Effectiveness of Project Healthy Schools in Reducing Obesity Rates

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Abstract

In the recent past, obesity rates has increased tremendously in the United States and other parts of the world as lifestyles change. Currently, about a third of American youth are obese, with the numbers likely to increase in the coming years. Obesity is a serious health concern problem due to the numerous health conditions it is associated with. For example, obesity is associated with medical conditions such as diabetes, cardiovascular diseases, high cholesterol levels, stroke, and other chronic illnesses. In 2004, Project Healthy Schools (PHS), a brainchild of University of Michigan was launched. This program targets the young in middle-school who are particularly at a higher risk of developing obesity. The aim of the program is to encourage development of positive lifestyles among the young through encouraging a change in eating and lifestyle habits. This is accomplished through educating the young and environment change. Currently, different organizations have created partnerships with PHS in a bid to promote healthy schools in the U.S.

Project Healthy Schools has enrolled over 41,000 students since inception drawn from more than 60 middle schools in Michigan ("PHS," 2015). Plans are underway to expand the program to other states as well. Over 1130 students have been followed in the long term making it possible to assess the effectiveness of the program in bringing long term dietary and lifestyle changes to participants. The critical question remains as to whether the program has been effective in helping students make healthier choices while. This paper examines this critical issue by drawing data from schools enrolled in the PHS program. Data was obtained through direct observations of the students during meal times, behavioral surveys, focus groups, and through conducting semi-structured interviews. The findings show that middle-schools that are more

supportive of the Project Healthy Schools program through event participation, administrative support, and staff enthusiasm are likely to encourage healthier choices among the students.

Introduction

Obesity is among the leading causes of preventable deaths in the U.S. According to CDC (2015a), 30 percent or one-third of the U.S young-adults were obese in 2015. The trend is worse as more children are currently obese compared to earlier years. For example the number of obese children between the ages 6-11 years has increased from 7 percent in the 1980s to 18 percent by 2012. As aforementioned, obesity is associated with chronic illnesses such as type II diabetes, heart diseases, respiratory problems, osteoarthritis and a host of other problems. The impacts of developing obesity as a child may be more severe compared to the impacts experienced when obesity occurs during adulthood.Obesity not only affects the health and productivity of individuals but isalso replicated in the entire economy. According to CDC (2015b), it costs $1,429 more to treat a person with obesity compared with those of average weight. The annual medical cost of treating obesity in 2010 was $150 billion and the figure keeps rising each year. This has a negative impact on economic growth.

Obesity can be prevented if proper policies are put in place to encourage healthier lifestyles among individuals. Although genetic and environmental factors also play a role in developing obesity, behavioral factors such as physical activity levels and dietary factors are the most important in determining the risk of developing obesity. The U.S. government has taken measures aimed at helping students adopt healthy lifestyles and dietary habits. This is by supporting programs such as Project Healthy Schools which aims at helping students in middle schools. PHS program has been implemented in a number of schools. It will be important to analyze the effectiveness of the program in different schools and establish reasons that could be

contributing to different results in various schools. This study will help gain a better understanding of the effectiveness of this kind of intervention in encouraging healthier lifestyle and dietary patterns among students.

Study hypothesis

Project Healthy Schools targets middle schools with an aim of making a positive change in the behavior of the young in the long term with regard to diet and physical activity choices. The main hypothesis of this study is that the PHS program significantly contributes to development of healthier choices among students in terms of dietary patterns and level of physical activities. The environment plays a great role in encouraging students to adopt healthier choices. This is especially in terms of support from the administration and participation in the program. The study also hypothesize that the more the school is involved in helping students acquire healthier lifestyles, the greater the impact of the Project Healthy Schools program. This study will utilize analytical methods in testing the two hypothesis for their accuracy in interpretation of the research problem. Behavioral surveys will utilize data obtained directly from the PHS team. The study will examine variations in healthy behavior among students in different middle schools to obtain accurate results.

Variables to collect in the study

A number of variables were employed during the study. The presence of menus will be the first variable to take into consideration in the cafeterias. A menu can encourage students to choose healthy diet compared to when there is lack of a menu. In most cases, lack of a menu discourages students from having a variety of food servings and fruits that would encourage healthy eating. The appearance of fruits and vegetables was also an important variable in the

study. Cafeterias with a wide variety of fruits and vegetables are more likely to encourage students to make the right dietary choices by taking them during the meals. Milk temperature at the cafeterias was also considered. Providing quality milk will encourage students to take milk instead of taking carbonated soft drinks which are rich in sugar. The level of staff enthusiasm in encouraging students to adopt healthy lifestyles was also important in the study. Students who are aware of the health benefits of taking healthy foods are likely to make the right decisions. Participation in extracurricular activities such as game is also important. Students who exercise regularly are healthier compared to those who do not engage in any form of physical activities.

Data set to be analyzed

Physical measurements were taken of all students who participated in the study. Behavioral surveys were also administered before the participants entered the PHS program and after exposure to the program. An identical tool was used to collect the data. The program targeted only the 6th graders and an additional cohort of students to provide longitudinal data. Consent for participating in the study was sought from parents who signed consent forms for each of the participants. Data was collected in 2014 from the months May to November in five middle schools. In conducting behavioral surveys, there were 35 survey questions meant to gather data on the student's behavior. The survey questions were structured into three major categories: level of physical activity, time spent watching TV, and food and drinks consumption. Use of surveys helped in quickly obtaining the required data from the middle school students.

Students were randomly selected to participate in focus groups from the five schools. These were selected after volunteering to participate in the study. In the focus groups, students were served food and field notes collected. Students in the various schools were placed in different environments and discussed various questions involving parental involvement, school

environment, and behavior change with regard to dietary patterns. Cafeteria observations were also critical source of data. This involved analyzing the foods and drinks offered at each of the cafeterias of the five schools. Semi-structured interviews were also important source of data. These interviews targeted Project Healthy Schools' staff who provided valuable feedback about teacher and administrative support they received at the five schools. The following data set was obtained from data results of different data collection methods that were used.

Table 1.0. Participants in the three schools based on race.

	African American	White	Hispanic	Asia	Native American	Other	Total	Participation rate
I	4	53	5	13	0	12	87	35.12%
II	2	38	0	5	1	3	49	19.84%
III	6	40	2	10	0	4	62	28.97%
IV	5	17	7	2	0	5	36	23.42%
V	10	61	0	6	0	6	83	36.73%
Total	27	209	14	36	1	30	317	

A total of 317 students participated in the study. White students were the dominant race with a total of 209 students. This was followed by students of Asian origin and African Americans in third position. Based on gender analysis, there was slightly more female students than males. This is because participants were drawn on random basis.

Table 1.1. Composition of participants based on gender
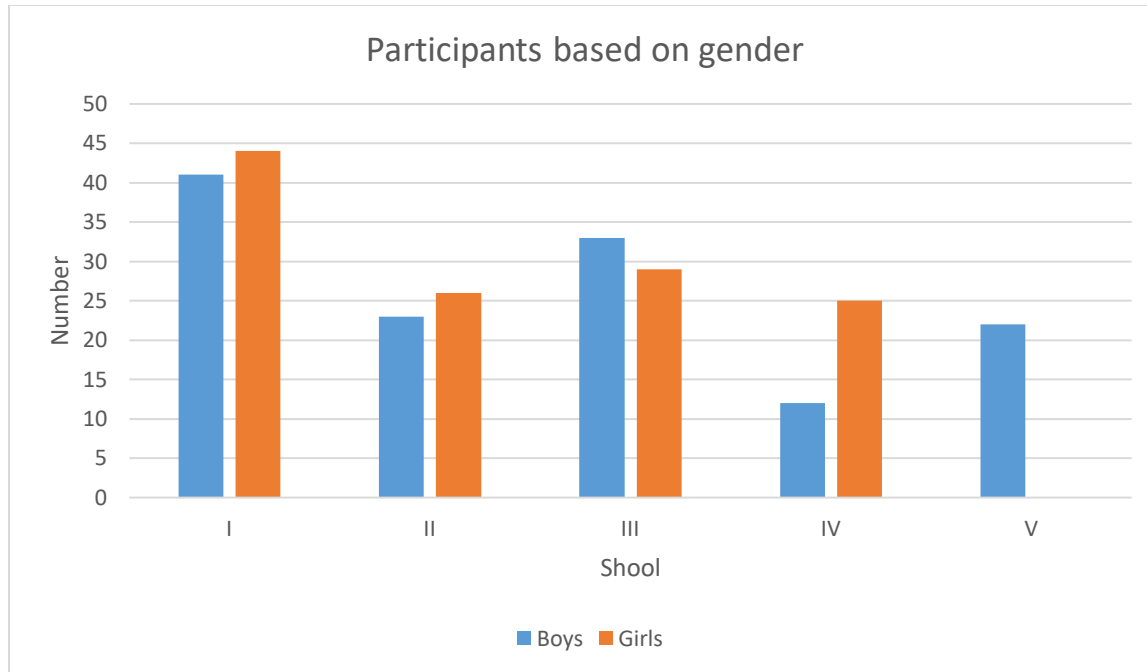
The administrative support of the PHS in most of the schools was satisfactory. In School I, the administration was described as very supportive of the PHS program. The principle was much involved in helping the students adopt healthy lifestyles and diet patterns. School I has a budget that helps fund healthy initiatives at the school. In school II, there was lack of strong support from the administration in adopting healthy lifestyle and dietary choices. In school III, the administration was heavily involved in encouraging students to adopt healthy lifestyles and was also interested in improving the quality of food served in the cafeteria. In School IV, the administration had established a wellness team at the school meaning the principle was supportive. In school V, there was less support of the program from the administration.

Scorecard Analysis

The scorecard took into consideration factors such as parental involvement, presence of a school health team, and staff enthusiasm.

Table 1.2. Scorecard analysis

Scorecard analysis					
	School I	School II	School III	School IV	School V
Level of communication	5/5	2/5	3/5	4/5	4/5
Events evaluation	97%	53%	61%	22%	50%
Well organized health team	3/3	3/3	1/3	0/3	3/3
Staff enthusiasm	90%	60%	80%	40%	20%

From Table 1.2., School I maintains open communication with parents and has been rated the best. Open communication was assessed based in the schools use of communication means such as e-mails, newsletters to parents, student registrations, and report card inserts. Staff enthusiasm was highest in the school. This assessed the principal, counselors, nurse, and teachers at the school. The school had the highest event attendance. School II had the least communication with parents, utilizing e-mails and newsletters only. School IV had the least events attendance in the region and lacked a coordinated health team. School V recorded the least staff enthusiasm.

Table 1.3. Observations made from the cafeteria

The following table shows the observations that were made at the different school cafeteria including the qualitative description.

	School I		School II			School III		School IV		School V	
Fresh fruit	2/4	2/4	2/4	2/4	2/4	3/4	3/4	1/4	0/4	1/4	2/4
Prepared salads	No	yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
Wheat bread	No	No	No	No	Yes	No	Yes	Yes	Yes	No	Yes
Vegetables	No	No	No	No	Yes	No	No	No	No	Yes	No
Cut-up fruit	Yes	Yes	Yes	YesYes		Yes	Yes	No	Yes	Yes	Yes

Milk temperature	40	31	49	40	40	42	58	40	39	NA	40
Presence of menu	Yes	Yes	No	NoNo		Yes	Yes	No	NO	Yes	Yes

A number of survey questions were used in the study to enable the researchers to assess various aspects in the study. Similar questions were asked to all students who volunteered to participate in the study. For instance, students were asked to give the number of times they take vegetables in a week, or the number of times they take fruits. Other questions analyzed the number of times the student took fast dishes and energy drinks. Students were also asked about the level of involvement in physical activities and the average time they spend watching TV or playing video games. A total of 24 questions were asked to participants. The participants were required to answer 11 mandatory questions while the rest were optional. The following table shows the descriptive data analysis of the results obtained from the responses given by the students.

Table 1.4. Descriptive data analysis

Question area		N	Mean	Standard deviation	Standard Error	ANOVA Sig.
Consumption of fried food in the previous day	Question 1 I	86	0.52	0.627	0.068	0.276
	II	49	0.63	0.698	0.100	
	III	62	0.79	0.890	0.113	
	IV	37	0.62	0.639	0.105	
	V	84	0.62	0.675	0.074	
	Total	318	0.63	0.711	0.040	
	Question 2 I	86	0.26	0.513	0.055	0.374
	II	49	0.16	0.373	0.053	

	III	62	0.24	0.534	0.068	
	IV	37	0.35	0.716	0.118	
	V	84	0.18	0.385	0.042	
	Total	318	0.23	0.497	0.028	
Consumption of fruits and vegetables in the previous day	Question 3I	86	1.65	0.955	0.103	0.230
	II	49	1.90	0.963	0.138	
	III	62	1.58	1.033	0.131	
	IV	37	1.43	1.068	0.176	
	V	84	1.71	0.899	0.098	
	Total	318	1.67	0.974	0.055	
	Question 4I	86	1.72	1.013	0.109	0.456
	II	49	1.59	0.814	0.116	
	III	62	1.61	0.912	0.116	
	IV	37	1.41	0.985	0.162	
	V	84	1.71	0.926	0.101	
	Total	318	1.64	0.938	0.053	
Consumption of sugary drinks in the previous day						
	Question 5 I	86	1.02	0.881	0.095	0.926
	II	49	0.94	0.922	0.132	
	III	62	0.92	1.013	0.129	
	IV	37	1.00	0.943	0.155	
	V	84	0.90	0.939	0.102	
	Total	318	0.96	0.932	0.052	
	Question 6 I	86	0.43	0.728	0.079	0.038
	II	49	0.25	0.438	0.063	
	III	62	0.29	0.555	0.070	
	IV	37	0.65	0.949	0.156	
	V	84	0.31	0.623	0.068	

	Total	318	0.37	0.671	0.038	
	Question 7 I	86	0.26	0.559	0.06	0.034
	II	49	0.31	0.552	0.080	
	III	62	0.39	0.583	0.074	
	IV	37	0.54	0.869	0.143	
	V	84	0.19	0.502	0.055	
	Total	318	0.31	0.599	0.034	
Number of days of vigorous physical exercise in the past week	Question 8 I	86	4.32	2.099	0.225	0.925
	II	49	4.51	1.757	0.251	
	III	62	4.23	1.859	0.236	
	IV	37	4.16	2.291	0.377	
	V	84	4.39	1.981	0.217	
	Total	318	4.33	1.988	0.111	
Number of days of moderate exercise in the past week	Question 9 I	86	3.02	2.14	0.229	
	II	49	3.63	2.138	0.305	
	III	62	2.94	2.231	0.283	
	IV	37	3.08	2.203	0.362	
	V	84	3.58	2.365	0.258	
	Total	318	3.25	2.232	0.125	
Average number of hours spent watching TV	Question 10 I	86	1.271	1.1791	0.1279	0.00412
	II	49	1.484	1.1907	0.1512	
	III	62	1.490	1.313	0.1876	
	IV	37	2.027	1.3842	0.2276	
	V	84	1.373	1.2417	0.1363	
	Total	318	1.462	1.2562	0.0707	
Average number of hours spent on the computer	Question 11 I	86	1.103	1.152	0.123	0.697
	II	49	0.980	1.242	0.177	

daily	III	62	1.150	1.170	0.151	
	IV	37	1.203	1.300	0.214	
	V	84	0.945	0.878	0.097	
	Total	318	1.063	1.121	0.063	

From the above table, the mean number recorded in consumption of fried food was 0.63 with ANOVA significance of 0.276. This indicates that the difference between the means of the various schools is not statistically significant and can hence be ignored. The mean number of fruits consumed in the previous day is 1.67. The ANOVA significance level of 0.231 indicates that the difference in means is insignificant. The mean number of hours spent watching TV is 1.462. The ANOVA significance level of 0.00412 indicates that there are significant differences in means recorded from the five schools.

The behavioral surveys provided a comprehensive analysis of behavior changes before and after exposure to the Project Healthy Schools. This will enable the researcher to evaluate the effectiveness of the Project Healthy Schools program in different schools.

Table 1.5. Changes in behavior

	Pre>Post	Pre>Post	Ties	Total	P-value
Fruit and vegetable consumption	111	116	82	309	0.213
Fried food consumption	92	72	145	309	0.213
Vigorous exercise	96	134	79	309	0.016
Moderate exercise	87	141	81	309	0.000
TV watching	95	85	125	305	0.246
Sugary beverage	87	119	103	309	0.048
Time spent on computer	73	100	132	305	0.115

Playing computer games	56	82	167	305	0.044

From the above results, it is clear that there was a positive change in students' behavior following their participation in the PHS program. Moderate exercise significantly increased as indicated by the p-value of 0.000. Vigorous exercise also increased among students who completed the program (p = 0.016) compared with the level of exercise before completing the program. There was a significant decrease in fried food consumption (p = 0.213).These findings are in line with the goals of the program. Interestingly, there was an increase in sugary beverage consumption (p = 0.048) which was contrary to the main hypothesis of the study. In addition, the amount of time spend playing computer games also increased (p = 0.044) which was contrary to the goals of PHS.

The findings show that the higher the administration support and level of enthusiasm the more likely it is for students to adopt positive changes such as healthy dietary patterns. This confirms the minor hypothesis used in the study. In the food consumption patterns, there was a significant decrease in taking of fried foods which constitute unhealthy diet. From the results, more students participated in vigorous physical activity after participating in the study. Sugary beverage consumption increased significantly after the program. There is need for further research on the factors contributing to the high sugary beverage consumption. In general, Project Healthy Schools is important in helping students adopt healthy lifestyles and dietary patterns.

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