

## Combating the Epidemic of Obesity and Cardiovascular Disease: Perspectives from School-aged Children

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**Abstract:** This study was designed to assess students' perceptions of the obstacles to positive dietary practices and increased physical activity and to solicit the students' recommendations for addressing and possibly reducing the negative practices that are associated with the rise in obesity and the development of cardiovascular diseases. Data for the study were obtained from the administration of the 2005 Project Health High School Survey (PHHSS) which measured the students' perceptions regarding obstacles to eating more nutritious, healthier foods and obstacles to participating in daily physical activity. The reasons for students' lack of interest in practicing more life-healthy behaviors are ranked and recorded. Some of the students indicated that they usually ate what they liked to eat, and the decision about what to eat was made because of the taste of the food without regard for any health consequence or negative health outcomes. Finding ways to reach these students at their young ages is the key to successfully combating the high prevalence of obesity and the development of other chronic diseases in childhood, as well as in adulthood.

**Keywords:** Students, obesity, cardiovascular disease, risk factors, dietary practices, physical activity

### Introduction

Overweight and obesity are conditions that have been increasing in the United States and these risk factors for diseases are estimated to affect more than one-half of those over the age of 20 [1,2]. Over the last few years, childhood obesity has become a major public health concern in the U.S. [3-7]. Obesity is a major public health concern because it increases the risk for many chronic conditions, such as cardiovascular diseases, particularly diabetes, hypertension, coronary artery disease, and cancer [1,8-11]. Public health officials have begun to monitor the health status of school-aged children because it is believed that many of them exhibit risk factors that create the potential for developing chronic disease as adults. In 1994, the prevalence of overweight was 15.3% in 6 to 11-year-old children and 10.4% among 2 to 5-year-old children, compared to 11.3% and 7.2% respectively for the same age groups in 1988 [4]. This increase in overweight children has underscored the challenges faced by young people as they grow into an adult group where over 50% are

overweight, and at significant risk for developing cardiovascular and other metabolic disorders [1, 12]. Effective management of risk factors among the youth, such as reducing/eliminating improper dietary practices and incorporating adequate physical activity, must become a universal health priority in order to effectively precipitate any noticeable decline in the adult morbidity and mortality statistics [13].

Childhood obesity is also associated with several immediate health risk factors, such as orthopedic, neurological, pulmonary, gastroenterological, and endocrine conditions [14]. Obesity has been linked to negative psychosocial outcomes in children, such as low self-esteem and depression [15-23], making obesity indirectly linked to academic performance and adverse social outcomes over time [24-29].

Cardiovascular disease is not only the leading cause of death, but also the single greatest contributor to excess mortality in African-Americans. Unhealthy eating contributes to at least 300,000 preventable deaths each year, and is one of the most identifiable contributors to premature death, second only to tobacco use [30].

Premature deaths due to cardiovascular disease remain higher for African Americans than any other group [31-37]. The highest rates of premature coronary heart disease in adults age 35-64 occurred in the rural southern region of the United States [38,39]. The rate of CVD for African Americans in Mississippi was deemed serious enough to compel the National Institutes of Health (NIH) to initiate the Jackson Heart Study to focus on identifying risk factors for the development of CVD in African-Americans [40]. Among the known risk factors for CVD are unhealthy eating practices that are established early in life as children. These eating practices are usually maintained as children grow into adulthood [41-45].

According to Tom Walden of the North American Association for the Study of Obesity, schools can play a key role in preventing the risk behaviors by providing instruction on proper nutrition and physical activity [46]. Based on this premise, this study was designed to examine the students' possible role in changing their own negative practices, by first assessing their perceptions of the obstacles to positive dietary practices and increased physical activity. The study also solicited students' recommendations for reducing the negative practices that are associated with the rise in obesity and the development of cardiovascular diseases. The implementation of the study was intended to grant the students an opportunity to provide their own ideas, suggestions and recommendations for what they feel could be done to improve their quality of life and to prevent premature morbidity and mortality.

## Methods

The sample for this study included 300 students from a high school, located in rural, Mississippi. The high school under investigation in this study educates students in grades 9-12, and all students enrolled in the health and physical education courses comprised the sample for this project. Students were first asked to complete an assent form and to have their parents sign a consent form before they could participate in the survey. They were also assured of the anonymity and confidentiality of their responses. Only students who returned completed assent and consent forms were permitted to participate in the study. The data for the study were obtained from the administration of the Project Health High School Survey (PHHSS), which was a modification of the Mississippi Youth Risk Behavior Survey (YRBS) that was developed by the Centers for Disease Control and Prevention (CDC). The PHHSS was designed to measure the prevalence of risk behaviors associated with leading causes of illness and death. The survey was modified to include three additional questions that served to fulfill the objectives of this study. These questions specifically asked students to respond about their perceptions, and were the following:

(1) "What do you think is keeping you or other students from eating more nutritious, healthier foods?"

(2) "What do you think is preventing you or other students from taking part in daily physical activity?"

(3) "What suggestions do you have that would help students to start eating better and exercising more?"

These were open-ended questions and the students had the freedom to think and enumerate their perceptions. Clarification was available for those who did not understand the questions. The students were assured that their responses would be confidential and their honest responses could shed some light on a perplexing health dilemma that currently faced public health officials. All students enrolled in health and physical education classes, which included students in the 9<sup>th</sup> -12<sup>th</sup> grades, were administered the PHHSS survey during the regular classroom session by the regular health and physical education teacher. The students' responses on each of these issues were recorded and analyzed to fully understand their perceptions and recommendations.

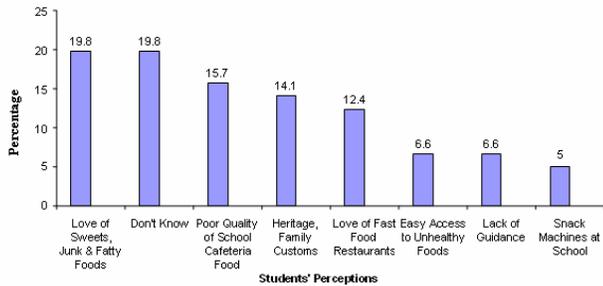
## Statistical Analysis

This descriptive study sought to ascertain the students' perceptions through the use of questions that were presented in the form of a self-administered questionnaire. Upon completion of the survey, the forms were returned to the researcher for analysis and review. The Statistical Package for the Social Sciences (SPSS) was used to evaluate the student responses. The high school students' perceptions about current practices and possible solutions were calculated and presented in the tables that follow. The students' perceptions on each of the areas under investigation were recorded and reported based on the rankings (highest number of responses received and recorded) from highest to lowest.

## Results

Completed PHHSS surveys were returned for 126 students which represented 42% of the 300 students enrolled in the Health and Physical Education classes. All of the students were between the ages of 14 and 18, and they were all enrolled in grades 9-12. The breakdown according to race was as follows: 94.9% were African American; 2.5% were Hispanic; 1.3% were Asian; and 1.3% were native Americans. The participants were 69% female and 31% male. Students at the high school were asked to respond to the question "What do you think is keeping you or other students from eating better (more nutritious foods)?" Figure 1 provides a graphical image of the students' responses about this issue. Love of sweets, junk food and fatty foods occupied the highest ranked reason selected by 19.8% of the students. The students also admitted that most of them ate what they were accustomed to eating. They ate what they liked to eat, and the decision about what to eat was made because of the taste of the food without regard for any health consequence or negative health outcomes. The number two reason for not eating healthy was that students believed that the food they were served in the school's cafeteria was of poor quality: 15.7%

of the students' responses supported this view. Some students described the taste of vegetables as being "nasty". The number three reason given for not eating more nutritious foods was family background, family customs and family heritage: 14.1% of the students acknowledged that they ate the way they did simply because they inherited those patterns from their family. In other words, they ate what their parents could afford to buy and prepare for meals. Many of them asserted that they were simply not accustomed to eating nutritious foods daily.

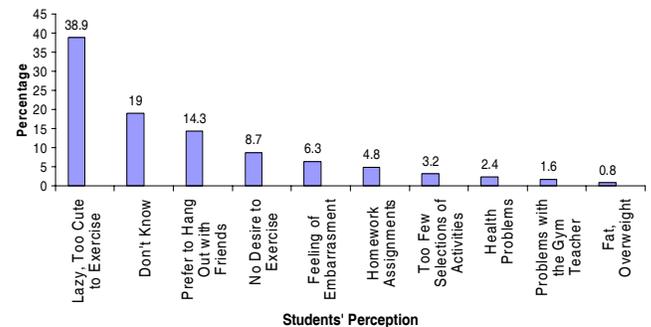


**Figure 1:** Students' perceptions of obstacles to better dietary practices

Fast food restaurants represented a major food source for 12.4% of the students. These students stated that they buy the types of food they want, and, in some instances, they want the fast foods more than anything else. The students placed fast food restaurants as number five among the reasons why they found it difficult to practice positive eating habits. Ranked number six as a factor that inhibits them from healthy eating habits is the easy access to junk foods and other unhealthy foods: 6.6% of them blamed the easy accessibility of junk foods as a perpetrator of the unhealthy dietary choices and practices. Another 6.6% of the students cited lack of care and guidance from responsible adults as a factor that prevents them from practicing good dietary habits. These students admitted that pressure from videos and corporate advertisements helped to steer them in the wrong direction in reference to the choices they make. The negative influences perpetrated by famous actors, sports personalities and performers usually project the wrong messages and oftentimes influence many students to act spontaneously and without proper judgment. As a result, many of them make the decision to eat daily at fast food restaurants, where they often consume an over abundance of unhealthy meals. Several students reported that there was no one in their life to motivate them with positive messages or inspiration, and not many people cared enough. The number eight ranked reason for students not practicing positive eating habits was the presence of snack machines at school, laden with junk food. About 5.0% of the students cited this as a possible obstacle to good eating practices. Approximately 19.8% of the students did not express an opinion about what is keeping them and other students from eating better (more nutritious foods).

The students were also asked "What do you think is keeping you or other students from taking part in sufficient exercise (daily physical activity)?" The students' perceptions are presented in Figure Two. The number one reason offered by students for inadequate participation in physical activity is laziness. Some students insisted that there are many students who believe that they are too "cute" to dress in workout gear, and do not want to sweat during physical activity. Approximately 38.9% of the students perceived that as the main reason why many students do not participate in activities today. Students are not used to exercising and are not inspired enough to do so. The next reason cited by 14.3% of the students was that they preferred to hang out with friends rather than participate in physical activity. Since it is not required daily, they did not see the need to participate. Many of them would prefer to attend parties, talk on the telephone, ride around in cars or watch television, rather than participate in physical activity. And, besides, as some of them insisted, the school has not been helpful in encouraging them to look at the positive benefits of daily exercising.

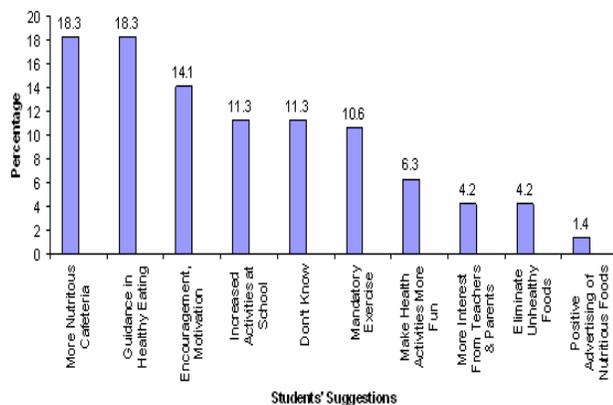
The third ranked reason was that they simply have no desire to take part in physical activity (see Figure 2). About 6.3% of the students cited self esteem issues and the feeling of embarrassment as a major contributing factor. The number five ranked reason for non-participation was the volume of homework assignments they have. These students felt that they just do not have the time to participate in physical activity. Approximately 3.2% of the students explained that their inadequate participation is due to a lack of adequate mixture of games available at school. Health problems were cited by 2.4% of the students as obstacles, and 1.6% of them indicated that disagreements with the gym teacher resulted in their non-participation. A small number of students believe that being fat or overweight was a contributing factor to their failure to participate in physical activity. There were approximately 19.0% of the students who had no opinion about what was keeping them and other students from taking part in sufficient exercise (daily physical activity).



**Figure 2:** Students' perception of obstacles to physical Activity

The students also responded to the question "What do you think is needed to help students to start eating better and exercising more?" The number one suggestion given

by students for improving their quality of life was that the school should provide better and more nutritious cafeteria food (see Figure 3). About 18.3% of the students believed that this was a major problem. This was equaled in number by the need for guidance by school personnel and parents in the area of healthy eating practices. Some students believed that the adults in their lives have betrayed them. They felt that the adults should show more interest and concern, and do more to provide adequate instruction and direction, possibly implementing new programs or activities and increased time in health class to address these important issues. They also believed that the parents have a major responsibility to lead the way by providing positive alternatives. This was followed by the need for more encouragement and motivation, as expressed by 14.1% of the students.



**Figure 3:** Students' suggestions for improving their quality of life.

About 11.3% of the students felt that the school should increase the volume of physical activity and exercise offered to students daily. Number five among the students' suggestions was the recommendation that the school make exercise mandatory for students. The students felt that, as incentives, school officials should use prizes, grades or money to encourage students to participate. Another 6.3% of the students suggested that school should make exercise and nutrition programs more fun to encourage students to participate. Some students concluded that increased conversation about the topic would lead to heightened motivation among students to participate in activities that are offered in their health and physical education classes. About 4.2% of the students believed that parents and teachers do not care enough to provide them with adequate guidance and opportunity. The students felt that the school needs to implement a healthy life program within its curriculum.

Approximately 4.2% of the students indicated that the students themselves should eliminate junk food and fast foods from their daily lunch menus. Another group of students suggested that more positive advertising of nutritious foods should be encouraged and should be a major part of the plan to improve the students' quality of life. They also stressed the need for better health

educators. Students felt that they should be constantly apprised of the dangers of negative practices regarding poor eating practices and inadequate physical activity. This would facilitate their change to healthier daily practices which could possibly add years to their lives. Approximately 11.3% of the students said they did not know the answer and could not present any suggestions.

### Limitations

The major limitation of this study was the fact that only 42% of the total number of students eligible to participate in the study provided surveys that could be analyzed. This makes it difficult to generalize their perceptions to a larger group of students. However, their responses are valuable enough to shed some light on obstacles to good health and possible solutions to improve the quality of life and develop ways of helping them to eliminate negative practices and reduce risk factors.

### Conclusion

The interpretation of the students' responses to these critical health issues identifies certain urgent needs that could and should be addressed by the academic institutions. Many students understand that there may be negative consequences resulting from the daily choices that they make. It is clear that culture and family customs have a great influence on the direction students take in their dietary practices, as well as their involvement in physical activity. The convenience and easy accessibility of low nutritious foods is also seen as a contributing factor, as are the negative influences that are presented through advertising of non-nutritious foods. It is evident that adequate support and guidance from adults are not available often enough to facilitate the kind of learning and training that could ensure that students are afforded the opportunity to acquire knowledge to help them make positive responsible choices and decisions. So children have little desire to take the initiative to make improvements in their daily practices.

The students suggested that modifying the schools' curriculum to address student risk behaviors should become an embedded characteristic of their educational systems. The current absence of learning strategies to adequately address and educate students about the pitfalls of negative dietary and physical behaviors is a major shortcoming of the school's education system.

Recommendations for future studies should involve examining the responses of students enrolled in predominantly white institutions with those of the predominantly African American Canton Public School District. Studies could also be designed to compare the responses of students from urban schools and rural schools to determine what their perceptions and recommendations are concerning risk factors and ways of reducing them.

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