

Research Article

ECHO...for a change!!

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Introduction

The childhood obesity is increased more than three folds in last two decades in developed world. There is nutritional transition seen in the developing world including India. The westernization in diet of the Indian population along with prosperity brings the brunt of overweight and obesity. This has future implications of liver diseases, heart diseases, hypertension, hyperlipidaemia, insulin resistance; malignancies. Mumbai is the prosperous city and an economical capital of India. Also, the rampant use junk food, common outdoor eating's, no grounds to play for children make the high likelihood that the prevalence of obesity to be higher than rest of the country.

It can profoundly affect children's physical health, social, and emotional well-being and self-esteem. It is also associated with poor academic performance and a lower quality of life experienced by the child.

One of the best strategies to reduce childhood obesity is to improve the eating and exercise habits of the entire family. Treating and preventing childhood obesity helps protect the child's health and has tremendous impact on child's Physical and academic performance.

And hence we at Aastha Bariatrics took initiative and launched ECHO... for a change ('E'radicating 'C'Hild 'H'ood 'O'besity), a pan Mumbai campaign against childhood obesity.

This campaign was done in 15 high schools across Mumbai, which covered in total of 9000 students.

Methodology

Body composition analysis

This cross-sectional study carried out for 3 months. The permission from the principal, parents and assent from the students were taken prior the screening.

This study incorporated primary analysis of anthropometric measurements (Height, weight, BMI, body fat) of total 9000 children in the age group of 11 to 15 years, studying in class 6th to 9th standard, from all 3 regions of Mumbai i.e. Central region

More Information

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from Thane to Dadar, Western region from Andheri to Bandra, and South region from Chhatrapati Shivaji Maharaj Terminus to Dadar (Table 1).

BMI percentile for children are:

Children were categorized into three groups: obese (> 95th percentile), overweight (≥ 85th percentile) and normal (< 85th percentile, > 5th percentile) using age- and sex-specific percentiles of BMI.

The prevalence of overweight and obesity were calculated

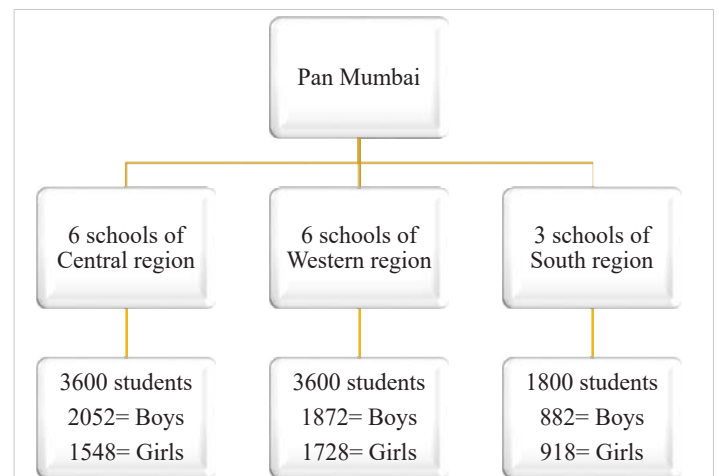


Table 1: Flow chart for sample covered from 3 regions of Mumbai.

by calibrated scales and using BMI for age/gender percentiles derived through child and teen BMI calculator developed by CDC. Structured questionnaires were designed for detailed diet recalls, assessment of physical activity patterns. Data collection was done by nutritionist with assistance of two trained interns.

Nutrition assessment

Detailed diet recall questionnaire was circulated to each and every student. Interaction with parents and teachers were done regarding the food patterns, school lunches, snacking patterns, family eating habits, outings, their likes and dislikes were studied in detail.

Students were asked to fill 24-hour diet recall form and submit it to their respective class teachers

Habitual activity assessment

The physical activity pattern was assessed through interaction with parents and teachers both. Child's socialising, active participation in curriculum was discussed with parents and teachers. Even the frequency of screening time i.e the time children are spending on TV/laptop/mobile phones and time for outdoor activity were noted down with the help of structured questionnaire.

Physical evaluation

Each student was evaluated for any present medical conditions and physical appearance like:

- Breathlessness
- Lethargy
- Double chin
- Excessive sweating
- Tiredness after even little activity
- Dark patches around neck
- Excess weight in abdomen and waist

Results

Data of around 9000 students was collected from 15 schools across Mumbai, out of which 53.4% (4806) were boys and 46.6% (4194) were girls.

Table 2 shows, out of 4806 male students, 1028 (21.6%) were overweight and 817 (16.8%) were obese [BMI between 85th-95th percentile and > 95th percentile respectively]. Whereas out of 4194 female students, 805 (18.8%) were overweight and 612 (14.3%) were obese.

At the time of dietary evaluation, it's been observed that out of 9000 students, 3537 (39.3%) students were vegetarian and 5463 (60.7%) students were non vegetarian.

The frequency of junk food was also analysed through the detailed 24-hour diet recall which was filled in by parents. In this form parents were asked to mention the frequency of outside/junk food, snacking pattern, and snack preferences of their children (Table 3).

When the parents and students were interrogated regarding the daily routine of them, it was found out that the number of children spending time in front of TV/laptop/mobile phones for more than 2 hours a day was 5337 (59.3%), whereas number for less than 2 hours a day was 3663 (40.7%).

Clinical assessment of overweight/obese students

The students whose BMI was above 85th percentile were assessed thoroughly for any preexisting health issues and the findings were: (Table 4).

After analysing the entire data, the parents- teacher education program was held where both the parents and teachers have been educated for home- based and school- based interventions to improve the health and to prevent further complications in child's life. Few examples are as follow:

School-based interventions

- High importance on physical activity

Table 2: Gender wise distribution of Body Mass Index.cc

BMI	Central region		Western region		South region		Total	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Overweight (85 th -95 th percentile)	437	297	389	352	202	156	1028	805
Percentage	21.3%	19.2%	20.8%	20.3%	22.9%	17%	21.6%	18.8%
Obese (>95 th percentile)	339	251	337	247	141	114	817	612
Percentage	16.5%	16.2%	18%	14.3%	16%	12.40%	16.8%	14.3%

Table 3: Frequency of Junk food.

Frequency of junk food	Boys (4806)	Girls (4194)
Daily	217 (4.5%)	130 (3.1%)
Once a week	1778 (37%)	1367 (32.6%)
More than once a week	2076 (43.2%)	1598 (38.1%)
Occasionally	735 (15.3%)	1099 (26.2%)

Table 4: Clinical assessments and presence of medical issues of overweight/obesity

Medical Conditions	Overweight		Obese	
	Boys (n = 1028)	Girls (n = 805)	Boys (n = 817)	Girls (n = 612)
Breathlessness	223(21.6%)	167(20.8%)	402 (49.2%)	314(51.3%)
Lethargy	390(37.9%)	216(26.8%)	591 (72.3%)	420(68.7%)
Double chin	426(41.4%)	306(38%)	760(96%)	548(89.6%)
Excessive Sweating	188 (18.3%)	162(20.1%)	397(48.6%)	314(51.3%)
Dark patches around neck	136(13.2%)	88 (10.9%)	380(46.5%)	239(39%)
Excess weight around abdomen and waist	480(46.7%)	388 (48.2%)	770(94.2%)	572(93.4%)
Depression/anxiety	94(9.2%)	101 (12.6%)	215(26.3%)	225(36.8%)



- Making healthier choice available and banning un-healthy food in cafeteria, (sweetened beverages and energy-dense junk food). Teachers can play a vital role in this initiative
- Training of teachers regarding nutrition education
- Incorporation of more knowledge about nutrition and physical activity and nutrition related diseases in school curriculum

Home-based interventions

- Key goals to address are the common diet-related problems encountered in children, set firm limits on television and other media early in the child's life, and establish habits of frequent physical activity
- TV/computer time to be restricted to maximum 1 h/day
- Mandatory 60 min of physical activity daily to be supervised by parents

- Restriction on eating out at weekends and restricting availability of junk foods at home
- Keep healthy snacks at home which can be easily accessible to the child

Parents were provided with many easy and healthy eating options for their children. One to one counselling was also conducted for the parents whose children were fallen under overweight/obese category. Teachers were advised to implement more outdoor/fitness activities and to motivate students for active participation, random checking of lunch boxes, organising more health/fitness program to improve their knowledge regarding healthy foods and lifestyle.

All the schools will be approached after 6 months to reanalyse the data to observe the results of implementation of effective interventions.