

Magnitude of Obesity and Its Contributory Factors in School Going Children of Affluent Families of Rawalpindi and Islamabad, Pakistan

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Submitted:

March 17, 2017

Accepted:

May 8, 2017

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Citation: Sultana F, Abdullah Z, Farrukh Z. Magnitude of obesity and its contributory factors in school going children of affluent families of Rawalpindi and Islamabad, Pakistan. *J Rehman Med Inst.* 2017 Jul-Dec;3(3-4):25-8.

ABSTRACT

Introduction: Childhood obesity is increasingly becoming a global nutritional issue, with prevalence more in children of affluent families. It is important to identify contributory factors early, so that lifelong prevention can decrease associated morbidity.

Objectives: To determine the magnitude of obesity and its contributory factors in students of affluent families from Rawalpindi and Islamabad, Pakistan.

Materials & Methods: A cross-sectional descriptive survey was performed from August to October 2013 on 1360 students from affluent families attending different schools of Rawalpindi and Islamabad. Data were collected after informed consent on a structured questionnaire. Other than demographic data, it contained variables of dietary habits and physical activity status of students. Data were analyzed by SPSS 19 for descriptive statistics.

Results: The sample included 48.3% male and 51.7% female students, 84.7% aged 10-15 years. Only 2.3% had a BMI over 25; 20.7% students had been overweight as children, while 54.6% had an obese family member. Majority (87.3%) of students watched Television (TV) daily, 24.5% for 3 hours or more. Laptops were used daily by 89.9% students, 21.7% for 3 or more hours. Only 41.2% played outdoor games daily, with 21.1% not playing outdoor games. Regarding sleep, 56.9% students were late night sleepers. Carbonated drinks were consumed by 84.2% students, and bakery items were preferred by 95% students. Late night snacks were taken by 35.4% students.

Conclusions: Obesity in the school children sampled was much lower than reported in western affluent societies; however, contributory factors were present in fairly high proportions.

Keywords: Prevalence; Obesity; Adolescents; Socio-Economic Status; Diet.

The authors declared no conflict of interest. All authors contributed substantially to the planning of research, data collection, data analysis, and write-up of the article, and agreed to be accountable for all aspects of the work.

INTRODUCTION

In recent past, the number of obese young people has increased globally, considerably in affluent families. The consequence of childhood overweight and obesity are serious; being overweight and obese can cause medical problems like heart disease, hypertension, and other diseases. Obesity during early days has been associated with higher rates of sickness and death in adulthood.¹

Overweight and obesity are identified by health professionals through calculating the BMI (Body Mass Index). Obesity is categorized into three classes. BMI score of 30-34.9 is described as class I Obesity, and BMI of 35-39.9 is described as class II, lastly score of 40 or higher is categorized as class III obesity.²

As in all other facets of life, parents exert tremendous influence on dietary and physical activities of their children. Their eating habits, exercise, and presence of obesity are affected by examples set by parents. It is common for obesity to run in families; research has shown that if either of the parents is obese their children will be obese during adolescence or adulthood.³

Local community plays a central role in the development of children as it is the first social group that youth encounter beyond their families.⁴ Children's behaviour is closely linked with their surroundings. They need safe and secure places near their homes to play and indulge in outdoor activities. As the number of security-related incidents, pedestrian injuries and deaths climb, parents are more likely to keep children away from natural environments. The community environment affects children's weight, as it shapes their eating habits and level of physical activity.⁵

Schools have prolonged and intense contact with children during their early stages of life. Schools can positively impact on children's health by educating

children on nutrition, providing healthy food and promoting physical activity.⁶

Research has shown that results of treatment for overweight and obesity are more encouraging in children than in adolescents or adults.⁷ Prevention efforts with children tend to have more long-term successes.⁸

There are diverse approaches for the treatment of obesity and overweight in adolescent and children, including educational, medical, family and school-based treatments.⁹

The present study was conducted to determine the magnitude of obesity and its contributory factors in school children of affluent families attending different schools of Rawalpindi and Islamabad, Pakistan.

MATERIALS & METHODS

A school-based cross-sectional survey was conducted in selected schools of Rawalpindi and Islamabad, Pakistan on students of class six to matric or A-level belonging to affluent families. The calculated sample size was 1500 students. Institutional ethical approvals were obtained and informed consent was taken from every student. Subjects were selected by purposive and convenience sampling, and absent students were excluded. An attempt was made to include students 10 to 18 years of age.

Data were collected through a mixed structured questionnaire containing relevant demographic data, dietary habits, and contributory factors of obesity such as physical activity, sedentary life style and types of food consumed. Data were analyzed for descriptive statistics using the Statistical Software SPSS 19.

RESULTS

Out of 1500 students, 1360 (90.7%) responded; however, there was variation in sample size responses to different variables and data are analyzed on that basis.

Demographic data are presented in Table 1; 48.3% students were male and 51.7% female; most students (1145, 84.7%) were aged 10-15 years.

Regarding their obesity status, 1026 (77.4%) had a BMI <18, and 30 (2.3%) had a BMI over 25; 20.7% students were overweight in their early childhood, 54.6% currently had some obese member in the family, and 53.6% knew what obesity was.

Though 87.3% students watched Television (TV) daily, 35% watched it for 1 hour daily, and 26.8% for 2 hours; however, 24.5% watched TV daily for 3 hours or more.

Majority of students (89.9%) used laptops, 47.3% using it for one hour daily, and 20.9% for 2 hours daily; 21.7% used laptops for 3 or more hours a day.

For physical activity, 41.2% played outdoor games daily, 37.6% occasionally, and 21.1% played no outdoor games.

Regarding sleep, 56.9% students were late night sleepers.

#	Demographic variables	Frequency	Percentage
1.	Gender (n=1356)		
	Male	655	48.3
	Female	701	51.7
2.	Age Groups (years) (n=1353)		
	< 10	6	0.4
	10 – 12	392	29.0
	13 – 15	753	55.7
	16 – 18	190	14.0
	> 18	12	0.9
3.	BMI Groups (n=1325)		
	< 18	1026	77.4
	18 – 21	196	14.8
	21.1 – 25	73	5.5
	25.1 – 28	22	1.7
	28.1 – 30	5	0.4
	≥ 30.1	3	0.2
4.	Overweight as a child (n=1301)		
	Yes	271	20.7
	No	1038	79.3
5.	Obese family members (n=1270)		
	Yes	694	54.6
	No	576	45.4
6.	Knowledge about obesity (n=1336)		
	Yes	663	53.6
	No	573	46.4
7.	Time spent watching TV daily (n=1360)		
	None	173	12.7
	1 hour	476	35.0
	2 hours	364	26.8
	3 hours	157	11.5
	> 3 hours	190	14.0
8.	Time spent on laptops / day (n=1359)		
	None	137	10.1
	1 hour	643	47.3
	2 hours	284	20.9
	3 hours	92	6.8
	> 3 hours	203	14.9
9.	Outdoor games daily (n=1352)		
	Yes	558	41.3
	No	285	21.1
	Occasional	509	37.6
10.	Late night sleeper (n=1339)		
	Yes	762	56.9
	No	577	43.1

Table 2 presents the data of food habits of students. Majority of students (71.2%) ate breakfast daily, and 75% of them had meat during lunch; vegetables at lunch were consumed by 66.8% and fruits by 73%. Carbonated drinks were consumed daily by 84.2% of students, most (60.3%) having one such drink daily; 23.9% had two or more carbonated drinks per day. Preference for bakery items was found in 95% of students. The usual dinner time was 8-9 pm for the majority (82.4%), while 17.6% took dinner as late as 10-11 pm. However, habit of late night snacks was present in 35.4% students.

#	Food Habits	Frequency	Percentage
1.	Regularity of taking breakfast (n=1347)		
	Yes	959	71.2
	No	388	28.8
2.	Lunch menu variety (n=1342)		
	Meat	1007	75.0
	Vegetables	896	66.8
	Fruit	979	73.0
3.	Carbonated drinks / day (n=1360)		
	None	215	15.8
	One	820	60.3
	Two	193	14.2
	Three	132	9.7
4.	Preference for bakery items (n=1233)		
	Yes	1171	95.0
	No	62	5.0
5.	Dinner Time (n=1338)		
	8 pm	537	40.1
	9 pm	566	42.3
	10 pm	175	13.1
	11 pm	60	4.5
6.	Late night snacks (n=1130)		
	Yes	400	35.4
	No	730	64.6

Figure 1 details the provision of money or lunch for students from their homes. Almost half of the students (49.6%) obtained money for lunch, 21.4% brought their own lunch from home, and 29% brought both money and lunch from home on a daily basis.

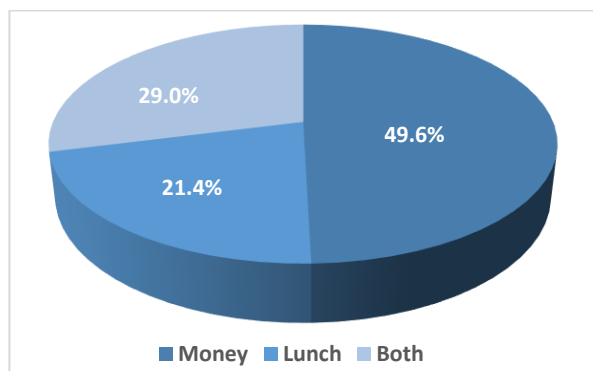


Figure 1: Provision of money or lunch from home to school children (n=1325).

DISCUSSION

One of the growing concerns affecting teenagers is the rise in the rate of teen obesity.¹⁰ It is a growing epidemic in the Western world.¹¹ In Pakistan, the teen obesity is also on the rise among the affluent families.^{12,13}

A study “Obesity in adolescents of Pakistan” was conducted in July 2003 on 10th-grade students from six school of Karachi.⁹ Results showed 17% were underweight, 65% were normal weight and 18% were overweight. 90% had the knowledge of medical consequences and 95% considered exercise as being an important tool for reducing weight.

Another study was conducted in Lahore, Pakistan, in June 2011 on children between 5-12 years of age.¹² The study showed 17% overweight, and 7.5% obese. Children living in urban areas with high socioeconomic status were significantly at risk for being overweight and obese. The study concluded that alarming rapid rise in overweight and obesity among primary school children of affluent families. The finding supports the urgent need for the national prevention strategy for childhood obesity.

The main concern are teenagers with BMI greater than 25.¹³ Some of the contributory factors noticed in the sampled school children were: obesity in family, being overweight as a child, watching TV for 3 hours or more daily, using laptops for 3 or more hours daily, not playing outdoor games, being late night sleepers, skipping breakfast, consuming preference for meat, carbonated drinks, and bakery items, late dinner timings, and habit of indulging in late night snacks.¹²⁻¹⁵

Children who are born obese have 50% more chances to develop obesity as an adult. The adolescents should be properly taught at school and also by their parents the hazards of being overweight and obese. The dietary and physical activity behavior of children and adolescents are influenced by many sectors of society including families, media and food/beverages industries etc.

Schools play a particularly critical role by establishing a safe and supporting environment with policies and practices that support healthy behavior. School also provide opportunities for students to learn about and practice healthy eating and physical activity behaviour, obese children need a complete medical examination by a paediatrician or family physician.

In the absence of physical disorder, the effective way to lose weight is to reduce the number of calories being eaten and to increase the level of physical activity.

Weight loss will only occur when there is self-motivation. It is the responsibility of parents rather than talking about fat and thin, to encourage their child to focus on practising the behaviour that promotes a healthy weight.

CONCLUSION

Obesity in the sampled school children belonging to affluent families of Rawalpindi and Islamabad, Pakistan was much lower

than reported from western literature. The identified contributory factors also appear amenable to appropriate modification and attenuation through targeted strategies.

ACKNOWLEDGEMENTS

I am deeply grateful to my supervisor, Brigadier (Retd.) Dr. Iqbal Ahmed Khan, for his kind guidance and support throughout my work.

My special thanks to the esteemed authorities of the selected schools for permission to collect data. They were very cooperative and tolerant and spared precious time to provide useful data.

I am especially thankful to my family who always cooperated through different phases of the study and stood by me during all times of need.

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