

The Connection Between Home Environment and Adolescent Weight Status

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Abstract

The purpose of this study was to evaluate the dietary habits, weight status, and home-food environment of school-going adolescents. 50 male and 50 female students (16-17 years) from different schools of Aligarh Muslim University were selected through stratified random sampling. Their families (100) were enlisted for the study with informed consent. A home food checklist and 30 days home food environment survey questionnaire was developed using partial modifications in the pre-validated and tested home food inventory developed by Martha J. Nepper (2016). A validated and tested by the WHO global food health survey questionnaire (self-administered) was also used with a slight modification regarding Indian food preferences for the assessment of dietary habits and home food environment among adolescents. A yes/no format was used to simplify the process. SPSS software version 12.0 (Chicago, USA) was used to analyze the data. The results of the study revealed that 50% of students were underweight (mostly girls, 70%). Only 10% of girls were overweight as compared to 30% of boys; 40% of boys showed a healthy/average weight for age and height. Concerning the student's dietary habits, it was not surprising that underweight students frequently skipped breakfast, did not bring lunch boxes, and also showed less food intake. Only 30% of these students were physically active. In contrast, 50-75% of overweight children showed frequent consumptions of fast food and soft drinks and occasional fruit intake. Only 10% were physically active.

Keywords: Home Environment, dietary habits, weight status, school-going adolescents

Introduction

The prevalence of childhood overweight and obesity is increasing world-wide at a rapid rate (Lobstein et al., 2004). Given that these conditions are persistent (Hesketh et al., 2003) and have significant health consequences throughout life (Dietz, 1998; Must and Strauss, 1999), halting this rising prevalence is a significant public health priority (World Health Organization, 1999). Obesity genesis is complex, with diet, physical activity, and

sedentary behaviors, all contributing to the recent dramatic shifts in prevalence. Dietary data from throughout the western world suggest that children's diets are not consistent with dietary recommendations of health authorities (Gregory et al., 1995; Krebs Smith et al., 1996; Munoz et al.

Given the rapid rise in obesity prevalence and the paucity of knowledge regarding how we may actively halt this rise, all aspects of the child's environment are essential to consider (Davison and Birch, 2001). It is likely that a child's eating behaviors are learned in early childhood and that the home environment exerts substantial on the development of these behaviors (Birch and Fisher, 1998; Campbell and Crawford, 2001). Quantitative studies have considered relationships between children's food choices and various environmental factors, such as the in a sequence of mother's nutrition knowledge (Contento et al., 1993), in a sequence of television viewing (Robinson and Killen, 1995; Coon et al., 2001), the impact of parental feeding styles (Birch and Fisher, 1998) peer pressure (Birch, 1980) and the role of parental modeling (Birch et al., 1982). Qualitative studies have provided insights regarding maternal perceptions of children's weight (Jain et al., 2001; Sherry et al., 2004) and maternal beliefs and practices about child feeding (Baughcum et al., 1998; Sherry et al., 2004). However, no studies have previously sought to describe parental views on the determinants of young children's food choices. Given the likely importance of the family environment on the eating behaviors of young children and the fact that parents are the principal regulators of children's eating and food supply, it is essential to document these perspectives. Understanding parental views on these relationships will inform interventions that seek to prevent obesity in children.

Lack of activity leads to an increase in the accumulation of fat in youngsters and very commonly, above all among those who lead a luxurious and sedentary life, which causes pain in their body weight. Decreased activity is not the only cause of weight gain. The environment of home and surroundings also influences food intake and activity levels. At home, while at rest, adolescents being either unaware of the right or wrong choice of diet or through neglect of healthy diet quickly gain weight. Keeping into consideration the home environment and weight status, The author decided to conduct a study on the connection between the home environment and adolescent weight status.

Methodology

50 male and 50 female students (16-17 years) from different schools of Aligarh Muslim University were selected through stratified random sampling. Their families (100) were enlisted for the study with informed consent. Short demographic profiles of students and parents were prepared carefully. A home food checklist and 30 days home food environment survey questionnaire was developed using partial modifications in the pre-validated and tested home food inventory developed by Martha J. Nepper (2016). This was administered to the parents of the participating students. This included 53 healthy and unhealthy food items (fruits, vegetables, fast foods/snacks, and beverages) commonly found in Indian households. A validated and tested by the WHO global food health survey questionnaire (self-administered) was used with a slight modification regarding Indian food preferences for the assessment of dietary habits and home food environment among adolescents. A yes/no format was used to simplify the process. SPSS software version 12.0 (Chicago, USA) was used to analyze the data Spearman correlation coefficient (r) was used to assess the relationship between the results from the checklists with $P_s < 0.05$ considered significant. This was also used to assess the relationship between the availability/visibility of food categories from the two questionnaires and intake of the participating students in those families. A chi-square test/t-test was used to compare results with $p < 0.05$ considered significant. Spearman correlation coefficients (r) were used to assess the association between the result of the survey and availability/visibility of healthy/unhealthy food items in their homes.

Results and Discussion

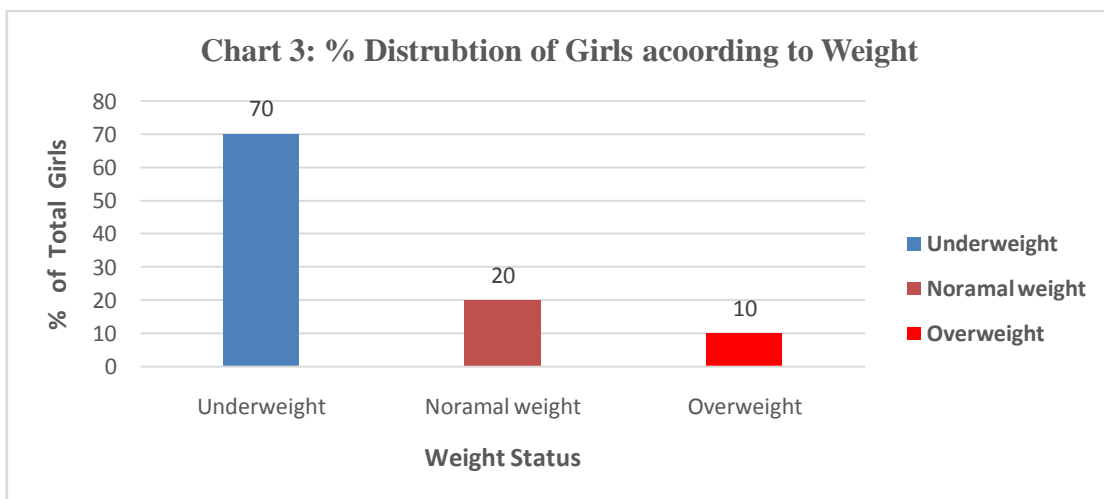
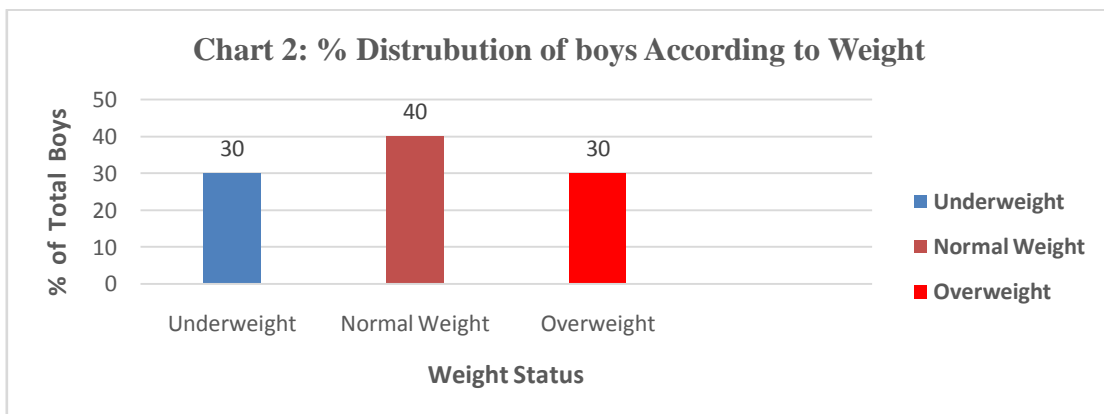
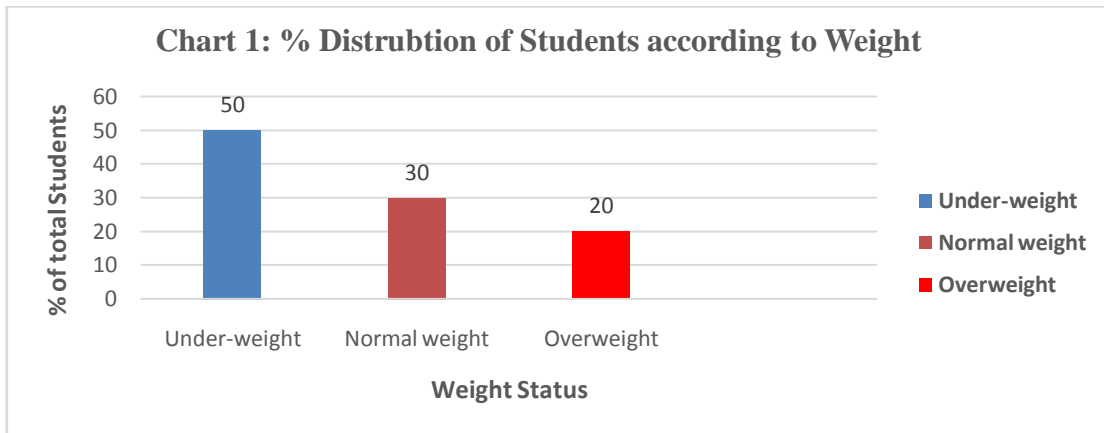
Table 1 shows the demographic profile of the 100 students in this study

	Total number (n)	Age (yrs)	BMI Kg/m ²	Healthy weight (N)	Underweight (N)	Overweight (O)
Students	100	16±.5	27.89	30	50	20
Boys	50	16±2	21.5	20	15	15
Girls	50	16±1	20.5	10	35	5

Out of the 100 students, the average age overall was 16±1.5 years, 16 ±2yrs for boys, and 16± 1yrs for girls. The BMI ranged from, as shown in table 1, 50% of the students were underweight for age and height; mostly, girls showed a lower weight than

expected (35, 70%). An equal number of boys showed weight less than or more than expected for age and height (15 each, 30%). Most of the boys were of average weight (20). Among the girls, only five were overweight (10%).

These findings are depicted graphically in the following bar charts.



Modified Pre-Validated GFHS dietary food habits survey

The self-administered questionnaire consisted of 25 questions related to the student’s habits at home and school and habits related to physical activity and physical education at school. The below table shows a comparison of these factors among healthy and unhealthy weight students

Table 2. Modified Pre-Validated GFHS dietary food habits survey

Category	N=50 ^(a) under the weight	N=30 ^(b) average healthy weight	N=20 ^(c) overweight weight
Intake break fast	15=yes (30%) 35= no (70%)	30=yes (100%)	10=yes (50%) 10=no (50%)
Bread/buns in breakfast	15=yes (30%) 35= no (70%)	10=yes (33.3%) 20=no (66.66%)	20=yes (100%)
Lunchbox brought to school	50=no (100%)	30=yes (100%)	15= yes (75%) 15= no (25%)
Fast food intake in lunchbox or at school	50=no (100%)	30=no (100%)	20=yes (100%)
Fast food intake over a 7 day period	30=1-2days (60%) 20=no (40%)	15= 1-2 days (50%) 15=no (50%)	15= 4-5 days (75%) 5= 1-2 days (25%)
Soft drink intake over a 7 days period	30= 1-3 days (60%) 20= no (40%)	15= 3-4 days (50%) 15= 1-2 days (50%)	10= 4-5 days (50%) 10= 1-2 days (50%)
Fruit intake over a 7 days period	50= 1-2 days (100%)	30= 3-4 days (100%)	20= 1-2 days (100%)

p (a:b)<0.05 p (a:c) <0.05 p (b:c) <0.05

As shown in table 2, there was frequent consumption of fast foods (burger pizza, ice cream) and soft drinks over seven days (at least 4-5 days) in 50-75% of overweight students. In a contest, fruit consumption was only sometimes (1-2 days). In comparison, healthy weight children showed more frequent fruit consumption, brought a lunchbox to school, and had breakfast before coming to school, with complex carbohydrates (e.g., roti, sabzi, or egg) and less refined foods.

Underweight students, not surprisingly skipped breakfast frequently, did not bring a lunchbox to school, and showed less consumption of fruit over seven days. The difference between the three categories was significant using the chi-square test ($p < 0.05$).

Besides, 60% of students felt they were not given adequate intentional information, while only 50% participated in frequent physical activities over seven days. Only 10% of overweight students, 70% of a healthy weight, and 30% of underweight students were active physically.

A short demographic profile of the parents was also obtained using a self-administrated questionnaire (with prior consents). The results are shown in Table III.

Table 3: Demographic characteristics of parents/ family.

Total No. of families	One working parent	Both working parents	Family Income (Rupees)			Educational status of caregiver/ parent		
			<10,000/mnt	10-30,000/mnt	>30,000mnt	Below class 10th	Intermediate	Higher education
100	60	40	35	25	40	30	10	60

*Stay at home parent if only one parent is working.

As shown above, 60% of families had one working parent 35% of families had on the income of <10,000 rupees/mth, while 40% earned >30, 000 rupees/mth 60% of parents (one or both) had the benefits of higher education (college graduate/postgraduate/post-doctoral degrees) 30% of families had one or both parents with on educational level below high school.

Table 4: correlation between food items in HFC* and HFES.**

Food/beverage groups	r (p-value)
Fruit	0.29 (<0.05)
Vegetable	0.39(<0.05)
Fruit juice	0.5(<0.05)
Milk	0.31 (<0.05)
Soft drinks	0.6 (<0.05)
Sweet snacks	0.23 (<0,05)
Savory snacks	0.32 (<0.05)

*HFC= Home food checklist, **HFES= 30 days home food environment survey

Using the Spearman correlation coefficient (r), results from the two instruments were assessed. Construct validity was assessed by examining if the availability scores from the HFC were associated with the availability score from the HFES.

The results are shown in Table 4, Significant and positive correlation was noted between significant food and beverage categories (Ps<0.05).

Conclusion

This study aimed at evaluating the dietary habits, weight status, and home-food environment of school-going adolescents. It also aimed at assessing challenges and strategies to promote healthy eating among these children. The student's age, weight, and BMI (Body Mass Index) were carefully recorded initially. It was observed that 50% of students were underweight (mostly girls, 70%). Only 10% of girls were overweight as compared to 30% of boys; 40 % of boys showed a healthy/average weight for age and height. Concerning the student's dietary habits, it was not surprising that underweight students frequently skipped breakfast, did not bring lunch boxes, and also showed less food intake over seven days. Only 30% of these students were physically active. In contrast, 50-75% of overweight children showed frequent consumptions of fast food and soft drinks over seven days and occasional fruit intake. Only 10% were physically active. Students with a healthy

weight range showed frequent consumption of breakfast with complex carbohydrates and protein, less intake of junk food, and 70% were regularly physically active.

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