COMMUNITY OUTREACH PROGRAM ON HEALTHY WEIGHT WEEK TO CREATE AWARENESS ON THE INFLUENCE OF BEHAVIORAL FACTORS ON BODY MASS INDEX IN SCHOOL CHILDREN

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ABSTRACT: Healthy Weight Week, January 19th-25th, 2014, celebrates healthy non-diet lifestyles that can prevent eating and weight problems. The prevalence of child obesity is increasing rapidly worldwide. The behavioral factors such as television watching, exercise, internet browsing, videogames and fast food consumption along with academic stress greatly contributes to obesity. Aim of our study was to impart knowledge, to create awareness on obesity and to correlate the BMI with their behavioral factors among 65 school children. After creating awareness and informing about their BMI they were asked to answer a questionnaire about their behavior pattern. The Karl Pearson correlation co-efficient was used for analysis of data, $p<0.05$ was considered statistically significant. The obese children correlated with more hours of television watching and less exercise. The number of hours of video games played and fast food consumption correlated well with the BMI. The academic stress negatively correlated with BMI. An awareness on BMI, obesity, fast food, exercising regularly, sedentary lifestyle created by television watching, playing videogames and internet browsing was done among the school children of Mangalore. The students gave feedback of usefulness of the program conducted on healthy weight week.
Keywords: Behavioral factors, BMI, Obesity

INTRODUCTION

The annual Healthy Weight Week is a time to celebrate healthy diet and living habits that last a lifetime and prevent eating and weight problems. Our bodies cannot be shaped at will. But we can all be accepting, healthy and happy at our natural weight. Healthy Weight Week, January 19th-25th, 2014, celebrates healthy non-diet lifestyles that can prevent eating and weight problems. During this week, people are encouraged to improve health habits in lasting ways: to eat well, live actively and feel good about themselves and others. It's a time to celebrate the diversity of real people and help them shift focus from failed weight loss efforts to health at their natural sizes (Berg.F.M.,2014).
Frances M is the founder of Healthy Weight Week. More people today know the value of size acceptance. They have experienced the harmful effects of dieting, idealizing thin models and harassing large children and adults.

They're ready to move on," said Francie M. Berg, a licensed nutritionist and adjunct professor at the University of North Dakota School of Medicine, who has chaired Healthy Weight Week since 1992 (Berg.F.M.,2014; Frank.S.,2014). The prevalence of child obesity is increasing rapidly worldwide. It is associated with several risk factors for heart disease and other chronic diseases including hyperlipidemia, hyper insulinaemia, hypertension, and early atherosclerosis. These risk factors may operate through the association between child and adult obesity, but they may also act independently. Body mass index in childhood changes substantially with age (Cole.T.J, et al.,2000).

Clearly, a cutoff point related to age is needed to define child obesity, using reference centiles. Body Mass Index (BMI; in kg/m^2) offered a reasonable measure with which to assess obesity in children and adolescents (Dietz.W.H,et al.,1999; Pietrobelli.A,et al.,1998). The behavioral factors such as television watching, exercise, internet browsing, videogames and fast food consumption along with academic stress greatly contributes to obesity.

The food pyramid is designed to make healthy eating easier. Healthy eating is about getting correct amount of nutrients- proteins, fat, carbohydrates, vitamins and minerals to maintain good health. The healthy eating pyramid is simple and trustworthy guide developed by the Harvard School of Public Health, suggesting healthy diet that a human should eat each day. Its foundation is daily exercise and weight control and builds from bottom to top, showing that you should eat more foods from the bottom part of the pyramid (vegetables, whole grains) and less from the top (red meat, refined grains, potatoes, sugary drinks, and salt) (Willett.W.C.,2014).

Almost one third of all youths now eat at fast-food restaurants on any given day. One study reports that weekly consumption of fast food by young adults is directly associated with a 0.2-unit increase in body mass index (BMI). It was reported that students were heavier and more likely to be overweight or obese if their school was located within one half mile of a fast-food restaurant (Daves.B, et al.2009). Days when children had fast food, they consumed more calories, fat, added sugars, and sugar-sweetened beverages. Children also have indicated a positive relationship between intake of sugar-sweetened soft drinks and obesity incidence (Wiecha.J.L, et al.,2006; Poti.J.M, et al.,2014).

There is a causal relationship between television viewing and overweight. Television viewing could influence energy balance by reducing energy expenditure relative by increasing energy intake (e.g., through snacking and exposure to food marketing), or by a combination of these. Studies show associations between exposure to advertisements in television and children's requests for specific foods, food purchasing, and food consumption. Fast food restaurant use, which is heavily promoted on television, is positively associated with calorie intake. Although children and youth are encouraged to watch what they eat, many youth seem to eat what they watch, and in the process increase their risk for increasing their energy intake. In the absence of regulations restricting food advertising aimed at children, television viewing leads to excess energy intake. The American Academy of Pediatrics has long advocated limiting children to no more than 2 hours of television per day (Wiecha.J.L, et al.,2006).

Thus it was decided that the department of Physiology in collaboration with department of Pediatric nursing of Yenepoya University would celebrated the Healthy weight week with Yenepoya High school students and create awareness on BMI (Body Mass Index), role of nutrition on health and hazards of fast food consumption and excess TV watching.

Aim of the study:
- To impart knowledge and to create awareness on obesity among school children.
- Correlate the students BMI with their behavioral factors.

MATERIAL AND METHODS

The Department of Physiology in collaboration with Department of Pediatrics Nursing, Community Health Nursing had conducted an outreach program for 65 students of Yenepoya Pre University of age 12- 14years, to impart knowledge and celebrate the Healthy Weight Week on January 16, 2014. Permission was obtained from Yenepoya University ethical committee. Informed written consent from the Principal of the school and participants parents was taken. After discussing with pediatrician, an appropriate growth chart was chosen to be used for calculation of BMI.

Step 1: Two power point presentations were done to impart knowledge and to create awareness. First one was "The hazards of fast food". Second was on "Importance of exercise and behavioral factors on BMI".

Step 2: Four counters were set up in the school auditorium. In each the weight and height measurements of the students were taken. The height was measured using inch tape and weight was taken using weighing machine. Body mass index (BMI) was calculated in excel sheet and the BMI was expressed in Kilogram per meter square (Quetelet's index).

Step 3: All the students were informed of their respective BMI.

Step 4: Students were asked to fill a questionnaire about their food and life style habits. Feed backs were also collected from them.

Statistical analysis: The data was summarized by using descriptive statistics such as mean and standard deviation. The Karl Pearson correlation co-efficient was used for analysis. $p<0.05$ was considered statistically significant.

RESULTS

Table 1 shows mean age, anthropometric and lifestyle habits of sixty five students. The Karl Pearson correlation test revealed significant negative correlation between BMI and academic stress and positive correlation between BMI and fast food consumption, television watching and video games (Table 2).

Table 1: Anthropometric parameters and behavioral factors

Parameter	Mean ± SD (n=65)
Age (years)	13.45± 1.56
Height (cm)	1.60± 0.093
Weight(Kg)	50.75± 13.26
BMI (Kg/ m 2)	19.58± 4.13
Fast food intake/ week	8.05± 3.58
Television viewing minutes/ day	136.15± 91.867641
Internet Usage minutes/ day	85.85± 66.42
Video games minutes/ day	73.4± 57.54
Exercise minutes/ day	28.54± 32.04

Table 2: Correlation between BMI and behavioral factors

Parameters	Correlation Coefficient R value	Level of Significance P value
BMI and Television watching	0.32	0.009*
BMI and exercise	-0.11	0.368
BMI and internet	-0.04	0.724
BMI and video games	0.26	0.036*
BMI and academic stress	-0.312	0.011*
BMI and fast food consumption	0.246	0.048*

*p value <0.05

DISCUSSION

The present study was conducted to celebrate the healthy weight week by imparting knowledge and to create awareness on obesity. It was also done to correlate the students BMI with their life style and food habits. The school children were made aware of their individual BMI and there were two power point presentations made on the "Hazards of Fast Food" and "Importance of exercise and behavioral factors on BMI".

The obese children correlated with more hours of television watching and less exercise. The number of hours of video games played and fast food consumption correlated well with the BMI. The academic stress negatively correlated with BMI.

Television viewing enhances unhealthy dietary habits. When children and young people watch TV they appear to be more likely to engage in unhealthy dietary habits such as consuming more snacks and soft drinks and less fruit and vegetables (Viner.R.M, et al.,2005). Experimental studies show that television viewing acts as a distraction resulting in a lack of awareness of actual food consumption, leading to overconsumption and increased energy intake (De Craemer.M, et al., 2012). TV viewing whilst eating a meal can also reduce satiety signals. TV viewing is normally a sedentary behavior and there is some evidence that high levels of sedentary behavior are linked to obesity, independently of physical activity levels (Rey-Lopez.P, et al.,2011). It is important to distinguish this from the level of physical activity, as children can have high levels of both physical activity and TV screen time (Liang.T, et al.,2009). Interventions to reduce sedentary behavior associated with TV viewing in young people show some promise. Exposure to TV advertising: children's food preferences and consumption are influenced by television advertising for highly processed, energy dense products. Overweight and obese children and those who watch high levels of TV are particularly susceptible to food promotion on TV (Campbell.K.J, et al., 2007).

Obesity and physical exercise were inversely proportional and could have been significant with a larger sample size. General population recommendations for activity will represent a significant increase in energy expenditure for most people, and will contribute substantially to their weight management. However, in many children and in the absence of a reduction in energy intake, 45-60 minutes of activity each day may be needed in order to prevent the development of obesity. Children who have been obese and who have lost weight may need to do 60-90 minutes of activity a day in order to maintain their weight loss. Physical activity that can be incorporated into everyday life, such as brisk walking and cycling, has been found to be as effective for weight loss as supervised exercise programs (Nowicka.P, et al., 2007).

Douglas Gentile has conducted research and suggests that there are at least 5 dimensions
on which video games can affect players: the amount of play, the content of play, the game context, the structure of the game, and the mechanics of game play. Total amount of game time appears to be related to school performance, risk of obesity, and other physical health outcomes (Nowicka.P, et al., 2007).

In our study, we have got a significant negative correlation between BMI and academic stress as experienced by students. This finding of ours is consistent with finding of Kobayashi F et al (Kobayashi.F., 2009). BMI and fast food revealed a significant positive correlation. Janet Currie et al; 2010 have reported that among ninth graders, a fast food restaurant within 0.1 miles of a school results in a 5.2 percent increase in obesity rates (Currie.J, et al.,2010). While it is clear that fast food is often unhealthy, it is not obvious a priori that change in the proximity of fast food restaurants should be expected to have an impact on health. (Bryn.A.S, et al., 2005; Cara.E.B, et al., 2004; Hancox.R.J, et al., 2004).

Qualitative data revealed the following benefits (as expressed by the students):

Feedback (as given by students) on benefits of the outreach program from students:
1) To learn different ways to lose weight
2) Care of health
3) How to be healthy
4) Lifestyle modifications
5) How to overcome problems related to obesity
6) How to reduce weight
7) Knowledge about healthy food
8) Adverse effects of junk food on health
9) Knowledge about how to keep body fit
10) Junk food/fast food is not good for health
11) Regular exercise to prevent obesity
12) How to manage weight by eating healthy food
13) Junk food is bad for health
14) Useful diet tips to maintain weight
15) Calculating body mass index (BMI)
16) Avoid junk food
17) Exercise and eating the right food will prevent obesity
18) Should eat limited junk food
19) Awareness on managing healthy weight
20) Managing weight by knowing BMI

CONCLUSION
An awareness on BMI, obesity, fast food, exercising regularly, sedentary lifestyle created by television watching, playing videogames and internet browsing was done among the school children of Mangalore. The students gave feedback of usefulness of the program conducted on healthy weight week.

Questionnaire
Yenepoya Medical College / Yenepoya Nursing College
Department Of Physiology, Outreach Program

Questionnaire

1) Name:
2) Age:
3) Sex: Male/ Female
4) School: Yenepoya School
5) Class: …………………..   Std
6) Do you take fast food / junk food?
7) If yes, how often?..... Once a day / Twice a day/ Thrice a day/ More
8) Name any three fast food items you eat: 1…………………...2…………………….3……………………………
9) Are you aware of healthy weight?   Yes/No
10) Do you categorize yourself as normal, overweight, underweight?
11) Do you exercise regularly?   Yes/No
12) If yes, how often?.............................times / day
13) Are you stressed in your academics? Yes/No
14) Are you aware of your BMI? Yes / no…
15) Is Yes, How much?...........
16) How many hours of television do you watch daily? ………. Hrs
17) How many hours of internet do you browse daily? ……….   Hrs
18) How many hours of video games you play daily?   ……….   Hrs
19) Was this program useful and educative?   Yes/No
20) What did you find useful? …………………………………..

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