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Prevalence, Dietary intake and Physical Activity levels of Overweight and obese School Children

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Abstract

In India, overweight and obesity is increasing among young children because of various factors such as urbanization leading to changed life style patterns especially with respect to dietary pattern and physical activity. In this context the present investigation was undertaken to study the Prevalence, Dietary intake and physical activity levels of overweight and obese school children. Hence the present study was conducted with the objective to screen the school going children for overweight and obesity and to assess the dietary intake and physical activity levels of overweight and obese school children. The study showed that the subjects were aged between 10 – 16 years. The study included sixty five boys and thirty five girls. Irregular dietary pattern negatively influence on weight gain, where majority of boys (52%) and girls (51%) sometimes skip breakfast. It was found that consumption of junk foods was high among boys when compared to girls, in which data indicates majority of boys (54%) and girls (55%) eat outside food. Majority of the subjects do not indulge in physical activity, among which majority of the subjects never exercise, never participate in outdoor and indoor games.

Keywords: Obesity, School children, Life style, Dietary pattern, Physical activity.

Introduction

Childhood obesity is becoming a major public health problem. Children who are overweight will developed in to obesity when they become adults. Adulthood obesity symptoms are now seen in children of young age. In addition when the parents are obese then the chances of their children developing overweight and obesity is very high. According to World Health Organisation Childhood obesity is the fifth leading cause of death and is the most serious public health problem of 21st century. Childhood obesity will have serious adverse physical, psychological and social health consequences, the reason being globalization, urbanization and westernization to enhancing access to non-traditional foods[1].

India is going through an economic and nutrition transition in South-East Asia. The nutrition transition in terms of changed dietary pattern, sedentary life style and also the stressful work pattern. Many chronic diseases like diabetes, cardiovascular diseases and cancer are due to overweight and obesity one half of the obese children will become obese adults which increase the risk of morbidity[2].

Methodology

Detailed information regarding the methodology used in the present study has been discussed under the following ending. i. Screening of subjects, ii. Data collection, iii. Statistical analysis.

Location: The present study was conducted at 4 schools such as Bethel AG Elim church (Sunday School) R T Nagar, Bangalore, Stracey Memorial School, ST Marks Road Bangalore, Kopparaj Vidyanikethan School, Bangalore and R T Nagar Public School, Ganga Nagar, Bangalore – 560032. The subjects were screened based on height and weight only those children whose weight was 10 and 20 per cent more than the normal weight for the height were selected for the study.

Height: Height was measured accurately to the nearest 0.1 cm using a devised vertical rod. The subjects were made to remove the chappals and stand on the flat floor by the scale with feet parallel with heals, shoulders and back of the head in an upright posture, while arms hanging at the sides in a natural manner. Readings were noted by lowering the head piece to make contact with the top of the head through the hair was recorded without parallel error[3].

Weight: Weight is the key anthropometric measurement. Body weight of subjects was taken to the nearest 0.1 kg on a portable study balance of 120 kg capacity scale[4]. Calibration was checked regularly before taking each measurement. Subjects were made to stand on the centre of the platform without touching anything and making them look straight. Weights were then taken without footwear.

Screening: The children between the age group of 10 – 15 years including both boys and girls were taken for the study totally 1361 children were subjected to screening by purposive random sampling technique. Out of 1361 samples 120 (8.8%) were

screened for overweight and obesity, where 100 samples were taken for the study.

Data collection: A detailed schedule for formulated to elicit the information on Prevalence, Dietary intake and physical activity levels of overweight and obese school children. The schedule was pretested and was modified where ever necessary. The data was collected by using closed questionnaire.

The subjected selected were in the age group of 10 – 15 comprising 65 boys and 35 girls. Dietary practices of the subjects such as type of diet, consumption of various food staffs (fried foods, junk foods, bakery, soft drinks, fruits and vegetables, sweets etc.,) and physical activity levels were collected.

Statistical analysis: The data collected was classified, tabulated and suitable statistical test were applied.

Results and Discussion

The present investigation was carried out to study the Prevalence, Dietary intake and physical activity levels of overweight and obese school children. The study results are represented in Figure-1.

Figure-1 shows that out of 100 school children majority of boys (55%) and girls (27%) were overweight. Only ten percent of boys and 8 percent of girls were obese. This clearly indicates that the prevalence of overweight among children is increasing which could lead to obesity in their adulthood.

Table-1 shows that majority of girls (69%) and boys (68%) were non-vegetarians, followed by 23 per cent boys and 29 per cent girls were vegetarians, whereas 9 per cent boys and 2 per cent girls are ova-vegetarians. Consumption of non-vegetarian food high in saturated fat could be the most common cause for overweight and obesity.

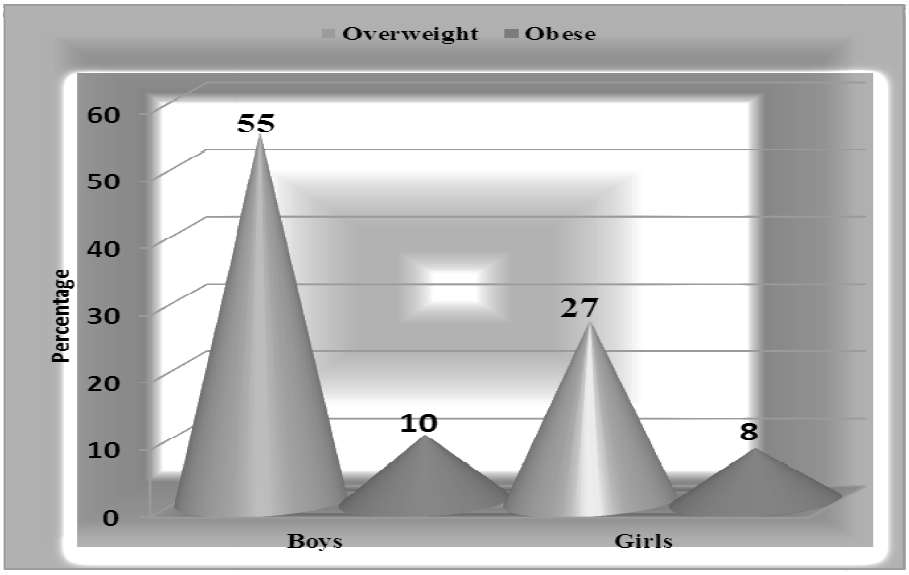

Figure-1
Obese and Overweight among Boys and Girls

Table-1
Type of diet followed by the subjects

Type of Diet	Boys (n = 65)		Girls(n = 35)		Significance of χ^2 value
	Number	Percentage	Number	Percentage	
Vegetarian	15	23	10	29	1.5975^{NS}
Non vegetarian	44	68	24	69	
Ova vegetarian	6	9	1	2	
Total	65	100	35	100	

NS: Not significant.

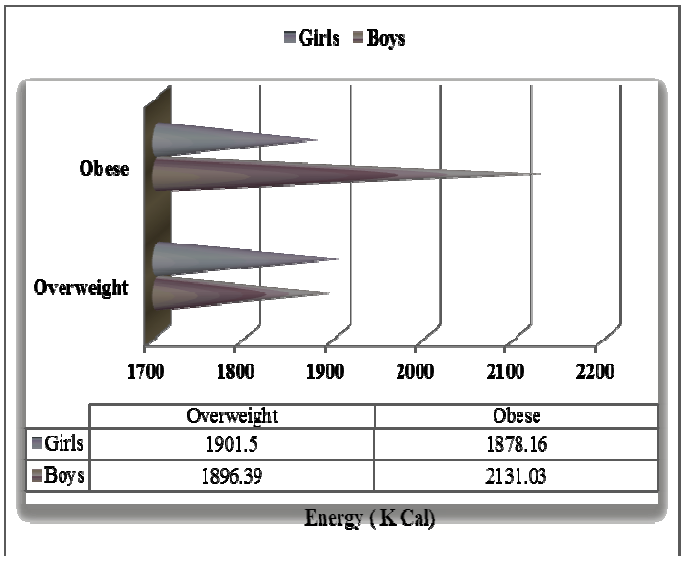

Figure-2
Energy (K Cal) levels for Obese and Overweight Boys and Girls

Energy intake (Figure-2) among overweight and obese boys and girls is lower when compared to recommended dietary intake (2200 Kcals) due to the fear of putting on more amount of weight even with less quantity of food intake and their growing consciousness about their body image. Protein (Figure-3) intake is found to be high when compared with RDA (46 grams) and fat (Figure-4) intake was also found to be more than the required amount indicating their lack of knowledge regarding healthy food choices.

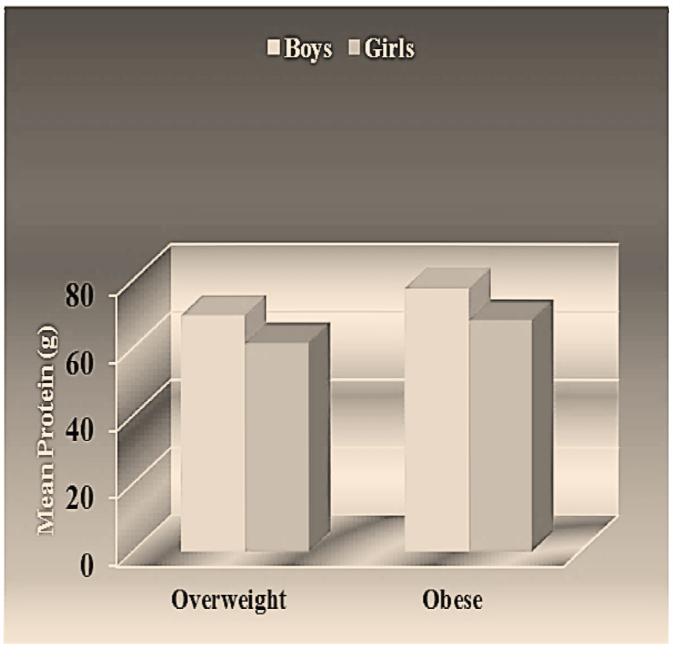

Figure-3
Protein (g) levels among Obese and Overweight Boys and Girls

Table-2 indicates that baked foods consumed by boys were once a week (24%), twice a week (15%) and daily (11%) and girls consumed once a week (12%). Milk shakes were consumed by boys once a month (23%) and once a week (14%) 20 per cent of girls consumed milkshakes once a month. 18 per cent of boys consume energy drinks once a month and girls (16%) never consume energy drinks whereas 11 per cent of girls do consume once a month. Sweets are consumed by 20 per cent and 15 per cent boys and girls respectively on daily basis.19 per cent of boys and 15 per cent of girls consume ice cream once a week. Sweetened coffee drinks were consumed once a month by boys (34%) and girls (10%), whereas 34 and 22% of the respondents consume fast food once a month.

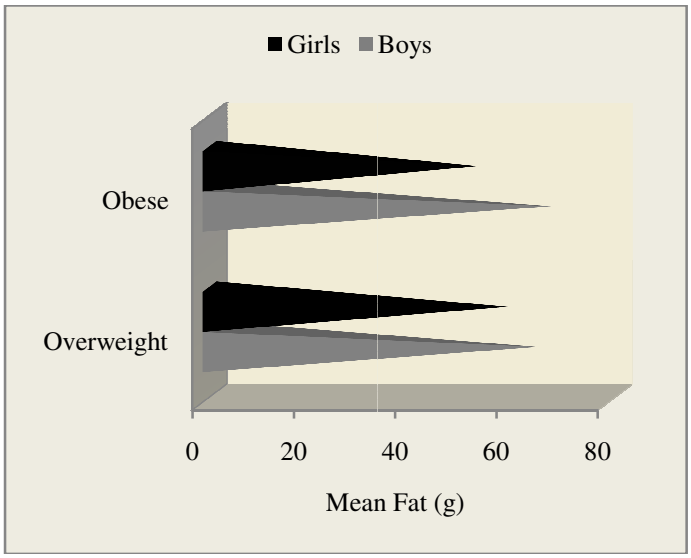

Figure-4
Fat (g) content among Obese and Overweight Boys and Girls

Eating snacks at schools like French fries, fried foods, packet chips, fast food and biscuits have been found to be negatively associated with overweight and obesity. A high intake of sugar-sweetened beverages may promote weight gain, and thus the increase in consumption of such drinks is of serious concern. A large many students don't eat from school canteens every day[5].

In Table-3 data indicates majority of boys (52%) and girls (51%) used to skip breakfast sometimes, followed by 23 per cent boys and 20 per cent girls used to skip breakfast always, whereas 6 per cent boys and 9 per cent girls, 19 per cent boys and 20 per cent girls rarely skip breakfast and never skip breakfast respectively.

Majority of overweight and obese boys and girls skip breakfast sometimes. Not having breakfast in the morning may be the specific practices associated to overweight and obese which could possibly signify a mistaken attempt to reduce calorie is taken. Not eating breakfast in the morning which may tend children to eat large quantity of food at a time in the afternoon may also lead to weight gain among children.

Table-2
Frequency of snack foods consumption

Snacks	Sex	Frequency					
		Daily (%)	Twice a week (%)	Once a week (%)	Once a fortnight (%)	Once a month (%)	Never (%)
Salty snacks	Boys	30	21	35	12	4	-
	Girls	31	14	31	14	9	-
Baked foods	Boys	17	23	37	7	15	2
	Girls	25	9	34	11	20	-
Milk shakes	Boys	26	11	21	3	35	7
	Girls	20	11	6	-	57	9
Energy drinks	Boys	11	18	17	3	28	23
	Girls	8	-	6	9	31	46
Sweets	Boys	30	20	29	9	4	7
	Girls	43	11	28	6	11	-
Ice cream	Boys	17	21	29	9	20	3
	Girls	14	23	43	9	11	-
Sweetened coffee drinks	Boys	34	7	20	8	52	8
	Girls	25	9	14	3	28	20
Fast foods	Boys	8	12	12	8	52	8
	Girls	3	3	14	9	63	9

Table-3
Skipping breakfast among the subjects

Skipping Breakfast	Boys (n = 65)		Girls (n = 35)		Significance of χ^2 value
	Number	Percentage	Number	Percentage	
Always	15	23	7	20	0.3195^{NS}
Sometimes	34	52	18	51	
Rarely	4	6	3	9	
Never	12	19	7	20	
Total	65	100	35	100	

NS: Not significant

Table-4
Types and duration of outdoor games played

Type of Outdoor Games	Sex	Duration			
		30 Min.	1 Hr.	> 1 Hr.	Never
Hopscotch	Boys	7	6	1	51
	Girls	3	2	6	24
Cycling	Boys	3	6	26	30
	Girls	-	6	7	22
Swimming	Boys	5	2	10	48
	Girls	1	-	1	33
Running	Boys	7	11	8	39
	Girls	5	4	3	23

Table-5
Types and duration of indoor games played by the subjects

Type of Indoor Games	Sex	Duration			
		30 Min.	1 Hr.	> 1 Hr.	Never
Tennis	Boys	4	5	5	51
	Girls	1	3	2	29
Badminton	Boys	4	8	18	35
	Girls	-	3	13	19
Basket ball	Boys	7	9	7	42
	Girls	1	-	3	31
Volley ball	Boys	9	8	5	43
	Girls	1	1	4	29
Throw ball	Boys	8	5	4	48
	Girls	1	9	8	17

In Table-4 it was found that boys were involved in different exercise like hopscotch, cycling, swimming and running when compared to girls and also the time spent on above mentioned exercise were high among boys compared to girls. Although above mentioned outdoor games are very helpful in burning calories but if practiced rarely without any continuity might show no effect on weight reduction[6].

In Table-5 it was found that majority of both boys and girls were not involved in any of the exercise. Boys were involved in different exercise like tennis, badminton, basket ball, volley ball, and throw ball when compared to girls and also the time spent on above mentioned exercise were high among boys compared to girls. Majority of both boys and girls never involved in all the above mentioned indoor games, Decreased

physical activity is the major reason for obesity problem. These behavioural trends among school children in the community have been identified to favour inactive forms of obesity[6].

Conclusion

Excessive consumption foods which are rich in calories and decreased physical activity are the major causes of childhood obesity which is due to their poor attitude towards diet and poor dietary practices should be addressesd at a very young age. There is a need to educate the children regarding the consequences of obesity. Prevention of child hood obesity is possible by modifying obesogenic environmental factors such as increased physical activity, dietary modification, behavioural changes. Hence there is a need to motivate and reinforce healthy lifestyle practices to prevent childhood obesity.

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