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Life Style Associated Risk Factors for Overweight and Obesity in Adolescent Age Group 15 – 18 Years in Karaikal Region

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Objectives: *To find out the various life style associated risk factors for overweight and obesity among adolescents between 15 – 18 years in karaikal region.*
Methods: *A Cross sectional study was carried out in the age group of 15 – 18 years of adolescents in karaikal region. A predesigned pretested questionnaire was administered to the participants and filled under trained supervisors. Anthropometric measurements including Height, Weight and Body mass index (BMI) were measured and analysis carried out using a SPSS software version 16.*
Results: *Out of 300 participants, 43(14.4%) students were found to have overweight and 17(5.6%) students had obesityobesity. Factors like watching television during snacking, increased frequency of snacks, lack of physical activity, increased screen time were found to have significant association with overweight and obesity.*
Conclusions: *The present study highlights childhood overweight and obesity as an emerging health problem even in a semi urban region and life style factors act as important modifiable risk factors.*
Keywords: *Adolescent, Overweight, Obesity, Height, Weight, Body mass index, life style factors.*

I. Introduction

Obesity has emerged as one of the global health problem with 200 million school aged children worldwide categorized as being overweight or obese, of which 40 – 50 million are obese [(1)] . Its impact is observed in developing countries as well[(2, 3)]. However, the problem is of a larger magnitude in developing countries like India, where a significant proportion of population belongs to younger age group [(4)]. Rising prevalence of obesity in India may be attributed to various factors like sedentary life style, unhealthy food habits, cultural practices and increasing affluence of middle class population [(5,6,7,8)]. This may have major implications towards increasing prevalence of non – communicable diseases like Diabetes mellitus, Hypertension and Cardiovascular diseases in early adulthood [(9,10)].

II. Methods

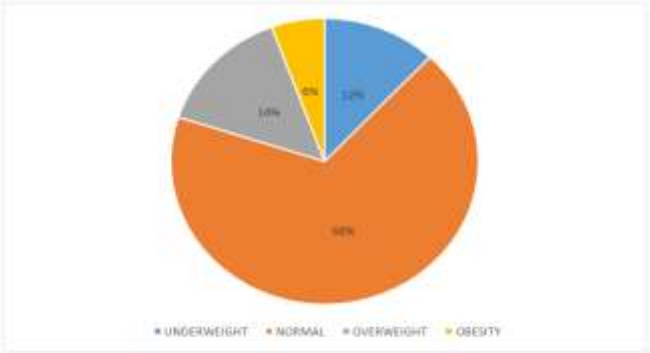
The study was carried out among the 300 children in the age group of 15 – 18 years in 3 different educational institutions. Among the 300 children, 152 were boys and 148 were girls; Questionnaire were filled by them and supervised by trained personnel which included socioeconomic status, Diet and Life style based questions. Dietary practices were assessed by dietary preference, fast food intake, fruit consumption and frequency of eating out. Physical activity was assessed, their nature classified (sports,walking , bicycle) and duration categorised with cut off of 30 minutes / day. Time spent at home for watching Television, Video games were enquired. Any trial of smoking and alcohol intake were questioned and their quantity and frequency noted. Data on height(cm), weight (kg) were recorded through direct physical examination and BMI(kg/m^2) calculation .

Bio Socio Demographic Characteristics of Study:

FACTORS		NUMBER	PERCENTAGE IN STUDY POPULATION
AGE GROUP	15 – 16 YEARS	78	26%
	17 – 18 YEARS	222	74%
SEX	BOYS	152	50.6%
	GIRLS	148	49.4%
FAMILY	NUCLEAR	165	55%
	JOINT	135	45%
PARENT OCCUPATION	PROFESSION	15	5%
	SEMIPROFESSION	176	58.7%
	CLERK	49	16.3%
	SKILLED	31	10.3%
	SEMISKILLED	12	4%
	UNSKILLED	17	5.7%
EDUCATION	PROFESSIONAL	15	5%
	GRADUATE	171	57%
	POST HIGH	65	21.6%
	HIGH	28	9.4%

	MIDDLE	13	4.4%
	PRIMARY	8	2.6%
INCOME	>2000	177	59%
	1000-1999	88	29.3%
	<999	35	11.7%
EATING OUTSIDE	< 3/ WEEK	242	80.7%
	>3/ WEEK	58	19.3%
SNACKING	< 3/ WEEK	127	42.3%
	>3/ WEEK	173	57.7%
PHYSICAL ACTIVITY	< 3times/WEEK	136	45.3%
	>3 times/ WEEK	164	54.7%
ALCOHOL	YES	47	15.7%
	NO	253	84.3%
SMOKING	YES	50	16.6%
	NO	250	83.4%
SCREEN TIME	1 HOUR	36	12%
	1-3 HOURS	128	42.5%
	>3 HOURS	131	43.5%
FRUITS	< 3/ WEEK	124	41.3%
	>3/ WEEK	176	58.7%
CONVEYANCE	WALK	81	27%
	BICYCLE	48	16%
	BIKE	144	48%
	CAR	27	9%
SOFT DRINKS	< 3/ WEEK	236	70.7%
	>3/ WEEK	62	20.7%

Distribution of Cases According To Body Mass Index



Risk of Overweight and Obesity According To Life Style Factors

FACTORS		OVER	WEIGHT	AND	OBESITY	P VALUE
		YES	%	NO	%	
AGE GROUP	15 – 16 YEARS	17	21.8%	61	78.2%	0.001
	17 – 18 YEARS	43	19.4%	179	80.6%	0.001
SEX	BOYS	38	25%	114	75%	0.001
	GIRLS	22	14.9%	126	85.1%	0.001
FAMILY	NUCLEAR	44	26.7%	121	73.3%	>0.05
	JOINT	16	11.9%	119	88.1%	
EATING	< 3/ WEEK	21	8.7%	221	91.3%	0.001
OUTSIDE	>3/ WEEK	39	67.2%	19	32.8%	0.001
SNACKING	< 3/ WEEK	20	15.7%	107	84.3%	0.001
	>3/ WEEK	40	23.1%	133	76.9%	0.001
PHYSICAL	<3TIMES/WEEK	18	13.2%	118	86.8%	>0.05
ACTIVITY	>3TIMES/WEEK	44	26.8%	120	73.2%	
ALCOHOL	YES	10	21.3%	37	78.7%	0.001
	NO	50	19.8%	203	80.2%	0.001
SMOKING	YES	11	22%	39	78%	0.001
	NO	49	19.6%	201	80.4%	0.004
SCREEN TIME	1 HOUR	2	5.6%	34	94.4%	0.003
	1-3 HOURS	22	17.2%	106	82.8%	0.001
	>3 HOURS	36	27.5%	95	72.5%	0.001
FRUITS	< 3/ WEEK	14	11.3%	110	88.7%	0.001
	>3/ WEEK	46	26.1%	130	73.9%	0.002
CONVEYANCE	WALK	4	4.9%	77	95.1%	0.001
	BICYCLE	7	14.6%	41	85.4%	0.001
	BIKE	42	29.2%	102	70.8%	0.001
	CAR	7	25.9%	20	74.1%	0.001
SOFT DRINKS	< 3/ WEEK	18	75.6%	220	92.4%	0.001

	>3/ WEEK	42	67.7%	20	32.3%	0.001

Statistical Analysis:

Occurrence of overweight/ obesity among the children in different age , sex , life style and dietary patterns was analysed using independent variable and anova test and the significance of each is established as P-value (<0.05).

III. Result

A total of 300 students were studied, of which 152 were boys (50.6%) and 148 were girls (49.4%) boys : girl ratio 1.027. 222 students(74.4%) of age group 17 – 18 years followed by 78 students(26%) in 15 – 16 years of age. 55% of students (165) belong to nuclear family and 45% of students (135) in joint family. In parental occupation, 176 students (58.7%) belongs to semi profession group followed by 49 students (16.3%) with clerical occupation and 31 (10.3%) were skilled labourer.171 students (57%) were children of graduate parents followed by 65 (21.6%) and 28 students (9.3%) in post high and high school. Parents of 177 students(59%) had income of more than 2000/ month and 123 students (41%) in less than 2000/ month.

39students (67.2%) who consumed outside food more than 3 times/week and 40 students(23.1%) snacking more than 3 times a week had overweight and obesity according to IAP guidelines. But, 44 students(26.8%) with physical activity more than 3 times a week , 50 students (19.8%) were non alcoholic and 49students who were non smoker students(19.6%) also had overweight and obesity. 36 students (27.5%) with screen time for more than 3 hours had overweight and obesity followed by 22 students(17.2%) with screen time for 1 – 3 hours. 46 students (26.1%) with fruit intake of more than 3 times a week were overweight and obesity. 49 students (55.1%) using motor transportation like bike, car had overweight and obesity. 42 students (67.7%) with soft drink consumption of more than 3 times a week were overweight and obesity.

IV. Discussion

In this study, 20% of students were overweight/obese(14.4%/5.6%). This is similar to the study of Singh AK et al(2006) [11] in New delhi where prevalence of overweight and obesity was 17.5% but in comparison with the studies of Anitha rani et al (2013)[12]in Chennai which revealed a lower prevalence of overweight/ obesity(6.2%/5.2%). In this study the government and private sector included in the ratio of 1:3 which is a bias , by increasing the sample size with equal percentage can alleviate the bias. The household structure shows the proportion of nuclear family had less significant in association with overweight/ obesity which is similar to study of sonalsureshbhaiGamit et al[13] done in urban area(63%) and Keerthan Kumar M et al[14]. In this study, 67.2% of student eating outside more than three times a week, 23.1% snacking more than three time a week and 27.5% of students with screen time of more than 3 hours and 17.2% of students with screen time of 1 – 3 hours had increased association with overweight/ obesity which is similar to the study of S. Jain et al (2010)[15], S. Patanaik et al(2010)[16], Kuriyan R et al (2011)[17] and JagadishP.Goyal et al (2011)[18]. In this study 26.8 % of students with overweight / obesity hadmore physical activity of more than 3 times a week which was similar with the study of JagadishP.Goyal et al(2011)[18]and in contrast with the study of Rajat Vohra et al (2011)[19]Previous sampling done in the karaikal community among adolescent showed higher percentage of children showing outdoor physical activity only between 15 – 30 minutes. Hence cutoff time of 30 minutes was used. Increasing the sample size may prove/ disprove the use off 30 minutes cut off. In this study 55.1% children using motor transport as conveyance had higher association of overweight / obesity which was similar to the study of Ranurawat et al(2012)[20]and Kotain MS et al(2010)[21].

V. Conclusion

More than one fifth of the school children were overweight/ obese in this study. This study highlights that overweight/ obesity is an emerging health problem even in semi urban region of karaikal region and life style factors like snacking, eating outside, screen time and motor transportation were found to be significant predictors of overweight/ obesity. Encouraging physical activities, reducing screen time and avoiding junk foods may be implemented to reduce the risk of overweight/ obesity in adolescents to promote a healthy adult life.

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