Association of Dietary Habits, Physical Activity and Sedentary Life Style with Obesity in School Going Children and Adolescent of Peshawar

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ABSTRACT

Background: Obesity is basically the imbalance between consumption and expenditure of energy leading to excessive deposition of adipose tissue and resulting in increase in body mass.
Objectives: To determine the association of food habits, physical activity and sedentary lifestyles with obesity in school children of Peshawar.
Material & Methods: this was a cross sectional analytical study carried out over a period of one year, june 2017 to june 2018, in different schools of peshawar. Probability sampling was done. 200 school going children of age 12 to 16 years of different private and public school of peshawar were inquired.
Results: Out of 200 school students, 84 (42%) were male while 116(58%) was females with mean age 14.2 years. 30 (15%) were found obese, 73 (36.5%) overweight and 97 (48.5%) normal. 16 obese and 49 overweight students have no outdoor games. Out of 200, 134 (67%) had having indoor games and 119 (59.5%) had more than one screen hour. The mean of Transport used was bicycle 47(23.5%), car 69 (34.5%) and motorcycle 41(20.5%). Where as 43 (21.5%) students had to walk instead of using any vehicle.
Conclusion: Dietary behaviours and high caloric diet (fast food), physical inactivity (prolonged screen time) and indoor games were strongly associated with obesity in school going children where as physical activity was inversely proportional to obesity. Based on these results, need to develop different strategy for diet and physical activity but should be according to our social and cultural values so that it can be practically applicable in our community.
Keywords: *childhood obesity, prevalence, overweight, obese, schools*

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INTRODUCTION

Obesity is basically the imbalance between consumption and expenditure of energy leading to excessive deposition of adipose tissue and resulting in increase in body mass up to 20% or more as compare to normal weight, height, age, and sexes of individuals.

Previously, it was known issue of high income nations but nowadays low income countries are facing this issue seriously. Statistics revealed that more than 30 million children in poor income countries and 10 million children in developed countries are overweight. According to 2015-2016, obesity is increasing in school going children and approximately 1 in 5 school children of 6 to 19 years were obese in USA.

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Globally, WHO reported (2016), 340 million children and adolescents aged 5-19 years were overweight or obese. Prevalence of overweight and obesity in children has grown intensely from 4% to 18%. In Brazil, 17% students were overweight and 6% were obese and identified three risk factors for obesity e.g. transport mode to school, computer practice, and heavy breakfast intake. Indian subcontinent showed high prevalence of overweight children and adolescents during last decade.

In Pakistan, obesity in school children is an emerging problem. As a developing nation, it is important to address this issue to decrease the disease burden.Various studies have identified risk factors associated with obesity in children and adolescent e.g. increase in screen time, e.g., watching television and playing computer games (48%), consumption of soft drinks and Fast foods (67%).

Keeping in view the increasing prevalence and crucial hazards of overweight and obesity in childhood, little effort has been done in our country. Therefore, identifying children who are at risk is important.

MATERIALAND METHODS

This was a cross sectional study over a period of one year, 1st June 2017 to 30th June 2018, carried out in schools of Peshawar. 200 school going children of age 12 to 16 years, from different private and public school of Peshawar were inquired. Permission was obtained from the administration (principals) of two private and public schools after thorough introduction and explanation of the study. Students from class 6th to 10th were included in our study. We excluded students who had systemic illnesses affecting the digestive system. Only the students fulfilling the study criteria were included in the study. We randomly selected students. Permission forms with detailed information sheet were given to the students, prior to collection of data and signed by their parents /guardians.

All selected students were interviewed and questionnaires filled under direct supervision of the trained researchers and support of relevant class teachers. Face-to-face interviews were conducted after verbal and written consent. Semi structured questionnaire, including questions related with age i.e.12-16 years, gender of students, school type, Food habits details were asked about breakfast skipping, lunch at school, meal skipping and fast food consumption. For sedentary life style, questions were asked about type of transport use e.g. cycle, motor cycle, bicycle, car, indoor games, screen time. In case of physical activity questions about outdoor games were asked. Anthropometric measurements, weight in kg were measured by Health Sense PS 126 Ultra-Lite Personal Scale (Grey) and height in meters was measured by simple measuring tape. BMI was calculated dividing weight in kg by height in (m^2). It was than categorized to obese, overweight, normal weight if BMI was more than 30, 25 -29 or less than 25 respectively. Keeping in view all precautions, data was collected. Data was analysed by using SPSS version 22. Chi square test were used to find out association of different variables with obesity. Significance was considered with p-value of less than 0.05.

RESULTS

Out of 200 school students, 84 (42%) were male while 116(58%) was female with mean age 14.2 years. 30 (15%) were found obese, 73 (36.5%) overweight and 97 (48.5%) normal. 13 (6.5%) male was obese and 17(8.5%) female was found obese.

Public school students were 155 (77.5%) while that of private was 45 (22.5%). In Private students 5(9.09%) were found obese, 22(40%) overweight and 18 (32.72%) normal. Of public school students 25(16.13%) were obese, 51(32.90%) overweight and 79(50.97%) normal as shown in figure 01.

Figure 01: Association of School type with Obesity

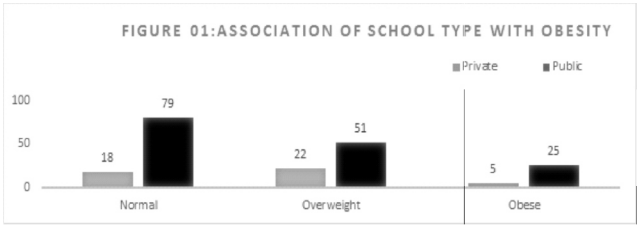


Figure 02 show 108 (54%) students skipped breakfast, of them 23 (21.296%) were obese, 36 (33.3%) overweight and 49 (45.37%) normal respectively.

Figure 02: Students who were skipping breakfast (Per week).

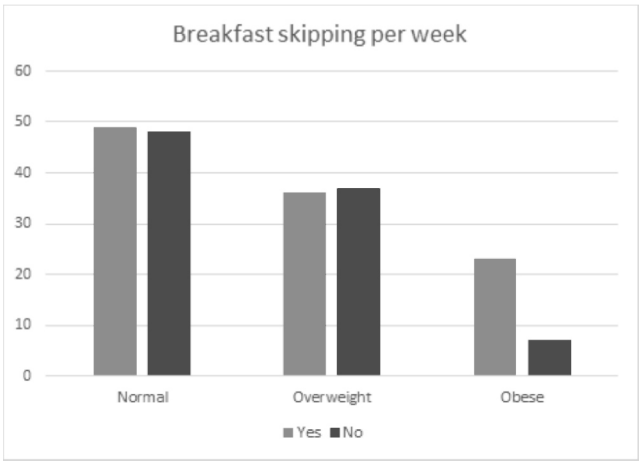


Table 01 show association of physical activity, 16 obese and 49 overweight students have no outdoor games. Out of 200, 134 (67%) had having indoor games and 119 (59.5%) had more than one screen hour. Transport found via bicycle was 47(23.5%), car 69 (34.5%) and motorcycle 41(20.5%). Where as 43 (21.5%) students walk, instead of using any vehicle.

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DISCUSSION

Current study showed girls were more overweight (25%) and obese (8.5%) as compare to boys (11.5%) and (6.5%) with p valve (0.002) showed significant results. Age specific statistics showed that children of 12 years showed less tendency for overweight (2%) and obesity (1%) whereas elder students of age 16 years showed more propensity for overweight (5.5%) and obesity (4.5%) with p value (0.043) showed strong association between advanced age and obesity. Students of public schools were more overweight (25.5%) and obese (12.5%) as compare to private school students with p value (0.036) showed significant association with obesity.

Fast food evidence supports strong association between dietary fat intake and obesity in school children and adolescents. Current study revealed increase consumption of fast food with obesity with the p value (0.001) showed significant association between obesity and fast food consumption in school going children and adolescents. An observational study revealed association between prepared food items and obesity in children. In a study of China, 6- to 13-year-old obese children were observed for 2 years revealed similar results. Statistics of 4 cities of China concluded 51.9% of Western fast food consumption and 43.6% of Chinese fast food intake at least once /week. Another study of Beijing concluded that snack and obesity, showed direct relationship among each other in children aged 218 years. Another study confirmed that regular staying and eating at fast-food outlets were associated with higher rate of obesity.

Table 01: Association of physical activity and obesity

Outdoor games	Normal	Overweight	Obese	Total
No	69 (51%)	49 (36 %)	16 (13%)	134
yes	28 (42%)	24 (36%)	14 (22%)	66
Total	97 (49%)	73 (36%)	30 (15%)	200

Table 02: Association of sedentary life style with obesity

INDOOR GAMES	NORMAL	OVERWEIGHT	OBESE	TOTAL	Chi-square	P-Value
Playing	59 (44%)	50 (37%)	25 (19%)	134	7.23	0.002
Not Playing	38 (57%)	23 (35%)	5 (7%)	66		
SCREEN TIME /DAY						
More THAN ONE HOUR	49 (41%)	47 (40%)	23 (9%)	119	8.857	0.001
Less THAN ONE HOUR	48 (59%)	26 (32%)	7 (9%)	81		
MODE OF TRANSPORT						
By walk	35 (81%)	6 (14%)	2 (5%)	43	20.65	0.003
Bicycle	32 (68%)	10 (21%)	5 (11%)	47		
Motor cycle	12 (29%)	23 (56%)	6 (15%)	41		
Car	18 (26%)	34 (50%)	17 (14%)	69		
Total	97	73	30	200		

The possible explanation of increased association of obesity and fast food could be due to the intake of fatty food at schools and hostels which may be associated with feeling of fullness. School children spend much of their day time at school, typically consuming one meal a day there. Samosy, pakory, burgers and other supplementary low quality food items which are fattening, available and accessible more easily at affordable rate in school premises. Food choices have altered from the conventional, low fat, fiber rich foods to more refined, sweetened, fat-rick, energy dense items due to increase propagation of prepared food items through media which also contribute to obesity.

Current study showed insignificant association between physical activity and obesity with p- value of 0.066. Another study concluded inverse relationship between physical activity (accelerometer determined) and obesity in children. Another study showed that mild level of physical activity causes less chances of obesity where as physical inactivity leading to obesity. Activity keep individuals weight steady. Increase physical inactivity, more chances of weight gain over time. In Western countries, more physically active children and adolescents have low levels of body fat. More sedentary behaviors so more involvement in decrease physical activity and energy outflow. Playing sports, jogging to get an hour of physical activity every day. All types of physical activity burn calories and reduce body fat so that is the reason physical activity is considered as protective factor for preventing obesity.

Present study reported that increase screen time viewing was associated with more chances of obesity with a p- value of (0.001) showed strong association with obesity in school students. In this study there was a positive association between longer periods of television viewing and BMI in both adolescents and children worldwide. There was a 10 to 27% increased risk of overweight or obesity in adolescents and children watching 13 hours of television per day, with adolescent females having a 45% increased risk when watching more than 5 hours of television per day. The strength of these associations are consistent with those found in previous studies. Adolescents spend more time in watching TV and less physical activity, more intake of unhealthy food worse school performance, and fewer family meals. In 2007-2008 a study conducted in Pondicherry (India) and found out 87.4% of respondents watch TV with duration of 1-4hrs among which 4.5% were obese whereas 3-8% of obesity assessed in non-viewers. prevalence of obesity increased by 2% for TV viewing /hr. Increased adiposity could be due to security issues prevailing in Peshawar and non-availability of safe and secure parks and playing garden which prone the child more towards less physical active life so children preferred to enjoy indoor games as compare to outdoor games which is more better option and ultimately adopted the habit of prolonged screen viewing which if persist for longer time period , frozen the brain of child and diverted towards sluggishness and laziness. There is a strong connection between prolonged screen exposure (TV viewing, computer games, use of mobile) and obesity due to excessive propagation of advertisement of low quality and unhealthy fast food and drinks.

CONCLUSIONS

On the basis of statistical analysis of the study revealed that irregular dietary food patterns and sedentary life style were strongly associated with obesity where as physical activity was inversely associated with obesity in school going children and adolescents of 12-16 years.

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