



Original Research Article

SELF-PERCEPTION OF NUTRITION STATUS OF SECONDARY SCHOOL STUDENTS IN AN URBAN AREA OF MANGALORE

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ABSTRACT

Background: Body weight perception is an important determinant of adolescents' dietary practices, physical activity, psychological well-being, and weight-management behaviours. Inaccurate perception of nutritional status may lead to unhealthy lifestyle choices and inappropriate weight-control practices. Understanding how adolescents perceive their body weight is essential for developing effective nutrition and health promotion strategies. **Objectives:** To assess the self-perception of nutritional status among secondary school students and to identify factors associated with their perception of body weight.

Materials and Methods: A school-based cross-sectional study was conducted among 1,025 students studying in classes VIII to X in six secondary schools located in an urban area of Mangalore, Karnataka. Data was collected using a pre-tested, semi-structured, self-administered questionnaire that assessed socio-demographic characteristics, self-perception of body weight, breakfast consumption, and physical activity. Height and weight were measured using standardized procedures, and body mass index (BMI) was calculated. Nutritional status was classified according to the World Health Organization BMI-for-age reference standards. Data was analyzed using descriptive statistics, independent samples t-test, and Pearson's chi-square test, with $p < 0.05$ considered statistically significant.

Results: Among the 1,025 participants, 54.4% were boys and 45.6% were girls. Most students (82.9%) perceived themselves to have normal weight, while 12.5%, 4.1%, and 0.5% perceived themselves as underweight, overweight, and obese respectively. However, substantial discrepancies were observed between perceived and actual nutritional status. Only a small proportion of overweight and obese students correctly identified their weight category. Significant associations were observed between weight perception and gender, type of school, medium of instruction, breakfast consumption, and actual nutritional status ($p < 0.05$). No significant association was found between physical activity and body weight perception.

Conclusion: A considerable proportion of adolescents demonstrated inaccurate perception of their nutritional status, particularly among overweight and obese students. Weight perception was significantly influenced by demographic, educational, behavioural, and nutritional factors. School-based interventions focusing on BMI awareness, healthy lifestyle practices, and positive body image may improve the accuracy of weight perception and promote adolescent health.

Keywords: Adolescents, body image, body weight perception, nutritional status, overweight, obesity, secondary school students.

INTRODUCTION

Adolescence represents a transitional stage characterized by rapid physical growth, emotional maturation, and increasing awareness of personal appearance. During this period, perceptions regarding body weight and body image become important determinants of psychological well-being and health-related behaviour. Body weight perception refers to an individual's subjective judgment of whether they are underweight, normal weight, overweight, or obese, irrespective of their objectively measured nutritional status. Accurate perception of body weight is important because it influences dietary habits, physical activity patterns, and weight-management practices.^[1]

Research conducted across different populations has shown that adolescents frequently misjudge their body weight status. Some perceive themselves as overweight despite having a normal body mass index (BMI), whereas others fail to recognize excess body weight.^[2,3] Such discrepancies between perceived and actual weight status may contribute to unhealthy behaviours, including restrictive dieting, meal skipping, excessive weight-control practices, and reduced self-esteem.^[4,5] Previous investigations have demonstrated a significant relationship between BMI and self-perceived body weight, although the accuracy of this perception varies considerably among adolescents.^[6]

Weight perception is shaped by a complex interaction of biological, psychological, social, and environmental influences. Family attitudes, peer relationships, media exposure, cultural expectations, and socioeconomic circumstances can all affect the way adolescents evaluate their body image.^[7,8] Gender differences have also been widely reported, with girls often expressing concerns about being overweight, while boys more commonly perceive themselves as being too thin or insufficiently muscular.^[9-12]

Studies from various countries have highlighted a high prevalence of body image dissatisfaction and inaccurate weight perception among adolescents.^{13,14} These misperceptions are clinically relevant because they may influence eating behaviours, physical activity levels, and long-term nutritional outcomes. Adolescents who do not accurately recognize their nutritional status may be less likely to adopt appropriate health-promoting behaviours or seek interventions when required.^[15-18]

In India, increasing urbanization and greater exposure to social media have intensified concerns regarding physical appearance among young people. Despite the growing importance of body image issues, limited evidence is available regarding the self-perception of nutritional status among school-going adolescents in coastal Karnataka. Therefore, the present study was undertaken to assess self-perceived nutritional status among secondary school

students in an urban area of Mangalore and to identify factors associated with their perception of body weight.

MATERIALS AND METHODS

A school-based cross-sectional study was conducted among secondary school students in the urban field practice area of a teaching medical institution in Mangalore, Karnataka, India. Ethical approval for the study was obtained from the Institutional Ethics Committee prior to commencement of data collection. Permission to conduct the study was obtained from the concerned educational authorities and school administrations.

All secondary schools located within the study area were identified through records obtained from the Block Education Officer. A total of six secondary schools were eligible and included in the study. Complete enumeration of students studying in classes VIII, IX, and X was undertaken. Of the 1,130 eligible students, 105 were absent during two separate visits to the schools and were considered non-responders. Consequently, 1,025 students participated in the study and were included in the final analysis.

The objectives and procedures of the study were explained to the participants, and verbal assent was obtained before enrolment. Data were collected using a pre-tested, semi-structured, self-administered questionnaire developed in both English and Kannada. The questionnaire was pilot tested among students from a similar setting, and necessary modifications were incorporated before the commencement of the study. Information regarding socio-demographic characteristics, self-perception of body weight, breakfast consumption, and physical activity was obtained using the questionnaire. To assess weight perception, students were asked to classify themselves as underweight, normal weight, overweight, or obese based on their own perception. Following completion of the questionnaire, anthropometric measurements were recorded using standardised procedures. Height was measured to the nearest 0.5 cm with participants standing barefoot against a vertical surface in the Frankfurt plane position. Body weight was measured in kilograms using a calibrated weighing scale with participants wearing their regular school uniform and minimal additional clothing. Body mass index (BMI) was calculated as weight in kilograms divided by height in metres squared (kg/m^2).

Nutritional status was determined using the World Health Organization (WHO) BMI-for-age and sex-specific growth reference charts. Students with BMI values at or below the 3rd percentile were classified as underweight, those between the 3rd and 85th percentiles as normal weight, those between the 85th and 97th percentiles as overweight, and those at or above the 97th percentile as obese.

The collected data were entered into Microsoft Excel and analysed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were used to summarise the study variables and were expressed as frequencies, percentages, means, and standard deviations. Associations between categorical variables were assessed using the Pearson chi-square test, while differences in mean values between groups were evaluated using the independent samples t-test. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 1,025 secondary school students participated in the study, comprising 558 (54.4%) boys and 467 (45.6%) girls. The majority of the participants were aged 13–14 years, accounting for 66.2% of the study population. Students aged 14 years constituted the largest age group (33.9%), followed by those aged 13 years (32.4%). Only 4.2% of participants were aged 16 years or older. [Table 1] The mean height of boys was 155.80 ± 10.95 cm, whereas girls had a mean height of 152.83 ± 6.72 cm. The mean body weight was comparable between boys (42.98 ± 10.53 kg) and girls (42.47 ± 8.74 kg). However, girls had a significantly higher mean BMI (18.12 ± 3.25 kg/m²) compared to boys (17.54 ± 3.12 kg/m²), [Table 2]

Assessment of self-perceived nutritional status revealed that 12.5% of students perceived themselves as underweight, 82.9% as having normal weight, 4.1% as overweight, and 0.5% as obese. In contrast, actual nutritional assessment based on BMI showed that 27.7% were underweight, 60.5% had normal

weight, 7.9% were overweight, and 3.9% were obese. Among underweight students, only 23.6% correctly identified themselves as underweight, while 74.6% perceived themselves as having normal weight. Similarly, among overweight and obese students, only 20.7% correctly perceived themselves as overweight or obese, whereas 76.0% considered themselves to be of normal weight. These findings indicate substantial discordance between actual nutritional status and self-perception of body weight. [Table 3]

Gender was significantly associated with self-perception of body weight ($\chi^2 = 8.326$, $p = 0.016$). Boys more frequently perceived themselves as underweight, whereas girls more commonly perceived themselves as overweight or obese. The type of school attended also demonstrated a significant association with body weight perception ($\chi^2 = 21.649$, $p = 0.001$), with students from government schools reporting the highest perception of being underweight. Medium of instruction was another significant factor, as students studying in Kannada-medium schools perceived themselves as underweight more often than those studying in English-medium schools ($\chi^2 = 31.897$, $p = 0.001$). Breakfast consumption showed a significant association with weight perception ($\chi^2 = 10.681$, $p = 0.005$), with students who skipped breakfast more likely to perceive themselves as overweight or obese. Actual nutritional status based on BMI was strongly associated with self-perception of body weight ($\chi^2 = 124.343$, $p = 0.001$). However, no significant association was observed between engagement in physical exercise and self-perception of body weight ($\chi^2 = 1.788$, $p = 0.409$). [Table 4]

Table 1: Age and sex distribution of study participants (N = 1025)

Age (years)	Boys n (%)	Girls n (%)	Total n (%)
12	65 (6.3)	60 (5.9)	125 (12.2)
13	188 (18.3)	144 (14.0)	332 (32.4)
14	180 (17.6)	167 (16.3)	347 (33.9)
15	94 (9.2)	84 (8.2)	178 (17.4)
16	29 (2.8)	12 (1.2)	41 (4.0)
17	2 (0.2)	0 (0.0)	2 (0.2)
Total	558 (54.4)	467 (45.6)	1025 (100.0)

Table 2: Comparison of anthropometric characteristics between boys and girls

Height (cm)	Boys (n = 558) Mean $\pm$ SD	Girls (n = 467) Mean $\pm$ SD
Height (cm)	155.80 ± 10.95	152.83 ± 6.72
Weight (kg)	42.98 ± 10.53	42.47 ± 8.74
BMI (kg/m ²)	17.54 ± 3.12	18.12 ± 3.25

Table 3: Distribution of students based on body weight perception and actual nutrition status (N = 1025)

Actual nutritional status	Self-perceived underweight n (%)	Self-perceived normal n (%)	Self-perceived overweight n (%)	Self-perceived obese n (%)	Total n (%)
Underweight	67 (6.5)	212 (20.7)	5 (0.5)	0 (0.0)	284 (27.7)
Normal weight	57 (5.6)	546 (53.3)	17 (1.7)	0 (0.0)	620 (60.5)
Overweight	3 (0.3)	66 (6.4)	11 (1.1)	1 (0.1)	81 (7.9)
Obese	1 (0.1)	26 (2.5)	9 (0.9)	4 (0.4)	40 (3.9)
Total	128 (12.5)	850 (82.9)	42 (4.1)	5 (0.5)	1025 (100.0)

Table 4: Factors associated with self-perception of body weight among study participants (N = 1025)

Variable	Underweight n (%)	Normal weight n (%)	Overweight/Obese n (%)	χ^2 (df)	p-value
Gender				8.326 (2)	0.016*
Boys (n=558)	80 (14.3)	460 (82.4)	18 (3.2)		
Girls (n=467)	48 (10.3)	390 (83.5)	29 (6.2)		
Type of school				21.649 (4)	0.001*
Government (n=148)	35 (23.6)	105 (70.9)	8 (5.4)		
Private (n=379)	35 (9.2)	327 (86.3)	17 (4.5)		
Aided (n=498)	58 (11.6)	418 (83.9)	22 (4.4)	31.897 (2)	0.001*
Medium of instruction					
English (n=477)	30 (6.3)	426 (89.3)	21 (4.4)		
Kannada (n=548)	98 (17.9)	424 (77.4)	26 (4.7)	10.681 (2)	0.005*
Breakfast consumption					
Yes (n=884)	111 (12.6)	740 (83.7)	33 (3.7)		
No (n=141)	17 (12.1)	110 (78.0)	14 (9.9)	124.343 (4)	0.001*
Nutritional status (BMI)					
Underweight (n=284)	67 (23.6)	212 (74.6)	5 (1.8)		
Normal weight (n=620)	57 (9.2)	546 (88.1)	17 (2.7)	1.788 (2)	0.409
Overweight/Obese (n=121)	4 (3.3)	92 (76.0)	25 (20.7)		
Exercise					
Yes (n=597)	69 (11.6)	503 (84.3)	25 (4.2)	22 (5.1)	
No (n=428)	59 (13.8)	347 (81.1)	22 (5.1)		

χ^2 = Chi Square test

*p-value <=0.05

DISCUSSION

The present study evaluated how secondary school students perceived their nutritional status and explored factors influencing these perceptions. Although most participants considered themselves to be of normal weight, comparison with objectively measured BMI revealed considerable discordance between perceived and actual nutritional status. This finding suggests that weight misperception remains a common issue among adolescents.

A significant difference in BMI was observed between boys and girls, with female students demonstrating a higher mean BMI. Similar observations have been reported in previous studies, which indicate that adolescent girls generally exhibit greater concern regarding body shape and appearance than boys.^[9-11] Gender-specific patterns were also evident in the current study. Boys were more likely to perceive themselves as underweight, whereas girls more frequently considered themselves overweight or obese. Comparable trends have been documented in studies conducted in Brazil, Turkey, and other settings, where girls demonstrated a tendency to overestimate their body weight and boys tended to underestimate theirs.^[1,2,12]

One of the most important findings of this study was the low level of recognition of overweight and obesity among affected students. Only a small proportion of overweight and obese adolescents accurately identified their weight category. Similar findings have been reported in earlier studies, which demonstrated that many adolescents with excess body weight fail to acknowledge their condition.^[6,17,18] Such under-recognition may reduce the likelihood of adopting healthy lifestyle

modifications and may delay preventive interventions.

The study further identified significant associations between weight perception and several sociodemographic and behavioural factors, including gender, type of school, medium of instruction, breakfast consumption, and actual nutritional status. Students studying in government schools and Kannada-medium institutions reported higher perceptions of being underweight than their counterparts. These differences may reflect variations in socioeconomic status, nutritional awareness, and exposure to health-related information.^[3,8]

Breakfast consumption emerged as another significant factor associated with weight perception. Students who skipped breakfast were more likely to perceive themselves as overweight or obese. Previous studies have similarly reported that adolescents concerned about their body weight often adopt meal-skipping behaviours as a strategy for weight control.^[15,16] Such practices may adversely affect nutritional health and contribute to unhealthy eating patterns.

Actual nutritional status demonstrated a strong association with self-perception. Underweight students were more likely to perceive themselves as underweight, while overweight and obese students more frequently identified themselves as overweight. However, the persistence of substantial misclassification indicates that many adolescents lack an accurate understanding of their nutritional status. Similar findings have been reported by studies examining the relationship between BMI and body image perception.^[4,5,14]

In contrast, no statistically significant association was observed between physical activity and body weight

perception. Although some investigators have reported a relationship between exercise behaviour and body image, the effect appears to vary across populations and cultural contexts.^[19] The absence of a significant association in the present study may reflect differences in the type, frequency, or intensity of physical activity among participants.

Overall, the findings demonstrate that inaccurate weight perception is prevalent among adolescents and is influenced by a combination of demographic, educational, behavioural, and nutritional factors. These observations underscore the importance of implementing school-based programmes that promote awareness regarding healthy body weight, BMI interpretation, balanced nutrition, and positive body image. Such interventions may improve the accuracy of weight perception and encourage healthier lifestyle choices among adolescents.

CONCLUSION

The present study demonstrated that a considerable proportion of secondary school students had inaccurate perceptions of their nutritional status despite objective assessment of BMI. Most students perceived themselves as having normal weight; however, substantial discrepancies were observed between actual and perceived weight status, particularly among overweight and obese adolescents. Gender, type of school, medium of instruction, breakfast consumption, and actual nutritional status were significantly associated with body weight perception, whereas physical activity showed no significant association. These findings highlight the need for school-based interventions focusing on nutrition education, BMI awareness, healthy lifestyle practices, and positive body image to promote accurate weight perception and overall adolescent well-being.

REFERENCES

1. Moehlecke M, Blume CA, Cureau FV, Kieling C, Schaan BD. Self-perceived body image, dissatisfaction with body weight and nutritional status of Brazilian adolescents: a nationwide study. *J Pediatr (Rio J)*. 2020;96(1):76-84.
2. Esenay FI, Sezer TA. Understanding the Turkish adolescents' weight perception: a cross-sectional study. *J Child Adolesc Psychiatr Nurs*. 2022;35(4):312-320.
3. Pereira FN, Oliveira JR, Zöllner CC, Gambardella AMD. Body weight perception and associated factors in students. *J Hum Growth Dev*. 2013;23(3):307-314.
4. Pinho L, Brito MFSF, Silva RRV, Messias RB, Silva CSO, Barbosa DA, et al. Perception of body image and nutritional status in adolescents of public schools. *Rev Bras Enferm*. 2019;72(1):229-235.
5. Mendonça KL, Sousa ALL, Carneiro CS, Nascente FMN, Póvoa TIR, Souza WKS, et al. Does nutritional status interfere with adolescents' body image perception? *Eat Behav*. 2014;15(3):509-512.
6. Brener ND, Eaton DK, Lowry R, McManus T. The association between weight perception and BMI among high school students. *Obes Res*. 2004;12(11):1866-1874.
7. Nishida A, Foo JC, Shimodera S, Nishida A, Okazaki Y, Togo F, et al. The association of weight status and weight perception with number of confidants in adolescents. *PLoS One*. 2019;14(12):e0225908.
8. Zarychta K, Mullan B, Luszczynska A. Am I overweight? A longitudinal study on parental and peers weight-related perceptions on dietary behaviors and weight status among adolescents. *Front Psychol*. 2016;7:83.
9. Kartha GK, Navya CJ, Aswathy MG, Joshy VM. Body image perception among adolescent students in a private school in Thrissur, Kerala. *Int J Public Health Res*. 2019;9(2):1077-1084.
10. Widiastuti IGAK, Sutiari NK, Ani LS. Body image perception is associated with nutritional status of adolescent girls: a cross-sectional study in Denpasar City, Bali Province, Indonesia. *Public Health Prev Med Arch*. 2023;11(2).
11. Kayathri AS, Mohan A, Indujamol M. Nutritional status and body image satisfaction among adolescent girls. *Int J Res Rep Rev*. 2021;8(10):93-99.
12. Kurdak H, Bozdemir N, Saatci E, Ozturk P, Ozcan S, Akpinar E. Self-perceived body weight status and weight-control behaviors of high school students in a southern city of Turkey. *Coll Antropol*. 2010;34(4):1295-1304.
13. Neelapaichit N, Piaseu N. Nutritional status and body image perception among Thai adolescents. *Zenodo Repository*. 2019.
14. Ndagire CT, Nakimbugwe D, Muyonga JH. Influence of body weight and image perception on the nutritional status of 8-19-year-olds attending schools in Kampala, Uganda. *J Food Innov Nutr Environ Sci*. 2025;2(2).
15. Neumark-Sztainer D, Story M, Hannan PJ, Croll J. Overweight status and eating patterns among adolescents: where do youths stand in comparison with the Healthy People 2010 objectives? *Am J Public Health*. 2002;92(5):844-851.
16. Fan M, Jin Y. The effects of weight perception on adolescents' weight-loss intentions and behaviors. *Health Educ Behav*. 2015;42(1):88-95.
17. Duncan DT, Wolin KY, Scharoun-Lee M, Ding EL, Warner ET, Bennett GG. Does perception equal reality? Weight misperception in relation to weight-related attitudes and behaviors among overweight and obese US adolescents. *Pediatrics*. 2011;128(4):e860-e868.
18. Quick V, Nansel TR, Liu D, Lipsky LM, Due P, Iannotti RJ. Body size perception and weight control in youth: 9-country international study. *J Adolesc Health*. 2014;54(5):579-582.
19. Wang Y, Liang H, Chen X. Measured body mass index, body weight perception, dissatisfaction and control practices in urban, low-income African American adolescents. *BMC Public Health*. 2009;9:183.