

ORIGINAL RESEARCH

Association of Body Image Perception and Nutritional Status in School Children of Uttarakhand

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ABSTRACT

Introduction: School-going age is full of challenges when it comes to growth and puberty. Anthropometric measurements including body mass index (BMI) remain the most popular methods to assess the nutritional status of children. On the other hand, body image is a complex term and includes how we perceive, think, and act toward our bodies. This study was undertaken to determine the association between body image perception and nutritional status in students of independent schools.

Materials and methods: A cross-sectional study was carried out on 402 students of the middle and secondary stage (class 6-12) attending independent schools in Dehradun, India. An interview method was used to collect the data on their body image followed by a physical examination and nutritional assessment.

Results: 63.18% of students (n=254) were having normal BMI, 2.24% (n=9) were underweight, 26.62% (n=107) were overweight and 7.96% (n=32) were found to be obese. 25.62% (n=103) of students had an accurate perception of their body image when compared to their BMI. On the contrary, 74.38% (n=299) of students were observed with inaccurate perceptions of their current height and body weight.

Conclusion: In this present study, we could conclude that the majority of the students were not aware of their current weight and height. Also, the majority had a false perception of their body image as compared to their weight/ BMI.

Keywords: Anthropometry, BMI, Body image, nutrition

INTRODUCTION

School-going age includes a period of a growth spurt of puberty along with the development of physical, mental, and social capabilities and therefore has specific nutritional requirements.¹ Various factors including maternal education, the socio-economical status of the family, childhood infections, number of siblings, working mothers, etc. dictate the nutritional status of these children.^{2,3} Anthropometric measurements including Body Mass Index (BMI) remains one of the most popular and

commonest tools to assess nutritional status.

Some studies in India have reported variable data on the nutritional status of school-going children.²⁻⁶ According to the Comprehensive National Nutritional Survey (CNNS) 2017-18, out of 1,077 adolescents of school going age group (10-19 years) in Uttarakhand, 15.3% were underweight while 1% of them were overweight or obese.⁷

Body image is a complex term that includes how we perceive, think, and act toward our bodies.⁸ It may vary from healthy body perceptions (i.e., accurate and mostly positive) to unhealthy body perceptions (i.e. inaccurate and mostly negative).^{9,10} Unhealthy body image may be due to body image disorders in school-going adolescents.¹¹ Affected children may have the urge to lose or gain weight excessively which can lead to deteriorating consequences on health. Evidence indicates that an unhealthy body image is associated with obesity and physical inactivity.^{12,13} But, there is a paucity of data establishing the association between body image perception and the nutritional status of school-going children. The present study was, therefore, performed to reveal the association between body image perception and nutritional status in children. We also estimated the prevalence of nutritional problems in school-going children.

MATERIALS AND METHODS

A cross-sectional study was carried out on 402 students of various independent schools of Dehradun (Capital of Uttarakhand state, India) in a time frame of 5 months from January to May 2022. A total of 418 students of the middle and secondary stage (class 6-12) were recruited in the study after estimating the sample size. Only 402 students [221 boys (54.98%) and 181 girls (45.02%)] were included in the study based on inclusion and exclusion criteria. Prior informed consent was obtained from the respective parents/guardians of all students.

Children with any of the following conditions were excluded from the study thyroid disorder, congenital heart disease, nephrotic syndrome, type 1 diabetes, any other known chronic illness, parents /guardians refusing to give consent for participation of their child in the study.

An interview method was used to collect the data on their body image, lifestyle, and physical activity followed by a physical examination and nutritional assessment of each participant. The height and weight of the children were determined using a stadiometer and an electronic weighing machine respectively.

Body image perception was categorized as less BMI/Weight, adequate BMI/weight, or higher BMI/weight based on the standard protocol "Revised IAP Growth Charts for Height, Weight, and BMI for 5- to 18-year-old Indian Children"¹⁴ and classified as underweight: BMI <5th centile, normal nutrition: BMI 5- 85th centile, overweight: BMI 85th to 95th centile (equivalent to adult BMI of 23 kg/m²), obese: BMI >95th centile (equivalent to adult BMI of 27 kg/m²). BMI was calculated as weight (in kg) / height (in meters)². Data was divided into sub-groups and analysed using ANOVA and T-test. P-value was then calculated considering a confidence interval of 95%. P< 0.05 was considered significant.

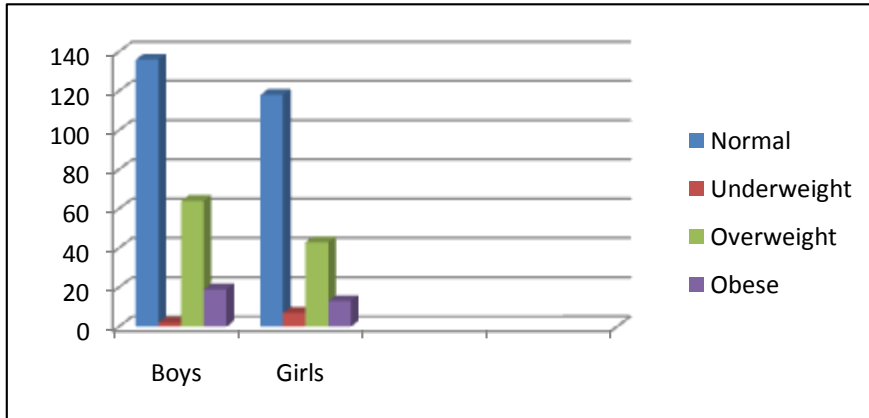
RESULTS

Anthropometry was recorded for these students and BMI was then calculated and recorded for each participant. These students were classified as normal, underweight, overweight, and obese using "Revised IAP Growth Charts."

63.18% (n=254) students were having normal BMI, 2.24% (n=9) were underweight, 26.62% (n=107) were overweight and 7.96% (n=32) were found to be obese. 25.62% (n=103) of students had an accurate perception of their bodies when compared to their

BMI. 74.38% (n=299) of students had an inaccurate perception of their bodies as compared to BMI. (Fig.1)

Fig 1: Categorical status of study subjects



1.24% (n=5) of students had a precise insight that their BMI was less while 30.10% (n=121) incorrectly discerned that BMI was less. (Fig.2) 19.15% (n=77) of students had an accurate perception of their normal BMI compared to 16.42% (n=66) who had an off-base discernment. 5.22% (n=21) had an accurate perception that their BMI was higher compared to 27.86% (n=112) who had an inaccurate perspective. (Fig.3) 38.06% (n=153) had a positive perception of their body image whereas 61.94% (n=249) had a negative view of their body image. (Fig.4)

Fig 2: Perception of body image of students

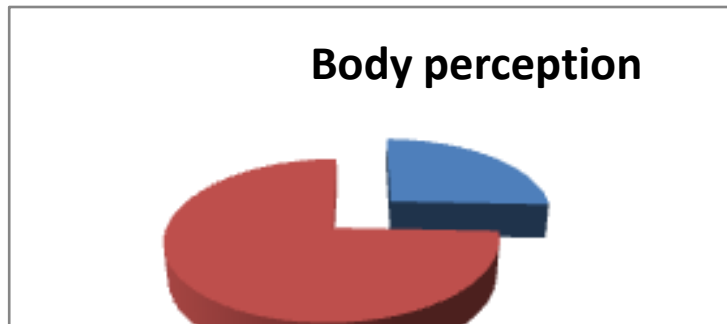


Fig 3: Comparison of body image perception to BMI

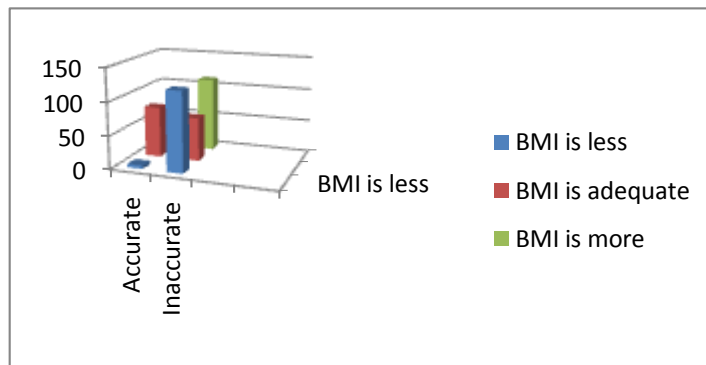
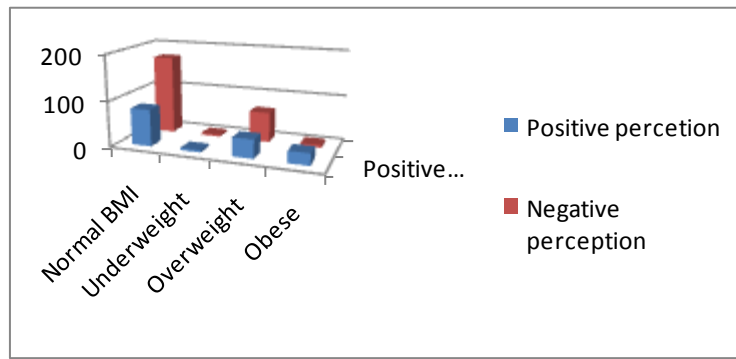


Fig 4: Positive and negative perception of body image

DISCUSSION

This study was undertaken for determining the association between body image perception and the nutritional status of school-going children. 63.18% (n=254) had a normal BMI, 2.24% (n=9) were found to be underweight, 26.62% (n=107) were overweight and 7.96% (n=32) were found to be obese. This is in contrast to CNSS adolescent school-going children study in which 15.3% were underweight and 1% were overweight or obese.⁷

25.62% (n=103) students had an accurate perception of their body image while 74.38% (n=299) had an inaccurate perception of their body image. 30.10% (n=121) had a false body perception that their weight/ BMI was less. 27.86% (n=112) had a false perception of their weight /BMI being more. This is in contrast to a study by Niswah et al in which 66% were aware of their accurate weight¹⁵.

These false perceptions can also be the reinforcements of the perception their parents must be having of their child. Most of the children were not aware of their current weight and height. In this study, we found no statistically significant association between body image perception and BMI ($P > 0.05$).

CONCLUSION

We concluded that the majority of the students were not aware of their current weight and height. In fact, the majority had a false perception of their body image as compared to their weight/ BMI. This thus reflects the importance of routine visits to pediatricians. Malnutrition includes both undernutrition and overnutrition. Hence both domains should be targeted at an early stage. Anthropometry of a child should be recorded on each visit to a pediatrician, and early action if required must be anticipated.

CONFLICT OF INTEREST

None

SOURCE OF FUNDING

None

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