obesity prevention programs are worth the benefits leading to more problems. Nonetheless, the costs of childhood obesity outweigh the financial burden of improving our nation’s PE programs. To prevent ethical dilemmas associated with increasing PE time per week, the federal government needs to make PE a requirement instead of just a recommendation for all schools K-12.

All in all, childhood obesity is a preventable disease that continues to increase steadily throughout the United States. Racial, ethnic, and socioeconomic disparities needed to be removed in order to ensure that all children have access to quality physical education and safe
places to be physically active. By increasing PE requirements, all children ages 5-17 will have the opportunity to become healthy. Furthermore, engaging in physical activity provides a cost-effective means to decrease the percentage of obese and overweight children in our nation that can overcome all disparities. Therefore, increasing physical activity levels in children may prove to be the first step in defeating the battle of the bulge.

References


