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The Impact of Social Economic Inequities in Government Funded Physical Education Programs

Introduction

The United States Dietary Guidelines for Americans recommend that young people (ages 6-19) participate in at least 60 minutes of moderate-to-vigorous physical activity on most, if not all, days of the week.¹ A substantial percentage of each student's recommended amount of physical activity can be provided through a comprehensive school based physical activity program such as physical education. Ten percent of the world's school-aged children are estimated to carry excess body fat, which increases the risk for developing chronic diseases later in life.² Out of this ten percent, a quarter of them are obese, with a high chance of having multiple risk factors for type 2 diabetes, heart disease and a variety of other co-morbidities before or during early adulthood.² These statistics are constantly changing as the definition of obesity adapts to scientific evidence and public health. More specifically, the prevalence of childhood obesity is consistently rising among the urban poor, possibly due to their exposure to Westernized diets coinciding with a history of undernutrition and inadequately funded physical education programs. Many of these schools may not have a physical activity environment that supports adequate access to these exercise related resources, facilities, and opportunities.³ With limited studies focusing on the disparities in school physical activity environments, research has shown that disparities in school physical activity environments are often socially patterned by socioeconomic status (SES) and race.³ These disparities are also associated with inadequate

funding in areas of poor SES. Many times, these social economic inequities in government funded physical education programs correlates with various health outcomes in elementary school aged children.

Prevalence of Childhood Obesity

The statistical definition of obesity is constantly changing; however, it can be loosely defined as an excess of body fat. The Center for Disease Control and Prevention (CDC) defines obesity in children and adolescents as a body mass index (BMI) of greater than or equal to the age- and sex-specific 95th percentile and overweight with a BMI between the 85th and 95th percentiles.⁴ However, the BMI percentile classification can be inaccurate as the variables of height and weight can vary from person to person. BMI seems appropriate for differentiating adults, but it may not be as useful in children due to their changing body shape as they progress through normal growth. It is extensively used due to its simplicity as well as the inexpensive equipment required to gather the data. Although other methods exist such as hydrostatic weighing, bioelectrical impedance analysis (BIA), and magnetic resonance imaging (MRI) these are all inaccessible by many and impractical to use on a wide scale.

Obesity can impact children in many ways including their psychological, cardiovascular, and overall physical health. Conditions such as hypertension, diabetes, and forms of depression are commonly associated with obesity. Each of these impacts present an association between obesity and morbidity in which it becomes a public health concern for children. This excess body fat can also increase the risk of breast, colon, kidney, and pancreatic cancers.⁴ Although each of these present serious health concerns ,it continues into adulthood. When these children with obesity got older, they were much more likely to suffer from various cardiovascular and

digestive diseases. This makes childhood obesity a major contributor to the adult obesity epidemic that is currently occurring.

Childhood obesity has become a worldwide issue reaching epidemic levels in the United States impacting millions of individuals. In the past 3 decades, the prevalence of childhood obesity has more than doubled in children and tripled in adolescents. From 1999-2000 the prevalence of obesity was sitting right around 13.9% for school aged children (6-11 years) which is relatively high.⁴ However, a study performed by the CDC showed that in 2015-2016 the prevalence of obesity among school aged children was 18.4% with no significant difference between boys and girls overall as an age group.⁴ This upward trend with about a 4.5% increase shows that statistically, this has become a serious issue. There seems to be numerous underlining factors that are contributing to this increase in childhood obesity across the United States.

Physical Education

As previously stated, it is recommended that children participate in at least 60 minutes or more of physical activity each day. A schools and staffing survey conducted by the National Center for Education Studies found that the average child is in school for about 6.64 hours a day for around 180 days during the school year. ⁵ By spending approximately 1,100 hours a year in school, this could serve as a vital intervention method to increase the amount of physical activity the children participate in. It is important for the education system to influence the environment positively by promoting physical activity whether it is through physical education or other activities. Schools have been forced to respond with physical education being positioned in some respects as both the problem and solution. It is challenging for educators to directly address the children's fitness concerns as it may be inappropriate and unprofessional. This must be indirectly as the educator cannot single out one student but must implement exercise programs to

the classes. With class sizes exceeding 30 students it is difficult to implement progressive overload catering to each student. Students are all different sizes, and some may be in better shape than the others. Rather than focusing on developing these exercise programs, the focus is to educate the students on how to live a healthier and active life while reaching that daily goal of physical activity. It sounds simple on paper, but many schools do not have access to the adequate resources they need. Research has shown that inequalities, regarding physical education, in school environments are socially patterned by SES and race. These inequities may pose a serious threat to the well-being and health of the children. A study was conducted in 2009 that found 1 in 4 US public elementary school students attended a school with no access to a gymnasium or with access to one that was inadequate.⁴ Further, administrators of 14% of US public elementary school students deemed their schools' indoor facilities as inadequate and "a barrier to implementing high-quality physical education programming."⁴ These statistics are alarming as physical activity is imperative for these children at such a young age.

Georgia Elementary School Study

In 2014, only one-fourth of youth met the 60-minute guideline for physical activity in Georgia, so a study was conducted to identify socioeconomic disparities in the school's environments using a survey. This study lasted from 2013-2014 in which all 1333 Georgia public elementary schools were surveyed. There were numerous findings that supported the idea that SES does impact the access to physical education. Lower SES schools were less likely to report "always/often" giving access to physical education equipment which is a red flag.³ Without access to equipment these children are not receiving the necessary materials to meet this physical activity requirement. Schools with a higher SES are provided access to this equipment promoting a more active lifestyle for the children. It was also reported that these low SES

schools were least likely to have written information or audio/visual information about physical education.³ This lack of education on the topic of physical activity leaves these students in the dark. They will not understand the benefits of physical activity and will become more susceptible to inactivity. These socioeconomic disparities observed in the study may be driven by financial constraints. Lower SES schools are consistently located in less well-funded schools and the areas lack strong funding policies and tax policies.³ These weak policies limit the amount of funding these schools receive and restrict the access to proper physical activity and physical education that these children deserve. Student access to equipment during physical education could be hindered due to these budget constraints. These budget restraints could also restrict the amount of maintenance and recreational use these equipment and facilities receive. This study helped conclude that it is possible socioeconomic disparities in physical activity environments at elementary schools could impact the physical education programs affecting the rates of obese individuals.³

Massachusetts Study

A study conducted in Massachusetts used statewide BMI screening of elementary school children to show that there is an association with low SES and a higher rate of obesity. These low SES families were defined based on eligibility for free/reduced price lunch, received transitional aid, or were eligible for food stamps.⁶ It was found that these children attending school in these low SES areas reported behaviors of poor health such as low physical activity and poor nutrition promoting weight gain. This is mainly due to minimal access to school-based exercise programs and a greater opportunity to eat at fast food restaurants. In poor SES areas, there is a greater access to fast food restaurants as it is a relatively cheap alternative while being energy-dense compared to fruits and vegetables. Studies in Seattle, New Orleans, and

Massachusetts all support a strong correlation between greater obesity rates in lower income neighborhoods with a high density of fast-food restaurants.⁶ It was found that in East Los Angeles, 63% of fast-food restaurants are within walking distance of a school. These companies strategically open these fast-food chains in areas where they will gain the most revenue. It is important to recognize that there are factors out of the school's ability to control which means they need to focus on educating their students. A community in Massachusetts offers diverse, age-appropriate physical activities and incorporate wellness topics including good nutrition in their physical education curriculum.⁶ However, in areas where funding is limited this is challenging to provide the students with the attention they need and the necessary equipment. It is important to take into consideration the SES of the community and that this impacts the rate of childhood obesity negatively.

Federal Funding

Students' attitudes toward physical education are impacted by the educator and the curriculum to which they are taught. Federal funding for physical education programs is often spent on curricular enhancements (e.g., new curricula, new equipment, new technology) or teacher training (e.g., professional development).⁷ A study explored the attitudes of elementary age students in schools that received a large federal grant, compared to students' attitudes in schools that did not receive such funding—helping to identify if money was spent in a meaningful way to promote lifelong physical activity. This study was conducted over a three-year time frame in which surveys were collected during physical education class. Three school districts had been awarded grants, which ranged in amount from approximately \$850,000 to \$1,300,000 and were compared to two districts without any additional funding.⁷ These funded districts purchased a significant amount of new equipment, including fitness machines, rock

walls, and other gymnasium supplies. The physical education teachers were also provided with additional professional development resources such as YES!, HOPSports, and SPARK to enhance the learning environment. These districts also purchase technologies such as tablet computers for teachers, heart rate and/or activity monitors for students, and interactive gaming/movement products. Neither of the two unfunded school districts experienced changes in equipment or curriculum; they did not add any significant technologies or increase professional development opportunities. After the three-year period concluded the research found that federal funding aimed at improving physical education programs does not appear to have contributed to slowing the decrease in positive attitudes toward physical education.⁷ The students' attitudes toward physical education decreased each year, regardless of whether students attended a grant-funded or an unfunded school. It appears that the ways federal funding was spent did not promote positive attitudes that could lead to increased lifelong physical activity.⁷ The role of SES and the children's attitudes were also observed, especially focusing on funding. However, the students from the two schools with the lowest SES ranked in the middle of the other schools' overall averages. This suggests that race and socioeconomic status did not play a large role in changing students' attitudes because of funding.

Although this funding was significant and was able to be used in a variety of different ways there must be some underlining issues as to why it did not work. There were very limited differences between the funded and unfunded schools. Providing the teachers with new programs and equipment including SPARK, tablet computers, and workshop knowledge is great. However, it is unknown how they were implemented into the curriculum. Research has shown that one-time teacher professional development sessions are often unsuccessful.⁷ Without continuous support the implantation of the information on a daily basis is impeded. The new technology and

equipment may have sat unused and unable to aid teachers in promoting the development of positive attitudes. Simply purchasing curricular resources, equipment and funding teacher development opportunities without focusing on teaching does not appear to lead to physical education goals such as improved positive attitudes.

Funding Inequities

The financial aspect of education is a vital part of ensuring that physical education is taught effectively and with efficiency as time is limited. Funding must be adequate amongst all schools and cannot be underestimated as it is the foundation for many resources. Research in Nigeria proved that inadequate funding has resulted in poor teaching and a weak centralized education structure.⁸ As these areas of poor SES in Nigeria have witnessed first-hand, it is necessary that these inequities in government funding do not transition to the United States. Physical education requires huge spending in many areas like the provision of equipment, building gymnasiums and athletic complexes, paying workers, and educating students about the importance of nutrition. Inequities hinder effective teaching and learning, making the process rigorous and uninteresting to students and teachers. Therefore, there can be no overestimation on what adequate funding can do to improve the status of facilities and equipment for physical education.⁸ When the government fails to adequately fund physical education programs these teachers feel as though they do not matter. There is a lack of interest and enthusiasm which is transitioned into the classroom. The student's attitudes towards physical education will be reflective of the teacher resulting inactivity increasing the prevalence of childhood obesity.

Inequities are especially important in these areas of low SES because of the relationship

between low SES and childhood obesity. As 18.9 % of children in the lowest SES suffer from obesity these inequities will only increase this statistic. With inadequate funding in areas of poor SES these children do not have access to the proper materials and education that they will use in their daily life. Physical education educates children on why it is important to be physically active and how to incorporate healthy life habits in their everyday life. Many of these children are not educated on these topics and fall into habits of inactivity and poor nutritional choices. Once they start to have an imbalance between caloric intake and caloric expenditure, they will become overweight which leads to obesity. Children with obesity are at greater risk of adult obesity; therefore, if we can educate and improve the health habits of families even before they start having children, this can help reduce the increasing rate of childhood obesity in the United States.⁴ Although physical education programs may be more expensive in the short term the long-term benefits acquired through prevention are much more likely to save an even greater amount of health care costs. Not only will the children have a better childhood, but prevention programs can also decrease the incidence of cardiovascular diseases, diabetes, stroke, and possibly cancers in adulthood.⁴ Rather than inadequately funding areas based off their SES, it is important to acknowledge the positive long-term effects and how much money the federal government will save. Preventing childhood obesity will result in less federal spending on health care costs as many of these children will develop chronic issues later in life. Being reactive will only cost the federal government more as childhood obesity is a main gateway to many other chronic diseases.

Conclusion

The epidemic of childhood obesity has increased substantially over the past years increasing its public health presence. While a complete picture of all the risk factors associated

with obesity remains elusive, many of the studies agreed that prevention is the key strategy for controlling the current problem. Areas of poor SES seem to be struggling the most as the childhood obesity rates there are almost double of areas with high or normal SES. Physical education remains to be a great way to reach the greatest number of children as they spend most of their lives in school. Educating them about the importance of physical activity and proper nutrition will essentially give them the ingredients to adapt a healthy lifestyle. However, inequities in government funding towards these physical education programs in these areas of low SES pose a real challenge. With limited resources and proper education these students have a greater chance of developing childhood obesity. These inequities need to be properly investigated and adjusted so this plan of prevention can fully be adapted everywhere.

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