

Obesity among Adolescent School Going Children in East Zone of Coimbatore: It's Association with Life Style Factors

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Abstract

Obesity has been a major health concern and it's a worrying epidemic and there is an urge need to examine adolescent obesity and the life style factors that are associated with obesity. In this present study, various life style factors such as dietary pattern, physical activity, sleeping pattern, consumption of junk foods and frequency of eating outside foods, eating while watching television, sleeping pattern, usage of gadgets and habit of exercising were investigated. The aim of this study is to determine the association between life style pattern of adolescents and obesity. The study was carried out in 11,330 adolescent in the age group of 13-15 years from different sectors of school (Government Schools, Government Aided Schools, Corporation Schools and Private Schools). Among which there were 953 obese adolescent school children which includes 467 boys and 486 girls who belongs to different socio economic background. This study was a questionnaire based study, only those adolescent children who volunteered were included in the study. All the respondents were introduced about the topic of study and the need to collect sensitive information and were promised confidentiality of the entries. Dietary pattern like type of diet, regular meal timing, skipping breakfast, consumption of snacks, fast foods, frequency of eating outside, eating while watching television, regular sleeping pattern, usage of computer gadgets, habit of exercising were having remarkable effect and positively associated (significant at 5% level) with the occurrence on obesity. Therefore, strategies for hindrance of obesity, encouragement for healthy lifestyles are necessary to prevent the start and early detection of adolescent health problems. The data suggest that there is a significant association between the life style pattern and obesity among the selected participants.

Keywords: Adolescents, Dietary Pattern, Dietary Pattern Obesity, Life Style

1. Introduction

School going children contribute to upcoming man-power which can progress the socio financial state of developing countries. Thus, their intellectual and physical well-being is of almost alarm which can be achieved by sufficient nutrition¹. As per the World Health Organization the obesity level has touched epidemic proportions worldwide

with a minimum of 300 million general public being overweight clinically².

Health has been in the limelight ever since the arrival of this 21st Century. Overweight has been causing ailments as equal to undernutrition and infectious diseases and at times it overtook the later. Obesity does affect individuals at every level of human life without being discriminant across ages and the latest sufferers are the kids³.

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About 25% of adolescents and children in India are overweight or obese as a new national criteria summarises and these teenage children are the most vulnerable to become obese adults. Health and nutritional status of children and adolescents in India has come to its lowest levels in the last few years. A minimum of 16% of children and adolescents aged between 6 to 19 are considered overweight and a minimum of 11% of adolescents are categorized as obese according to various Government surveys⁴.

Obesity is a fast growing problem in the developing countries which are going through a transition in nutrition and lifestyle; also it exists alongside under nutrition. Increase in the number of overweight people and obesity is mainly because of the fast growing urban cities, fast phased mechanical life, technological advancements, modifications in diet and lifestyles which were happening due to the soundness of economic wealth and globalization. All these factors make a marked influence in the health and nutritional status among people mainly in children³.

Due to the improved living standards of people the need of food varieties also increased and food is always at our doorsteps which lead to a negative implication such as low energy expense also the consumption of high oil rich food, junk eatables, improper food pattern, very less outdoor activities and ailments related to increased food intake are the most important cause of obesity³. The increased occurrence of obesity in India is mainly due to the inactive lifestyle, poor food habits, cultural practices and the increase in the number of middle class population⁵.

The incidence of childhood obesity in India was about 22% in 2012. The increase in the rate of obesity among children is mainly caused by the change in lifestyle, poor faulty food patterns with more junk foods and less physical activity⁶.

2. Methodology

The study was conducted in various schools such as Government School, Government aided school, Corporation school and Private school in East zone of Coimbatore. The study protocol was submitted to the Universal Ethical Clearance board and clearance was obtained before starting the present study.

This study was a questionnaire based study, only those adolescent children who volunteered were included for the study. Schools were recruited after prior consent received from the Chief Educational Officer and respective principals of the school for conduct of the present study. As pre the requirement in the protocol given by the organization, the participant's willingness to participate in the study was also obtained.

Questionnaire was aimed to assess the life style, physical activity that influence physical and social health of adolescents such as type of diet, regular meal timing, skipping breakfast, consumption of snacks, fast foods, frequency of eating outside, eating while watching television, regular sleeping pattern, usage of computer gadgets, habit of exercising.

2.1 Inclusion Criteria

- Adolescent school going children of both genders in the age group of 13-15 years studying in different schools in East Zone of Coimbatore.
- Willing to give consent to take part in the study.
- Cooperative and ready to give reliable data for the effective completion of the study.

2.2 Exclusion Criteria

- Age less than 13 years and more than 15 years.
- Not willing to give consent and
- Not cooperative to participate in the present study

2.3 Statistical Analysis

Descriptive and inferential statistical study has been carried out in the present study. Results on categorical measurements are presented in Number (%). Statistical significance is assessed at 5% confidence limits into (Not significance, significant) different levels of significance. Chi-square test has been used to find the significance of study parameters on categorical scale between two or more groups.

3. Results and Discussion

About 11,330 adolescent school children were screened for obesity from various types of schools such as Government Schools, Government Aided Schools, Corporation Schools and Private School. Among which

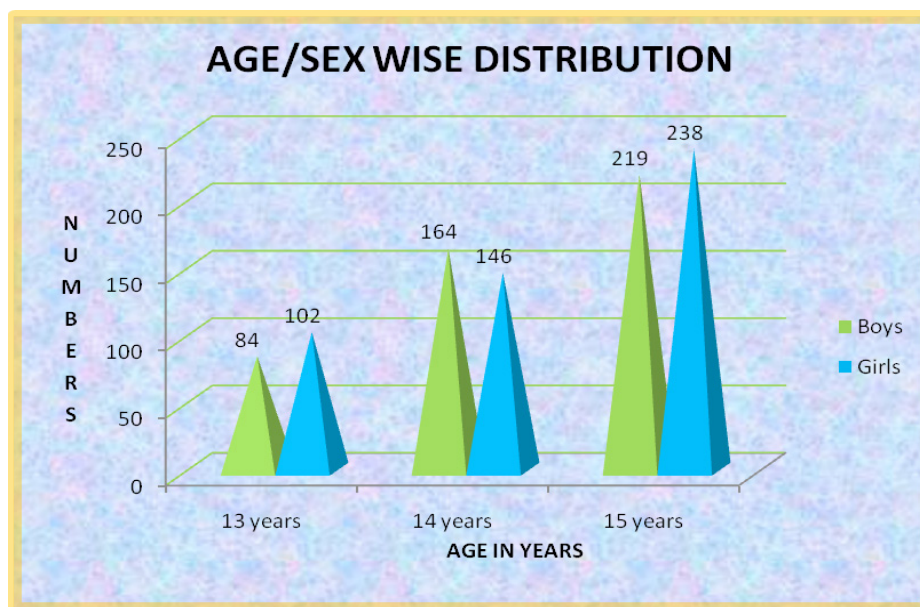


Figure 1. Age and sex wise prevalence of obesity among the participants.

a total number of 953 obese adolescents with age group between 13-15 years from different school were identified by screening their height, weight and body mass index. Out of 953 adolescent participants from various schools, it was noted that 467 were boys and 486 were girls. It was also noticed that there was more or less equal occurrence of obesity among both the gender (Figure 1).

Figure 1 reveals the occurrence of obesity among boys in the selected age of 13-15 years was found to be 49% whereas among girls of the same age group it was found that 51% of them were obese. Thus, statistically there was no significant difference between the age group and the gender of obese participants.

The above Table 1 reflects that the obesity status have significant association with the type of diet consumed, eating from outlets, consumption of fast foods, eating while watching television, level with the regular sleeping pattern, use of computer gadgets and habit of exercising at 5% statistically significant ($p < 0.05$).

It is revealed from the study that 94% of obese school going adolescent (boys:92%, girls:96%) were non vegetarians, 6% obese adolescent were vegetarians. Association between non vegetarian diet and obese adolescent showed that there is a statistical significant ($p < 0.05$) association.

From the table it was observed that 37% of the participants (boys: 34%, girls: 40%) consume eating out twice or thrice in a week. 36% of them consume outside food once a week and the rest 27% take outside food monthly once. There was a positive association ($p < 0.05$) between the frequency of consuming food outside and the obesity status of the participants. Majority (77%) of the obese school going adolescent (boys:74% and girls:80%) were consuming fast foods such as pani poori, bhel puri, burger etc.

It was evidence from the table that 92% of the obese participants (boys: 96%, girls: 88%) watch television while eating whereas 2% of them don't watch television while having their meals. It was found in the present study that there is a significant association between the television watching while eating and the obesity. Present study result correlates with the study done by Goyal et al. (2010)² in which restaurant visit per week was positively associated with BMI. The result of the study coincide with the study of Gupta (2014)³, in which the author reported that seventy-one per cent of children reported they watch TV seven days a week, girls less than boys. Study also shows that the dietary patterns of children watching TV include more snack foods and fewer fruits than the dietary patterns of the same children exercising (Fainardi et al.,2009)⁸.

Table 1. Association of obesity with life style pattern of the selected participants

Life Style Pattern	Obese				Total (953)	
	Boys (467)		Girls (486)			
	No.	%	No.	%	No.	%
Types of diet						
Veg	37	8	20	4	57	6
Non-veg	430	92	466	96	896	94
Chi square	6.14 ^s (p: 0.013)					
Frequency of Eating outside						
Once a week	167	36	173	36	340	36
Twice/Thrice	157	34	197	40	354	37
Monthly	143	30	116	24	259	27
Chi square	7.06 ^s (p: 0.029)					
Consumption of fast foods						
Yes	346	74	387	80	733	77
No	121	26	99	20	220	23
Chi square	4.11 ^s (p: 0.042)					
Eating while watching Television						
Yes	450	96	426	88	876	92
No	5	1	11	2	16	2
Sometimes/rarely	12	3	49	10	61	6
Chi square	24.98 ^s (p: 0.000003)					
Regular sleeping pattern						
Yes	190	41	162	33	352	37
No	277	59	324	67	601	63
Chi square	5.52 ^s (p: 0.018)					
Use of computer gadgets						
Yes	412	88	454	93	866	91
No	55	12	32	7	87	9
Chi square	7.74 ^s (p: 0.0053)					
Habit of Exercising						
Yes	121	26	82	17	203	21
No	346	74	404	83	750	79
Chi square	11.60 ^s (p: 0.0006)					

It was clear from the table that majority of 63% participants had no regular sleeping pattern and the rest 37% have regular sleeping pattern. In the study population, 79% of the participants have no proper habit of exercising apart from games hour. Only 21% of the participants have habit of doing exercise like skipping, playing outdoor games, yoga, aerobic exercises. 91% of the participants uses electronic gadgets daily for any purpose like playing online games, classes etc and very few 9% of them were are not using the gadgets frequently. A study by Carskadon (2011)⁹ and Crowley et al., (2018)¹⁰ concluded that the sleep timing factors (eg, circadian phase delay), social factors (eg, bedtime autonomy, nighttime screen usage), and academic factors (eg, early school start times, academic pressure) place adolescents at increased risk of falling asleep late and waking up early.

4. Conclusion

Adolescents in today's world show a decreased physical activity due to availability of sources to engage them. The growing use of computer gadgets, increased time in watching television and decreased games hours at schools, sedentary life style contributes to increase in obesity among adolescents group. The occurrences of obesity among the participants were similar irrespective of gender. There was a significant difference at 5% level between obesity and life style pattern of the participants. Therefore, strategies for avoidance of obesity and encouragement of healthy lifestyles are necessary to prevent the start and early detection of adolescent's health problems. This study is the sole effort to look into adolescent's health issues in East Zone of Coimbatore.

5. Funding

No funding sources.

6. Conflict of Interest

None declared.

7. Ethical Approval

The study was approved by the Universal Ethical Clearance Board.

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