

BODY MASS INDEX (BMI) AND SELF-PERCEPTION OF WEIGHT AND HEIGHT AMONG SCHOOL GOING ADOLESCENTS IN URBAN VADODARA, INDIA

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ABSTRACT

Background: Weight comments are commonly received by adolescents, but the accuracy of the comments and their effects on weight misperception are unclear.

Aims & Objective: To know the perceptions of adolescents about their health status, body image, height and weight and then to compare it with their actual (Body Mass Index) BMI status.

Material and Methods: This was Cross sectional study and Qualitative survey carried out using a self-administered semi-structured questionnaire among 1440 (748 girls and 692 boys) students from classes 6-12 in 7 English medium and 23 Gujarati medium schools. Five focus group discussions were held each with adolescent boys and girls from both Gujarati and English medium schools.

Results: Regarding their perception about their health status, nearly 65% of the boys and girls felt that they were healthy. While their perception about the appropriateness of their height and weight, nearly half of the boys and girls felt that they had appropriate height and weight, One-fourth of them perceived themselves to be underweight, while another fourth thought that they were obese. When adolescents' perception of the appropriateness of height and weight was compared with their actual BMI, it was found that, 10 to 15% of them were underweight or undernourished while 25 to 30% of them were overweight or obese. Among those, having normal BMI, 59% of boys and 62% of girls felt that their height and weight was normal.

Conclusion: There has been a need for addressing physical growth, particularly; height and weight need to be explained more scientifically and in depth.

KEY-WORDS: Adolescent; Body Mass Index; Self Perception; Urban; India; Height; Weight

Introduction

The word Adolescence is derived from the Latin verb "adolescere", which means "grow to maturity". Adolescence is a grey area in the spectrum of life falling between childhood and adulthood. It is an age of transition when an individual experiences rapid growth and development, both physical and psychological, and changes from being a child to an adult.^[1]

WHO defines adolescents as persons in the age group of 10 to 19 years. Adolescents constitute nearly 20 percent of the total population – absolute and relative number more in developing countries than in the developed world.^[2] In India there are an estimated 190 million adolescents (aged 10-19), comprising over one fifth of the

entire population.^[3]

The physical changes have been implicated as triggers for many behavioural changes and manifestations during adolescence. Many of these behavioural changes are associated with how the adolescents perceive their bodies. 'Body image' is a powerful factor that determines how adolescents feel about themselves. If one suffers from body image disturbances, it often leads to a host of difficulties ranging from low self-esteem to anorexia and bulimia nervosa, body dysmorphic disorder. It is, therefore, important to understand the troubling relationship between psychological health and body image and plan interventions and strategies to neutralize the effects of poor body image.^[4] Adolescence is also a period of increased vulnerability to obesity. Lack of physical activity

and outdoor sports, along with the consumption of fat rich ‘junk’ foods, is the major cause of obesity among the affluent population.^[4] Underweight or normal weight adolescents who perceive themselves to be overweight are at an increased risk for eating disorders such as anorexia nervosa.^[5] So the present study was conducted to understand how adolescents perceive their health status and their body image, to know about the adolescents’ perception of the appropriateness of their height and weight and to correlate their perception of the appropriateness of their height and weight with their actual Body Mass Index (BMI)^[4] status.

Materials and Methods

The study was carried out among adolescents of the selected urban schools. A quantitative survey was carried out using a self-administered structured questionnaire, either in English or Gujarati, among 1440 (748 girls and 692 boys) students from classes 6-12 in 7 English medium and 23 Gujarati medium schools. The questionnaire was pre-tested in both the languages. Five focus group discussions were held each with adolescent boys and girls from both Gujarati and English medium schools. Considering the WHO definition of adolescents as persons in the age group of 10-19 years and the ability of school students to respond to the self-administered questionnaire, it was decided to include students from classes 6 to 12 in the study. The identified classes were explained the purpose of the study. Participation in the study was voluntary. To ensure confidentiality, the writing of the names was optional. The instruments were collected after checking for completeness. The FGDs were conducted class wise to get an idea regarding the evolving patterns by age and note the differences. It was decided to have eight participants in each FGD. The study was concerned with an aim to understand how adolescents perceive their health status and their body image. Also they were asked to state their height and weight and whether they found their height and weight appropriate. Then we correlated their height and weight with their actual BMI (Body Mass Index) 1 which was calculated on the basis of their height and weight reported by them. The data so collected were

entered into computer using Epi Info (version 6.04d) software.^[6] Data cleaning was carried out, checked for discrepancies, and rectified.

Results

Sixty-two percent girls and nearly 70 percent boys thought they were healthy (Table 1). However, the remaining 40 percent girls and 30 percent boys either did not think themselves to be healthy or they were undecided. It is a matter of concern that a significant percentage of boys and girls do not perceive themselves to be healthy. Table 2 shows adolescents’ perception of the appropriateness of their height and weight and its relation to their actual Body Mass Index (BMI) status.

Table-1: Self-Perception of Health Status among Boys and Girls

Gender	Perception of Health Status						Total
	Healthy		Not Healthy		Can't Say		
	N	%	N	%	N	%	
Boys	446	66.0	80	11.8	150	22.2	676
Girls	455	62.8	81	11.2	188	26.0	724
Total	901	64.4	161	11.5	338	24.1	1440

Table-2: Comparison of Adolescents’ Perceptions regarding their Height and Weight with the BMI Grades (Boys: N= 479, Girls: N=474)

Perception	BMI Grades*											
	Boys						Girls					
	Below Normal		Normal		Above Normal		Below Normal		Normal		Above Normal	
	N	%	N	%	N	%	N	%	N	%	N	%
Normal	24	48.0	176	59.0	76	58.0	42	70.0	186	62.4	37	31.9
Less	20	40.0	80	26.8	13	9.9	12	20.0	32	10.7	17	14.6
More	6	12.0	42	14.0	42	32.0	6	10.0	80	22.9	62	53.4
Total	50	10.4	298	62.2	131	27.3	60	12.6	298	62.9	116	24.5

* Cut offs for BMI grades: < 5th percentile – below normal, 5th - 85th percentile – normal, >85th percentile – above normal

Regarding their perception about the appropriateness of their height and weight, nearly half of the boys and girls felt they had appropriate height and weight. One-fourth of them perceived themselves to be underweight, while another fourth thought they were obese. Nearly 40 percent thought they were shorter than they should be.

However, their actual Body Mass Index (BMI), calculated on the basis of the height and weight reported by them, showed that nearly 40 percent boys with normal BMI thought they were not normal (i.e., were either less or more), while one-third of the girls with normal BMI thought they were not normal.

About 10 to 15 percent of boys and girls were below the 5th percentile of BMI suggesting they were undernourished and underweight. Among these nearly 70 percent girls and nearly half of boys perceived themselves to be normal.

About 25 to 30 percent of boys and girls were above the 85th percentile of BMI suggesting they were overweight or obese. Among these nearly 60% boys and 30% girls perceived themselves to be normal.

Discussion

Majority of them perceived themselves to be healthy which they attributed to their intake of nutritious food and regular exercise. Those who did not perceive themselves to be healthy attributed it to their irregular food habits, being obese or too thin, and lack of nutritious food.

More girls (23 %) with normal BMI thought they were overweight than did boys (14 %), reflecting the tendency of adolescent girls to put a premium on being thin and appearing thin, even when their BMI is normal. About 30% of normal weight Hong Kong adolescents misperceive themselves as fat^[7], and more girls than boys overestimate their weight^[8].

About 10 to 15 percent of boys and girls were below the 5th percentile of BMI suggesting they were underweight. Of which 70% of girls perceived themselves to be normal reflecting their tendency on being thin and appearing thin.

About 27% of boys and 24% of girls were above the 85th percentile of BMI suggesting they were overweight or obese; of which 60% of boys perceived themselves to be normal, reflecting their tendency on being muscular or appearing healthy. A study by Kapil et al among well to do adolescent school children found that overall prevalence of obesity was higher in male (8.3%) than female (5.5%) children.^[9]

From the group discussions with boys and girls, it emerged that both considered obesity as undesirable, because an obese person is generally subjected to ridicule. For boys, good height, good looks and well-cut hair were the desirable body

image. Among girls, a slim, shapely body and fair skin were the desired body attributes. Frequent exposure to the media's thin ideal for females^[10-12] and muscular physique for males^[13] may therefore predispose adolescents to weight misperception^[14].

Good looks were considered by many as the key to finding good friends, becoming popular, and finding a suitable match sooner. Some adolescents, however, also stressed on inner beauty and good nature as necessary attributes in a person. To remain good-looking the group felt that it was necessary to work, exercise, and remain tension-free.

Conclusion

In terms of height and weight, perception of their health status and body image is incomplete and incorrect. As they have inappropriate perceptions about height and weight, there are inadequacies in their knowledge about physical changes during adolescence and correct BMI. The lack of knowledge about and access to growth charts has probably made it difficult for adolescents to evaluate their weight status objectively.

RECOMMENDATIONS

1. Physical growth particularly height and weight being "Body Image Issue" needs to be explained more scientifically and, in a greater detail. At the school regular early records of height and weight, and simple explanations of "range of normal growth" should be the desirable first step.
2. Overall, the prevailing perceptions of adolescents regarding their health status and body image shows that there is a need for correct information about normal physical growth among them.

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