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RESEARCH ARTICLE

TO CORRELATE THE LIFE STYLE WITH BODY MASS INDEX AND NUTRIENT INTAKE IN ADOLESCENTS

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ABSTRACT

Good health not only implies freedom from disease but physical, mental and emotional fitness as well. Dietary and lifestyle behaviors among adolescents are risk factors for several chronic diseases in adulthood. The objective of the study to evaluate the dietary habits and Life Style including physical activity, sedentary behaviors etc on the health in adolescents. Selecting 100 adolescents of age group 12-18 years in Agra district. Significant effect of exercise, market made food, watching television etc. was observed on obesity among adolescents

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INTRODUCTION

In recent years, obesity among children and adolescents has emerged as a global epidemic and India is facing the epidemic of obesity and its associated diseases, especially in children and adolescents. Optimum and good nutrition is used to indicate that the supply of the essential nutrients is correct in amount and proportion (Khosla, 2012). There is compiling evidence that dietary habits and lifestyle during adolescence are risk factors for several nutrition related on-communicable diseases in adulthood (WHO, 2002). Understanding the dietary patterns and lifestyle behaviors of both children and adults is an essential step in constructing an effective intervention programme to prevent diet-related diseases. factors associated with obesity among15–18-year-old schoolchildren (Nasreddine *et al*., 2009), showed that carbohydrate and saturated fatty acid intakes were significantly higher among obese than non-obese children, and the contribution of bread, meat and sugar to daily intake was significantly higher among boys than girls There is growing evidence that in present conditions, perhaps due to decreased physical activities, sedentary life style, altered eating and increased fat content of the diet. Children and adolescents are overweight as compared to their contemporaries in the past.

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In recent years increase of fast food consumption with constant low consumption or some recommended food are observed in the world (Wierzbica and Rozkowski, 2005). The present study also throws some light on the importance and ill effect of sedentary life style which is most responsible factor to create several problems related to respiration circulation, metabolism and complication related to health problems i.e. obesity etc. The current study aimed to correlate the life style with body mass index and nutrient intake in adolescents.

MATERIALS AND METHODS

A survey was conducted on adolescents of Agra city in Uttar Pradesh, India. Multistage stratified random sampling technique was used for selecting 100 samples of age group 12-18 years were selected from two coaching institute in urban area of Agra district. Information was collected regarding general information, life style and dietary pattern among the adolescents. The lifestyle section included questions on the hours spent watching television, using the Internet, sleeping, physical activity and the effect of stress on eating. The objective of the study and information in the questionnaire were explained to the students by qualified nutritionists, who also supervised the collection of the data.The 24 hours recall method was used in the present study. A previously pretested validated questionnaire was used to collect the data.

The questionnaire consisted of two sections:

- To assess the health status through anthropometric measurements
- Effect of Lifestyle habits on the health (obesity).

RESULT AND DISCUSSION

To assess the health status through anthropometric measurements

Table 1. Distribution of adolescents according to their Height

Height (in cms)	Adolescents	
	Number	Percentage
140 - 150	10	10.0
150 – 160	50	50.0
160 -170	31	31.0
170 -180	9	9.0
Total	100	100.0

Above table indicates the distribution of adolescents according to their height. Out of the selected adolescents, majority of them (50.0%) were having 150 – 160 cm of height, followed by 31.0% of 160 to 170 cm and the minimum (9%) were having 170 to 180 cm height.

Table 2. Distribution of adolescents according to their weight

Weight (in Kgs)	Adolescents	
	Number	Percentage
30 -40	7	7.0
40 -50	46	46.0
50 -60	31	31.0
60 and above	16	16.0
Total	100	100.0

Above table indicates the distribution of adolescents according to their weight. Out of the selected adolescents, majority of them (46.0.0%) were in the weight group of 40 to 50 Kg, followed by 31.0% of 50 to 60 Kg and the minimum (7%) were in the weight group of 30 to 40 Kg in the present study

Table 3. Distribution of adolescents according to their Body Mass Index

Body Mass Index	Adolescents	
	Number	Percentage
15 - 20	53	53.0
20 -25	43	43.0
25-30	4	4.0
Total	100	100.0

Above table indicates the distribution of adolescents according to their weight. Out of the selected adolescents, majority of them (46.0.0%) were in the weight group of 40 to 50 Kg, followed by 31.0% of 50 to 60 Kg and the minimum (7%) were in the weight group of 30 to 40 Kg in the present study[5]

Effect of life style on health (obesity) among adolescents

Table 1. Distribution of adolescents according to their type of work

Type Of Work	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Light	24	24.00	10	41.67
Moderate	76	76.00	26	34.21
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity among the selected adolescents. In the present study the prevalence of obesity was 36.0% which was more among the students engaged in light work 41.67% as compared to students engaged in moderate work 34.21%.

Table 2. Effect of sleeping hours on health (Obesity) among the adolescents

Sleeping hours	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Upto 7	24	24.00	8	33.33
7 and more	76	76.00	28	42.42
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was more among the adolescents who reported that they slept more than 7 hours (42.42%) as compared to adolescents who slept upto 7 hours.

Table 3. Effect of time of sleeping hours on health (Obesity) among the adolescents

Time of Sleeping	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Before 12 pm	88	88.00	32	36.36
After 12 pm	12	12.00	4	33.33
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was more among the adolescents who slept before 12pm (36.36) as compared tothose adolescents who slept after 12pm.

Table 4. Effect of exercise on health (obesity) among the adolescents

Exercise	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Yes	26	26.00	9	34.61
No	74	74.00	27	36.48
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was more among the adolescents who reported that they did not do exercise (36.48%) as compared to those who did not do exercise (34.61%).

Table 5. Effect of vehicle used on health (obesity) among the adolescents

Vehicle used	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Cycle	15	15.00	4	26.66
Auto	44	44.00	20	45.45
Two wheelers	23	23.00	8	34.78
Others	17	17.00	4	23.52
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was more among the adolescents who reported that they go to school by auto followed by two wheelers were (34.78%), (26.66%) in those who go by cycle minimum in others (23.52%).

Table 6. Effect of watching television on health (obesity) among the adolescents

Vehicle used	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Yes	98	98.00	34	34.69
No	02	2.00	2	100.00
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was more in adolescents who reported that they watched television (34.69%) as compared to those who did not watch (100%).

Table 7. Effect of Fast food on health (obesity) among the adolescents

Taken Fast Food	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
No	1	1.00	0	0.00
Daily	20	20.00	13	13.00
Once a week	57	57.00	18	18.00
Once a fortnight	3	3.00	0	0.00
Once a month	19	19.00	5	26.31
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was maximum among adolescents who consumed fast food daily (65.00%), Followed by a week (31.575) ,and minimum 926.31%) among adolescents who consumed fast food once a month.

Table 8. Effect of watching television on health (Obesity) among the adolescents

Watching T.V	Respondents			
	Total		Obese	
	Number	Percentage	Number	Prevalence
Yes	98	98.00	34	34.69
No	02	2.00	2	100.00
Total	100	100.00	36	36.00

The above table reveals the prevalence of obesity was 36.0% which was more in adolescents who reported that they watched television (34.69%) as compared to those who did not watch (100%), (Bin Zaal, 2009 and KANERIA, 2006). The Table-8 shows the mean intake of various nutrients among the normal and obese adolescents. Mean nutrient intake of protein, vitamin A, calcium, vitamin C, iron, fat and niacin riboflavin, carbohydrate and fiber were found more in normal adolescents as compared to obese adolescents. While the mean nutrient intake of calories, vitamin B_1, niacin and sodium was found to be more in obese adolescents as compared to normal adolescents. Statistically, no significant differences regarding all nutrient intakes were observed between the normal and obese adolescents, even at 5% level of significance (HIMES, 2006 and Musaiger, 2011). Table-10 reveals the correlation between body mass index with various nutrient intakes among the adolescents. Positive and insignificant correlations were observed between the body mass index with nutrient intake of calories, calcium vitamin A, vitamin B_1, carbohydrate , fiber, fat, riboflavin and niacin were observed among the adolescents even at 5% level of significance.

Table 9. Mean intake of various nutrient intakes among the normal and obese adolescents

Nutrient Intake	Unit	Adolescents				Statistical Values	
		Normal (N=64)		Obese (N=36)			
		Mean	SD	Mean	SD	t	p
Calories	kcal	2535.96	133.88	2545.09	125.52	0.332	>0.05
Protein	gm	63.72	4.45	62.75	5.43	0.965	>0.05
Calcium	mg	875.21	260.73	866.48	187.06	0.177	>0.05
Vitamin A	µg	2415.23	145.09	2404.34	174.79	0.334	>0.05
Vitamin B_1	mg	1.32	0.40	1.33	0.51	0.108	>0.05
Vitamin C	mg	42.35	4.82	42.28	4.33	0.072	>0.05
Iron	mg	32.93	4.40	32.49	4.34	0.504	>0.05
Fat	gm	37.54	8.39	36.99	8.96	0.307	>0.05
Riboflavin	mg	1.50	0.05	1.50	0.06	0.000	<0.05
Niacin	mg	17.59	2.34	17.58	2.25	0.021	>0.05
Carbohydrate	gm	223.21	46.98	217.69	30.19	0.649	>0.05
Fibre	gm	5.84	1.93	5.97	1.69	0.338	>0.05
Sodium	mg	130.38	31.17	130.38	31.17	0.000	>0.05

Table 10. Correlation between body mass index with various nutrient intakes among the adolescents

Parameters	Unit	Statistical Values				
		Mean	SD	r	t	p
Body Mass Index		22.81	3.73			
Calories	Kcal	2539.24	131.01	-0.060	0.595	>0.05
Protein	gm	63.37	4.85	-0.046	0.456	>0.05
Calcium	mg	872.07	236.90	+0.001	0.10	>0.05
Vitamin A	µg	2411.31	156.52	+0.065	0.645	>0.05
Vitamin B_1	mg	1.32	0.45	+0.071	0.705	>0.05
Vitamin C	mg	42.32	4.65	-0.023	0.228	>0.05
Iron	mg	32.78	4.38	-0.123	1.227	>0.05
Fat	gm	37.34	8.60	+0.016	0.059	>0.05
Riboflavin	mg	1.50	0.06	+0.057	0.565	>0.05
Niacin	mg	17.59	2.31	+0.004	0.040	>0.05
Carbohydrate	gm	221.22	41.80	+0.025	0.249	>0.05
fiber	gm	5.89	1.85	+0.085	0.845	>0.05
sodium	mg	133.97	36.37	-0.015	0.149	>0.05

While Negative and insignificant correlations between body mass index with nutrient intake of protein, Vitamin C, sodium iron, a was observed among the adolescents even at 5% level of significance.

Conclusion

From our study it is evident that prevalence of obesity was more among the adolescents who engaged in light work as compared to those who were engaged in moderate work, significant effect of exercise, non-vegetarian diet, market made food, fast food addiction, sweets, ice-cream were observed on obesity among the adolescents. Mean nutrient intake of calorie was found to be more in obese adolescents as compared to normal adolescents. Sedentary life style, lack of exercise watching television was the factors which negatively affected the health of adolescents. Furthermore, these data could be used as base-line Information for the comparison of food habits and lifestyles, before and after the conflict. This will reflect the effect size of the conflict on dietary and lifestyle habits of adolescents. The present study shows unhealthy lifestyles and is likely to help the mothers of adolescents to gain and understanding of the relationship between diet and health status of their child as well as methods and measures of prevention and control of major health hazards faced by them. Primary prevention of obesity by promoting active lifestyles and healthy diets should be a national public health priority.

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