

IMPACT OF NUTRITION EDUCATION AMONG SELECTED OVERWEIGHT / OBESE SCHOOL GOING STUDENTS

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Abstract: Background: Childhood obesity is one of the major public health concerns of the 21st century. **Methods:** Overweight / obese School students (n = 200) of 11 to 16 years of age of both the genders were selected by random sampling method from four different schools in Madurai city. Questionnaires were used to test the knowledge of the selected subjects on obesity and general nutrition. Education on "Nutrition and Obesity" was imparted to students in groups through PowerPoint presentations in several sessions and their doubts were cleared. After a period of 15 days a post test was held for students in groups using the same questionnaire. Pamphlets with details on balanced diet, general nutrition, obesity and preventive measures were prepared both in English and *Tamil* (vernacular language) and distributed. Statistical analysis was done using SPSS (16.0 package). **Results:** The impact of the education program was studied using paired 't' test. The mean score obtained in the pre - test by the selected school children was only 4.33 out of 15. In the post - test the mean score increased significantly to 14.55. This was proved by the paired 't' test (p>0.05). This shows the importance of nutrition education in improving the awareness about obesity, general nutrition and health.

Background:

Childhood obesity is one of the major public health concerns of the 21st century. A pooled analysis of 2,416 population-based measurement studies showed that from 1975 to 2016 there was a rising trend in the BMI of children and adolescents. In 2016, 124 million children and adolescents, aged 5–19 years, were estimated to suffer from obesity worldwide, and 213 million were overweight (Spinelli *et al.*, 2019).

A child spends more time at school than anywhere else, except home. Schools are sacred since they provide an environment for acquiring skills and development of intelligence, which can be utilized by students to achieve their goals in life and develop as a good human being. The health and well-being of children is a fundamental issue in education. Indeed, active promotion of health is now seen as a priority for schools. The level of concern is illustrated by the fact that WHO has set up a Global School Health Initiative (Gokhale *et al.*, 2017).

The prevalence of obesity among the school - aged children and adolescents has considerably increased in many countries from less than 10 % in Russia and East Europe to more than 30% in U.S. Childhood obesity is associated with a higher chance of premature death and disability in adulthood, according to the World Health Organization. A recent study conducted among 24,000 school children in south India showed that the proportion of overweight children increased from 4.94 per cent of the total students in 2003 to 6.57 percent in 2005 demonstrating the time trend of this rapidly growing epidemic. Those with BMI equal to or exceeding the 85th but are below 95th percentiles are defined overweight and are at risk for obesity related co - morbidities. Metabolic syndrome is defined as a constellation of risk factors, including obesity, dyslipidemia, impaired glucose metabolism and elevated blood pressure, all major predictors for cardiovascular disease. It has been proven by previous studies that cardio metabolic risk factors frequently cluster in obese children and adolescents. Obesity had the most substantial influence on cumulative cardio metabolic risk. Four behavioral risk factors responsible for significant proportions of obesity among children and adolescents are unhealthy diet, physical inactivity, tobacco use, and harmful use of alcohol (Manjula *et al.*, 2018).

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. People are generally considered obese when their BMI, a measurement obtained by dividing a person's weight by the square of the person's height, is over 30 kg / m², with the range 25-30 kg / m² defined as overweight. Some East Asian countries use lower values. Obesity increases the likelihood of various diseases and conditions, particularly cardiovascular diseases, type 2 diabetes, obstructive sleep apnea, certain types of cancer, osteoarthritis and depression. Obesity is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility. A few cases are caused primarily by genes, endocrine disorders, medications, or mental disorder. Obesity is mostly preventable through a combination of social changes and personal choices. Changes to diet and exercising are the main treatments. Diet quality can be improved by reducing the consumption of energy-dense foods, such as those high in fat or sugars, and by increasing the intake of dietary fiber (Rao and Junapudi, 2019).

Children are facing rapid development – mentally and physically – thus good nutrition is very important in this phase of life to ensure they grow normally and healthily. Eating habits in children are generally developed since young and usually will continue into adulthood (Ruzita *et al.*, 2007). Therefore, nutrition education should be given to children from an early age.

The school has been identified as a suitable place to implement nutrition education programs because it has a systematic environment (Ruzita *et al.*, 2007). Contento *et al.* (1992) cited that nutrition education in schools could improve children's eating habits. This is because school is a place where almost all children and adolescents can be reached and are gathered among their peers, besides having all the teaching facilities and expertise. Inculcation of activities and exercises in the school that express the relationship between the children and food could bring about positive results that lead to the building of a healthy lifestyle among the children. Educators should incorporate attractive and amusing activities in nutrition education programs in order to create an enjoyable learning environment (Ruzita *et al.*, 2007). Hence the present study was taken up to study the impact of 'nutrition education' among selected overweight / obese school going Students.

Methods:

a) Selection of Area and Subjects: Overweight / obese School students (n = 200) of 11 to 16 years of age of both the genders were selected by random sampling method from four different schools in Madurai city.

b) Preparation of Questionnaire: Questionnaire was prepared to test the knowledge of the selected subjects on obesity and general nutrition. The questions were on overweight, obesity, IBW, the calorific value of foods, balanced diet, healthy and unhealthy foods, diseases related to obesity, the importance of physical activity etc. The same questionnaire was used for both pre test and post test of knowledge on nutrition and obesity.

c) Preparation of Education Material and Pamphlets on Nutrition and Obesity: PowerPoint slides (26 no) including details regarding definition of obesity, causes, types, risks involved, IBW, BMI, body fat, balanced diet, classification of foods, prevention of obesity, dietary management, foods included and avoided, energy expenditure and importance of physical activity were prepared with great care in English in order to educate the selected overweight / obese school Students.

Pamphlets with details on balanced diet, general nutrition, obesity and preventive measures were prepared both in English and *Tamil* (Vernacular language) for distribution.

d) Collection of Data: A good rapport was created with the selected school students after getting necessary permission from the heads of the institutions. The importance of the study was explained to the school students in groups. The prepared questionnaires were distributed to the subjects and the data were collected.

e) Conduct of Education Program on “Nutrition and Obesity” for Selected Overweight / Obese School going Students:

Education on “Nutrition and Obesity” was imparted to students in groups through PowerPoint presentations and their doubts were cleared. The sessions were repeated during a period of 15 days.

f) Conduct of Post - test of Knowledge on Nutrition and Obesity among the Selected Overweight / Obese School going Students:

After a period of 15 days a post test was held for students in groups using the same questionnaire. The impact of the education program was studied using paired 't' test.

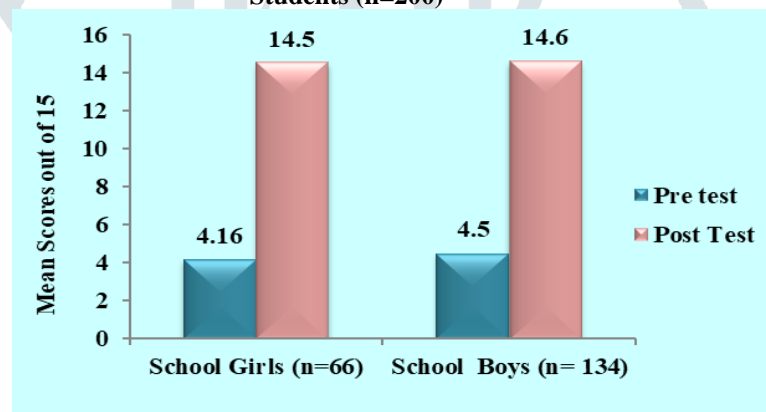
Results:

Impact of Nutrition Education on the Knowledge on “Obesity and Nutrition” among Selected Overweight / Obese School Students:

Nutrition education is the process of teaching the science of nutrition to an individual or group. Health professionals have a different role in educating an individual in the clinic, community, or long-term health-care facility. In these settings, the dietician, nutritionist, or nurse serves to assist or enable individuals to incorporate changes in eating patterns and behavior into their lives (Deshpande, 2003).

Figure 1 gives the mean scores obtained by the selected school students in the pre and post - test of their knowledge on obesity and nutrition. The mean score obtained in the pre - test by the selected school children was only 4.33 out of 15. In the post - test the score increased significantly to 14.55. This was proved by the paired ‘t’ test ($p > 0.05$). This shows the importance of nutrition education in improving the awareness about obesity, general nutrition and health. Nutrition education is an important component of a coordinated school health approach. Eating patterns are more likely to improve when changes in the school environment are integrated with classroom nutrition education (Story *et al.*, 2009).

Figure 1
Impact of Nutrition Education on the Knowledge on “Obesity and Nutrition” among selected Overweight / Obese School Students (n=200)



Discussion:

During school age, the social environment of children diversifies and extra familial influences progressively become more important references. In this period, children are more independent, start making their own food choices and take personal decisions regarding what they eat. The family is less important for adolescents, while friends, peers and social models are the key influences on their eating practices. Nutrition education and physical activity in primary and secondary schools need to be reinforced. Self-assessment instruments used in schools can support schools in monitoring their own situation as a basis for action. Nutrition education curricula should aim to provide students with the required knowledge and skills, support self-efficacy and encourage behavior change conducive to adopt a healthful diet and physical activity levels in agreement with dietary guidelines (Pérez-Rodrigo and Aranceta, 2003).

Policy measures and education within specific settings such as schools, workplaces, hospitals or cities are valuable strategies to influence health. Schools provide the most effective and efficient way to reach a large segment of the population: young people, school staff, families and community members (Aldinger & Jones, 1998; Dixey *et al.*, 1999). From a health promoting school approach, school-based nutrition education should consider the needs and interests of students, teachers and the school. This means that all the Policy measures and education within specific settings such as schools, workplaces, hospitals or cities are valuable strategies to influence health.

Educational strategies include efforts to increase health awareness, communication and skill building. They should be relevant to program goals and take into account what children already know and can do. Cultural relevance is of utmost importance. The message should be addressed in a way that children can understand, and should teach the skills and knowledge required to improve or strengthen healthy eating

habits (Pérez-Rodrigo and Aranceta, 2003). Hence this research finding concludes that both the teachers and parents should take efforts to emphasize the importance of healthy eating practices and lifestyle modifications among children to prevent / correct obesity.

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