

Original Research Article

## Food Habits and Risk Factors Associated with Obesity in Adolescents of District Anantnag of Kashmir Valley

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**Abstract:** Obesity or overweight is defined as the generalized accumulation of excess adipose tissue (fat) in the body resulting in an increase of more than 20 percent of the desirable weight. According to the WHO obesity has spread worldwide affecting over 300 million adults over 115 million people in developing countries. Obesity is a hindrance leading to breathlessness on moderate exertion and leads many dreadful diseases like hypertension. Diabetes, fatty liver, heart diseases, gallbladder and osteoarthritis of joints. It invites disability, disease and premature deaths. It is a chronic disease. In the literature, we observe a number of causes and factors responsible for obesity. Obesity is more common in Kashmir valley due to faulty dietary practices and accepting sedentary life style. It is our duty to maintain weight of our body at an early stage of life otherwise life expectancy may decrease. In the present study, we examine 400 adolescents from the district Anantnag of Kashmir valley at random using appropriate statistical technique to identify the common causes of obesity and to assess the food habits of the studied population. The data collected was analysed using suitable statistical tools. The results obtained in this study revealed that obesity is significantly correlated with factors like Socio-economic status, Gender and Parental education of an individual.

**Keywords:** Nutritional Status, Socio-economic status, Obesity, Correlation, Random Sampling.

### INTRODUCTION

For the first time in human history, the number of overweight rivals the number of underweight, according to a report from the Worldwatch Institute, a Washington, DC-based research organization. In 1999, the world's underfed population was 1.1 billion showing a decline since 1980, while the number of overweight people was 1.1 billion showing an increase [1]. At the other end of the malnutrition scale, obesity is one of today's most blatantly visible – yet most neglected – public health problems [2]. Malnutrition, as understood now, encompasses a whole spectrum of nutritional disorders including overweight and obesity. The public health impact is enormous: more than half of the world's disease burden-measured in "years of healthy life lost"-is attributable to hunger, overeating, and widespread vitamin and mineral deficiencies [1].

Paradoxically coexisting with under nutrition, an escalating global epidemic of overweight and obesity - globesity – is taking over many parts of the world. If immediate action is not taken, millions will suffer from

an array of serious health disorders [1]. Obesity has become a worldwide phenomenon cutting across regional and economic barriers. Childhood obesity has emerged as an epidemic not only in the developed countries but also in the developing countries that are in rapid epidemiological transition, and India is no exception [5]. Children of all ages are fatter now than they were before [3]. Ten percent of children, or at least 155 million youngsters worldwide, are overweight or obese [4]. During the past 3 decades, there has been a dramatic increase in childhood obesity in United States. The rate has more than tripled, and the current prevalence remains high among children across most age, sex, racial/ethnic and socio-economic groups. In light of these trends, childhood obesity continues to be viewed as a major public health problem in many parts of the world .

The magnitude of overweight ranges from 9% to 27.5% and obesity ranges from 1% to 12.9% among Indian children. It is noticed that, what was once a health problem for the industrialized world with its high

calorie foods, labour-saving devices and dwindling levels of physical activity has now spread to developing countries. Countries like Thailand, Iran, Nigeria and Brazil have also reported unprecedented levels of obesity with substantially rising trends every year [4]. Overweight and obesity are a matter of growing concern in India also. Children belonging to high school/senior secondary classes are particularly vulnerable to external factors owing to newly found independence and the influence through peer pressure and exposure to media [4].

The transition in nutrition and lifestyle, e.g., popularity of fast foods, soft drinks, sedentary life style and lack of exercise, increased television watching and computer use are the common trends adopted by children today. These may be the causes of overweight seen in children and adolescents of both rural and urban areas [6]. Obesity affects both the mental and physical health. The potential medical complications like hypertension, coronary artery disease, diabetes mellitus, dyslipidemia and psychological issues of depression, poor self image and difficulties in both the home and social environment add to the woes [4].

The greater concern is that the risk of overweight during childhood and adolescence will persist into adulthood which becomes very difficult to prevent or treat. Childhood obesity is the prelude to a public health disaster that we will have to deal within the new millennium. There is an urgent need to address the problem. Obesity among adolescents is common in Kashmir as well. Hence the present study entitled "Food habits and risk factors associated with obesity in Adolescents of District Anantnag of Kashmir valley" is undertaken to estimate the prevalence of obesity among school going adolescents in the study area, to find the relation of obesity with socio-economic status, gender and parental education, to identify the common causes of obesity, to assess the intake of nutrients among adolescents and to assess the food habits of adolescents.

## MATERIAL AND METHODS

The school based study was conducted on 400 adolescents, in the age group of 13-18 including equal number of boys and girls. The study was done in Govt and private schools of Anantnag district of Kashmir valley. The sample was selected, using three stage random sampling procedure. In the first stage, educational zones were selected, the second stage comprised of schools and the third stage represented students. Educational zones were selected using probability proportional to size, schools and students were selected by simple random sampling. A well designed pre-tested questionnaire was used to collect the information from the students selected as a sample. The data collected was compiled in Excel spreadsheet and analyzed by using SPSS software.

## RESULTS AND DISCUSSION

Obesity is a global nutritional concern. The prevalence of obesity is high in developed countries and similar trends are being observed in recent years among children from developing countries [7, 8]. School based data on obesity in India shows a prevalence of 5.6-24% among children and adolescents. The large range in the reported prevalence of overweight and obesity could be due to regional differences, non-uniformity in the criteria used to classify socio-economic status and the different age range of children studied. In the present study prevalence of overweight among girls was 3.5% and among boys it was 2%, 1.5% girls and 1% boys were obese. Table 1 provides the results. As income increased prevalence of over wt/obesity too increased steadily.

Prevalence also increased with better occupation of the father. Table 2 provides the results. Family history of overweight/obesity is very important in this study as numerous studies have shown the genetic trait as important for the prevalence of obesity. Here, the parents and siblings are reported as overweight/obese according to the perception of the student. As seen in Table-3, prevalence was 10.78% among adolescents who perceived their fathers to be Overweight/obese. This finding substantiates the earlier studies that children with overweight/ obese parents have more risk of being overweight /obese. Similarly, prevalence was 9.28% among adolescents who perceived their mothers to be overweight /obese.

The prevalence was 8.91% among adolescents whose grandparents were obese. One of the major reasons for childhood obesity is watching television or using computers. Physical inactivity has not only a prime role in the development of overweight and obesity, but also in the development of chronic diseases such as heart diseases, diabetes, hypertension, cancers and osteoporosis in later life. Sedentary lifestyle and lack of physical activity contributed most to the prevalence of overweight/obesity (Table-4). When the distance of school increased from the place of residence, prevalence also increased. Prevalence among those using vehicles was 7.59% compared to 6.20% among those walked/cycled to school. Those students who did routine work at home at least twice a week had a lower prevalence compared to those who did not do any work. Prevalence between those who did not play was (28.57%) and those who played was (3.73%) p value was <0.01. Being an active member of any sports team with regular practice sessions show a reduced prevalence of 5.63 % compared to others.

Eating out has become a trend these days. youngsters prefer to go out with their friends for meals, though families also go out together. Majority of adolescents like to eat meals outside home and prefer junk food over regular meals [9]. In our study, majority of Overweight /obese students ate chips, burgers,

sandwiches, biscuits biriyani compared to others (Table-5). Similarly, they consumed sweets, fizzy drinks, snacks, pastries, milk, butter, ice cream, and chocolates. The data presented in Table 6 reveals that

statistically there is a significant difference between boys and girls in consumption pattern with respect to calories, proteins, fat and carbohydrates. The results obtained are in agreement with the earlier studies.

**Table 1: Categorization based on BMI**

BMI	Frequency	Girls	Boys
Overweight	11	7 (3.5%)	4 (2%)
Obese	5	3 (1.5%)	2 (1%)
Normal	339	172 (86%)	167(83.5%)
Underweight	45	18 (9%)	27 (13.5%)
Total	400	200	200

**Table 2: Socio-economic status and prevalence**

Household Monthly Income	Non Overweight /Obese	Overweight /Obese	Total	Chisquare / Pvalue
<5000	24 (96.0%)	1 (4%)	25	$\chi^2 = 14.150$ , P=0.007
5000-15000	87 (93.55%)	6 (6.45%)	93	
15000-25000	96 (94.11%)	6 (5.88%)	102	
25000-30000	103 (89.57%)	12 (10.43%)	115	
>30000	51 (78.46%)	14 (21.154%)	65	
<b>Occupation of Father</b>				
Business	101 (87.83%)	14 (12.17%)	115	$\chi^2 = 4.756$ , P= 0.191
Govt.Service	57 (86.36%)	9 (13.64%)	66	
Semi-Govt	110 (94.83%)	6 (5.17%)	116	
Labour	91 (88.34%)	12 (11.65%)	103	
<b>Occupation of Mother</b>				
Business	57 (91.54%)	5 (8.06%)	62	$\chi^2 = 1.542$ , P=0.673
House-wife	159 (92.98%)	12 (7.02%)	171	
Govt-service	132 (89.19%)	16 (10.81%)	148	
Labour	17 (89.47%)	2 (10.53%)	19	

**Table 3: Family history and prevalence of over weight/obesity**

Overweight/ Obesity in Father	Non Overweight /Obese	Overweight /Obese	Total	Chisquare /Pvalue
YES	91 (89.21%)	11 (10.78%)	102	$\chi^2 = 4.135$ , P=0.042
NO	283 (94.97%)	15 (5.03%)	298	
<b>Overweight/Obesity in Mother</b>				
YES	88 (90.72%)	9 (9.28%)	97	$\chi^2 = 4.177$ , P=0.041
NO	29 (96.03%)	12 (3.96%)	303	
<b>Overweight/Obesity in Sibling</b>				
Yes	87 (88.78%)	11 (11.22%)	98	$\chi^2 = 6.282$ , P=0.012
NO	289 (95.70%)	13 (4.30%)	302	
<b>Overweight/Obesity in Grand parents</b>				
Yes	92 (91.09%)	9 (8.91%)		$\chi^2 = 3.640$ , P=0.056
No	287 (95.99%)	12 (4.01%)		

**Table 4: Physical activity and prevalence of over weight and obesity**

Distance of residence from school	Non Overweight /Obese	Overweight/ Obese	Total	Chisquare /P-value
0-5 kms	94 (93.07%)	7 (6.93%)	101	$\chi^2 = 0.101$ , P= .951
5-10 kms	177 (93.65%)	12 (6.35%)	189	
>10 kms	102 (92.73%)	8 (7.27%)	110	
<b>Conveyance to school</b>				
Using vehicles	146 (92.41%)	12 (7.59%)	158	$\chi^2 = 0.296$ , P=0.586
Not using vehicles	227 (93.80%)	15 (6.20%)	242	
<b>Routine work</b>				
Yes	232 (90.31%)	14 (5.69%)	246	$\chi^2 = 1.138$ , P=0.286
No	141 (91.56%)	13 (8.44%)	154	
<b>Outdoor Games</b>				
No	10 (71.42%)	4 (28.57%)	14	$\chi^2 = 16.441$ , P=0.01
1-8hrs/week	232 (96.26%)	9 (3.73%)	241	
>8hrs/week	137 (94.4%)	8 (5.51%)	145	
<b>Member of sports team</b>				
Yes	229 (95.42%)	11 (4.58%)	240	$\chi^2 = 0.219$ , P=0.640
No	151 (94.36%)	9(5.63%)	160	
<b>Time spent on Tv/Pc</b>				
None	10 (83.33%)	2 (16.66%)	12	$\chi^2 = 3.81$ , P=0.12
<8 hrs /week	142 (95.30%)	8 (5.36%)	149	
>8 hrs /week	229(95.81%)	10(4.18%)	239	
<b>Hobbies</b>				
Involving physical activity	235 (95.53%)	11 (4.47%)	246	$\chi^2 = 0.376$ , P=0.540
Not involving activity	145 (94.16)	9 (5.84%)	154	
<b>Tuition</b>				
Yes	234 (94.74%)	13 (5.26%)	247	$\chi^2 = 0.001$ , P=.988
No	145 (94.77%)	8 (5.23%)	153	
<b>Conveyance to tuition</b>				
Using vehicles	223 (94.09%)	14 (5.91%)	237	$\chi^2 = 0.186$ , P=0.667
Not using vehicles	155 (95.09%)	8 (4.91%)	163	
<b>Daytime sleep</b>				
Yes	215 (94.30%)	13 (5.70%)	228	$\chi^2 = 0.042$ , P=0.83
No	163 (94.97%)	9 (5.23%)	172	

**Table 5: Diet and prevalence of over weight/obesity**

Items	Non Overweight /Obese	Overweight /Obese	Total	P-value
Ice-cream	323	32	355	<0.01
Chips	253	122	375	<0.01
Soft-drinks	314	6	320	<0.01
Pizza	313	57	370	<0.01
Burger	246	144	390	<0.01
Pastries	248	62	310	<0.01
Sandwiches	206	194	400	>0.01
Samosa	365	35	400	<0.01
Biscuits	324	76	400	<0.01
Noodles	185	61	246	<0.01
Biryani	348	49	397	<0.01

**Table 6: Comparison between boys and girls with respect to calories, proteins, fat and carbohydrates**

Consumption	Boys	Girls	P-value
	Mean ± Sd	Mean ± Sd	
Calories	2210 ± 321.13	2040 ± 252.21	<0.01
Proteins	62.9 ± 12.98	55.93 ± 13.12	<0.01
Fat	15.59 ± 9.83	12.29 ± 7.04	<0.01
Carbohydrates	451.6 ± 63.8	424.4 ± 56.0	<0.01

**CONCLUSION**

In conclusion, we report the prevalence of overweight among school going adolescents of Srinagar district of J&K is 3.5% Among girls and 2% among boys and that of obesity is 1.5% and 1% respectively. There was a strong association of this prevalence with family history of overweight/obesity in parents, grandparents and sibling. Lack of physical activity also showed an increased association with prevalence. Dietart pattern showed increased consumption of chips, chocolates, soft-drinks, biscuits, pastries etc among adolescents which could contribute to obesity in future. Physical in activity was also seen among children of higher income groups and among private school students compared to children belonging to lower income groups from Govt schools. Underweight was also seen among Govt. school students belonging to lower income groups having illiterate parents. There is an urgent need to address the problem of overweight and obesity in all age groups in both rural and urban settings to prevent the risk of diseases associated with it.

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