Research Article

Prevalence of Childhood Obesity and Illness in Relation to Parent Awareness in School Going Children

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ABSTRACT

Childhood obesity is a problem, which have to be considered seriously. Apart from serious health complications like cardiovascular disorder, musculoskeletal abnormalities, improper reproductive organ development it can also cause poor cognitive function. Prevalence data on childhood obesity is not available in Tamil nadu region of India where prevalence study is required. This is a observational study conducted in 265 children. The conducted study observed the prevalence of childhood obesity by random house selection in particular parts of Tamil nadu, for a period of three months. An objective of the study was to study the prevalence of childhood obesity, childhood illness, food habits, exercise habits, hygiene level and parent awareness on vaccination. Even though childhood obesity is prevailing in various parts of India, this study region showed that 81.2% from the total study population was underweight. The major illness was found to be Asthma (7.9%). 6.03% of children were seen to be untidy. Exercise habits showed that 56.6% of children did no physical activity and food habits in 78.4% children were unhealthy. Parent vaccination awareness report showed that 38.87% parents were not aware about vaccines.

Keywords: Childhood obesity**,** Childhood illness, Vaccination awareness, Food and Exercise habits.

INTRODUCTION

Childhood overweight and obesity are major public problems worldwide. Traditionally, a heavy child is meant a healthy child and the concept 'Bigger is better 'was widely accepted. Today this perception has drastically changed based on evidence that overweight and obesity in childhood are associated with a wide range of serious health complications and increased risk of premature illness and death in later life.

Much less is known about the growth and nutritional status of school children and adolescents. Reason for this lack of knowledge include the rapid changes in somatic growth, problems of dealing with variations in maturation and difficulties in separating normal variations from those associated with health risk.

Obesity in children affects the scores for school functioning like limitations in school work, lower perception of own cognitive capacity, learning & concentration, negative feeling about school, difficulties & anxiety at school, negative impact on school activities.[1]

Obese children also show social dimension-limitation in activity with friends, difficult interpersonal functioning in peer relation, negative impact on social activities, negative perception consideration in the school environment and the ability to develop friendship.[2]

Researchers have indicated that obesity is related to lower academic achievement and educational attainment. 50-70% of obese children remain obese adults.[3] Once obese, a child can develop diabetes and heart disease as early in 20's.

Based on a research, hardening and blockage of the arteries starts at 11years in boys and 15 years in girls.[4]

Fact is that parents do not realize the bad effect of junk food on children. Time on TV, internet and studies leaves little time for playing. Even in period assigned for physical activity many do not participate. Most parents do not have correct knowledge or time to educate children and healthy snacks are not prepared at home and many parents and teachers are obese themselves.[5]

No cohesive intervention program has been done in India. The most significant fact is that 67% of children spend less than 1hr/day in physical activity.[6]

Since children spend a large amount of their time at school there are many opportunities to conduct health promotion [health education lessons, creating a good play ground, provision of healthy school meals]. School environment is recognized as a good setting to address children's dietary and sedentary behavior.[7]

The availability and accessibility of unhealthy foods like sweetened drinks, low nutrient energy, dense snacks, unhealthy lunch programs from school canteens and vending machines lead to a higher consumption of unhealthy foods, a low intake of fruits, vegetables and milk products which are great odds of obesity.[8]

School does not stand alone as organizations but are imbedded into broader macro environmental settings

including communities, health system and food industries.

Also studies shows that intervention components altering food provision in school appears to be successful but modifications to the physical environment have a higher likelihood to be effective when combined with supportive, social and educational changes and also importance of the physical school environment.[9] However, role of the school environment on dietary behavior is not yet fully understood.

Childhood obesity can lead to cardiovascular complications, affect pubertal development, causes in period of menarche, hyperandrogenemia, polycystic ovary syndrome, increases adiposity, effects reproductive function, causes musculoskeletal problems, sleeping, breathing problems, type 2 diabetes mellitus, high cholesterol, high blood pressure, depression, behavioral changes, learning problems and non alcoholic fatty liver disease.[10]

Studies have also pointed towards potential connections between childhood overweight and psychological characteristics (eg: Depression, Anxiety and social withdrawal). [11, 12] Previous research has indicated the presence of neglect, stigma, bias, and discrimination against overweight or obese children, which can culminate into pervasive victimization, teasing, and bullying.[13,14] Reports of depression, anxiety and social thoughts have also been associated with abnormal weight in adolescent in western countries.[15]

The various risk factors of the childhood obesity are- erratic eating habits, frequent fast and fried food consumption, excess intake of sugar sweetened drinks, excess consumption of refined foods, not consuming enough fruits and vegetables, lack of physical activity (outdoor games), more time on TV, other internet gadgets, lack of awareness in parents about their children's food habits, their play time, availability of unhealthy foods in school canteens and in boarding schools, modern life-style.[16]

In school age children, several studies have consistently reported that short sleep duration was an independent risk factor for obesity.[17] A cross–sectional study conducted among 229 Mexican American 8-10 year old, concluded that children who slept less were more likely to have higher BMI Z-Score.[18] About two decades ago, the issue of overweight was emerging as a public health concern primarily in children at high income countries and Western nations.[19]

According to study carried in 79 countries, WHO estimated that there are 250 million obese people in the world. Approximately 22 million children aged less than 5 years were obese. WHO estimates that in 2025 about 300 million children may become obese.[20, 21] For children between 5-7 years of age, the regional prevalence data on overweight and obesity are currently unavailable.[22] However, data for overweight and obesity prevalence among children in different countries in south Asia are available: 25.0% among children from 2-15 years in Bangladesh and 22.0% among children from 5-19 years in India. Moreover, secular trends indicate increasing prevalence rate in these countries: for example, 9.8 to 11.7% among children from 5-19 years in India during 2006-2009.[23, 24]

Primary Objectives

- To study the prevalence of childhood obesity.
- Understand the related prevalence of childhood illness.

Secondary Objectives

- Study the food habits of children.
- Understand the exercise habits of children.
- To observe the hygiene levels in children.
- To study the awareness of parents about vaccination.

METERIALS AND METHODS

- STUDY POPULATION – 265 students
- STUDY SITE – Random house selection, Bhavani
- STUDY DESIGN - Observational study
- DURATION OF STUDY – 3 months
- **Study Criteria**-

  > Inclusion criteria –

  1. Students between 3 – 14 years of age
  2. Students from LKG to 8th standard

  > Exclusion criteria –

  1. Mentally retarded children
  2. Non- consenters

- **Data Collection** – Interviews and Questionnaires.

RESULTS AND DISCUSSION

Today the burden of obesity is heavy on the society. With globalization the increase in sedentary lifestyle is also been witnessed. This has led to a faster lifestyle. With the increase in speed, people have no time for proper care of the health and self.

Age wise distribution (N=265)

The maximum number of the study population were in between the age group 6 to 8.9(28%) followed by 3 to 5.9 (26.7%), 9 to 11.9(26.5%) and the least were in between 12 to 14(18.8%).

Sex wise distribution (N=265)

In this study population 135(50.9%) were male and 130 (49.1%) were female.

In these study population children from 12 to 14 years showed normal weight and rest of the children in other age groups were underweight.

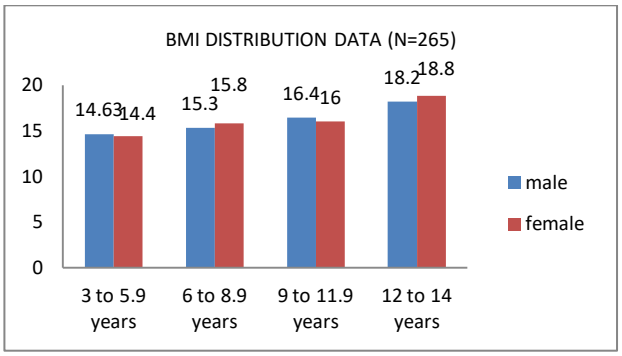

Figure 1: BMI Distribution data (N= 265)

Table 1: waist length distribution data (N=265)

Age in years	male	Mean (in inches)	Female	Mean (in inches)
3 to 5.9	45	18.6	25	20.4
6 to 8.9	33	20.5	41	22
9 to 11.9	37	23.9	33	23.3
12 to 14	21	27.2	30	28.2
Total-265				

The total study population fell under normal range of waist length.

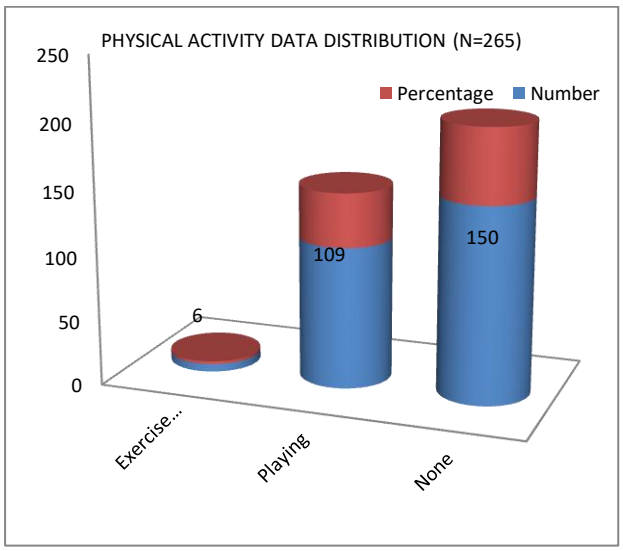

Figure 2: Physical activity data distribution (N=265)

Physical activity is one of the close markers of health status in children. In the study population 56.6% of the children practiced no physical activity, where 41.2% had a habit of playing and 2.2% of them were engaged in both exercise and playing.

Table 2: General medical examinations (N=265)

Parameters		Age in years			
		3 to 5	6 to 8	9 to 11	12 to 14
Walk	Normal	71	74	70	50
	Limps	0	0	0	0
Scalp	Healthy	71	74	70	50
	Unhealthy	0	0	0	0
Expression	Smiling	69	72	68	49
	Sad	2	2	2	1
Nose and ear	Not discharge	68	70	68	48
	discharge	3	4	2	2
Overall appearance	Tidy	69	68	67	45
	Untidy	2	6	3	5
Nail	Smooth	70	74	70	48
	Rough	1	0	0	2
Eyes	Bright	69	70	67	48
	Dull	2	4	3	2
Deformity	Normal	71	74	69	50
	Abnormal	0	0	1	0
Anemia	Mild	12	9	5	7
	Moderate	1	2	1	2
	Severe	1	0	4	1
	Absent	57	63	60	40
Total number of abnormalities		**24**	**27**	**21**	**22**
Total-265					

Playing frequency (N=265)

The average playing and exercise frequency per week was seen higher in the age group of 12 to 14 years (50 in number) of about 5.74 hours followed by age group of 6 to 8.9 years(74 in number)of about 4.79 hours, 3 to 5 years (71 in numbers) of about 4.52 hours and seen lesser in age group of 9 to 11.9 years(70 in number) of about 2.57 hours.

In the study, the number of abnormalities was found to be higher in the age group of 6 to 8, of 27 in number, 24 of them from the age group of 3 to 5, 22 of them from age group of 12 to 14 and the least number of abnormalities was found in 21 of the children from the age group of 9 to 11. From the whole study population 16.9% of the children suffered from mild, moderate or severe type of anemia.

Table 3: Food consumption (N=265)

Food consumption		Daily	Alternatively	Weekly	Monthly	Rarely	No
Milk & egg		160	24	65	0	3	13
Wheat		43	34	146	6	10	26
Rice		265	0	0	0	0	0
Curd		157	24	38	0	4	42
Non-vegetarian	Chicken	0	0	213	0	0	0
	Red meat	0	0	187	0	0	0
	Fish	0	0	202	0	0	0
Vegetable		249	2	7	0	2	5
Oats		0	1	0	1	0	263
Bread		29	7	60	18	81	70
Fruits		140	16	66	6	29	8
Total – 265							

The food consumption pattern in the total study population was observed to be found that 16 of them did not take milk and egg, 36 of them did not take wheat and 46 of them did not use curd while the whole population (265 in number) consumed rice on a daily basis. This study even shows that the total study population took non vegetarian food on a weekly basis from which 213 of them consumed chicken, 202 of them consumed fish and 187 of them took red meat. Vegetables and fruits were not consumed by 7 and 37 number of children from the total study population respectively. Even though Bread being a pure carbohydrate, 29 of them consumed it on a daily basis, 7 of them on alternate days and 60 of them weekly.

Number of meals other than homemade (N=265)

The study showed that from the total study population 5 children took meals other than homemade (Hotel), 90 of them weekly,73 of them monthly,60 of them rarely and 37 of them did not take meals from either a hotel, canteen or restaurant.

Fast food consumption (N=265)

According to fast food consumption pattern observed in the total study population, porotta was consumed by 2 children daily, 208 of the study population weekly and 9 of them monthly.9 of them consumed sandwich weekly, 3 of them consumed burger weekly and 2 of them consumed pizza weekly. Chicken noodles, chicken rice and egg rice was taken weekly by 1, 5 and 4 children of the total study population respectively.

Parent awareness about diet (N=265)

Among the total study population 40% (106 in number) of the parents were not aware about the problems of taking fast food.

Snacks consumption (N=265)

On observing the snack consumption data it was found that 118 children of the total population took biscuits daily. Noodles was consumed by 37 of them daily and 66 of them weekly, kurkure was consumed by 28 of them daily and 63 of them weekly and 31 of them consumed lays daily and 61 of them weekly.

Tea and soft drinks consumption (N=265)

In the total number of children, 75 of them took tea or coffee daily once, 34 of them twice daily and 2 of them thrice in a day. Also, 23 numbers of children took tea or

coffee weekly. And soft drinks were consumed by 10 of them daily and 59 of them weekly.

Dental examination (N=265)

The dental examination data among the total study population showed a higher rate of abnormalities, 85 of them in 9 to 11 years of age, 72 of them in 6 to 8 years, 63 of them in 12 to 14 and 30 of them 3 to 5 years of age.

A study conducted by Mitesh.D.Kathariya et al on dental examination among 600 children concluded that maximum of the study population suffered from cavities of 39.2% which is similar to our study showing that most of the children suffered from stain and cavities of 44.9% and 24.1% respectively.

Family history (N=265)

In this study population; 22.30% of children had a family history of Diabetes mellitus followed by Hypertension (10.50%), Diabetes with Hypertension (6.50%) and the least was diabetes with Hypertension and Cholesterolemia (4.20%).

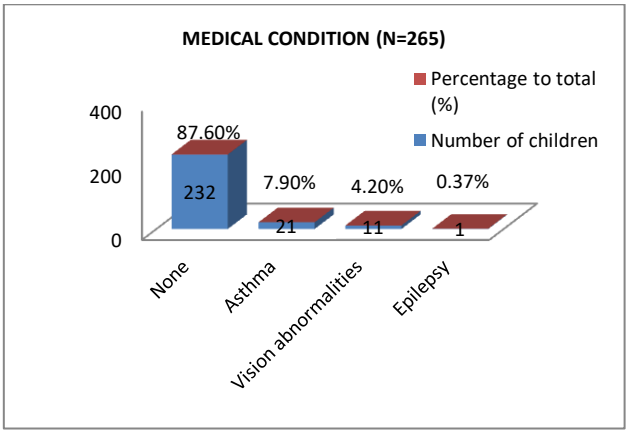

Figure 3: Medical conditions (N=265)

In the total study population the other medical conditions seen were, Asthma in 7.9% of children, Vision abnormalities in 4.2% of them and 0.37% suffered from Epilepsy.

Table 4: Awareness on vaccine (N=265)

Awareness	Number of parents	Percentage to total (%)
Don't know	103	38.87
Know	162	61.13
Total number of parents	265	

Majority of the parents of the study population (61.13%) were aware about vaccine and its importance while 38.87% of them were not aware.

Parent awareness about exercise (N=265)

In this study 24.9% of parents of the total study population thought that their child playing outdoor games was a waste of time and 78.8% of parents did not allow their children to play outdoor games. 22.3% of parents kept no restrictions on their child watching television or playing video games and 39.7% of them bought video games or computer for their children.

Opinion of parents about their children's nutritional status

According to opinion of the parents about their child's nutritional status, 44.1% of them believed that they provided good nutrition, 54.7% believed that they gave an average nutritional food and 1.2% of them believed that they provided poor nutrition to their children.

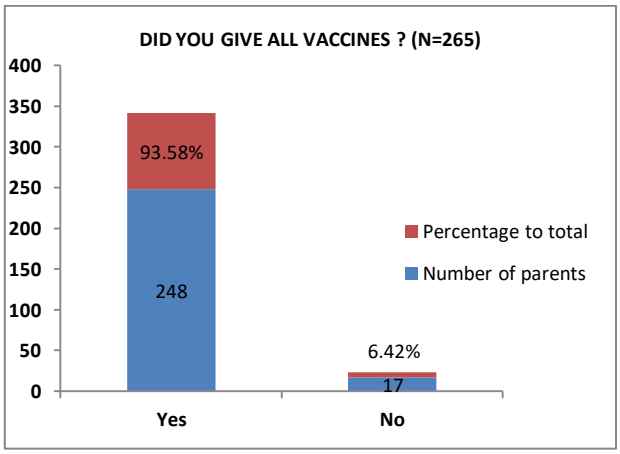

Figure 4: Vaccination data (N=265)

In this study 93.58% of parents had given all the vaccines to their children and 6.42% of parents had not given.

CONCLUSION

The various studies conducted across India gave an alarming sign of increased incidence of childhood obesity. Objective of the study held, was to find out the prevalence of childhood obesity in a rural area of Tamil nadu, whereas the study found out that 81.2% of the study population was underweight. Out of the study population 56.6% of children practiced no physical activity, 6.03% of them were untidy, 7.9% of children suffered from asthma. Highest incidence of disease in the total study population was found to be coughing (10.9%) and fever (7.5%). On a weekly basis 80.3% of study population consumes chicken and 70.5% consumes red meat. Out of the study population some of the children did not include fruits (3.01%) and vegetables (1.88%) in their diet. Although junk foods like sandwich, burger etc...are not much popular, the consumption of porotta seems to be higher among them on a weekly basis of 78.4%. 22.3% of children had a family history of Diabetes mellitus. By analyzing the parent awareness data, it was observed that 40% of parents were not aware about the after effects of fast food, 38.87% among them were not aware about vaccines. It is not a good sign to note that, 78.8% of parents did not allow their children to play out door games and 22.3% of them did not restrict their children in watching television and playing video games.

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