Research Article

Self-Esteem: Relationship with Age, Gender and BMI in Adolescents

Surekha Joshi[1], Sakshi Shah[2], Swati Y Bhave[3], Paula Goel[4], Anuradha Sovani[5]

[1]AACCI, Research Coordinator, [2]AACCI, Research Assistant, [3]AACCI, Executive Director, [4]AACCI, Mumbai Centre In-Charge, [5]AACCI, Advisor, Submitted from AACCI - Association of Adolescent and Child Care in India, Maharashtra, India.

I N F O

Corresponding Author:
Swati Y Bhave, Association of Adolescent and Child Care in India, Maharashtra, India.
E-mail Id:
sybhave@gmail.com
Orcid Id:
https://orcid.org/0000-0001-7889-5965

A B S T R A C T

Introduction: High adolescent self-esteem protects them against high-risk behaviour and physical and mental problems. The present cross-sectional study aimed to understand the self-esteem of school-going children in Mumbai and its association with selected demographic variables and BMI.

Method: The Rosenberg's Self-Esteem Scale and a demographic questionnaire were administered to 334 children (214 boys and 120 girls), between the ages of 10 and 15 years studying in an English-medium co-ed school in Mumbai. The sample was divided into two groups based on their age: Group 1: 10- to 12- year-olds (n = 188) and Group 2: 13- to 15-year-olds (n = 146). Parental permissions and written assent of the children who participated were taken. The data were analysed using SPSS 17.

Results: The mean self-esteem score was 18.64 ± 2.02 which is in the normal range (15-25). In older group 2, boys had significantly higher self-esteem than girls ($p < 0.05$). Analysis of BMI as per the Asian cut-off showed that 60.47% of students were in the underweight category. The self-esteem scores of older obese children were significantly more than that of younger obese children ($p = 0.001$). Similarly, older overweight students had higher self-esteem than younger overweight students ($p = 0.002$). High levels of self-esteem (≥ 26) were seen only in the underweight and normal BMI and in the younger age group: 9.53% in boys and 6.58% in girls.

Conclusions: Overall, this sample had mean self-esteem in the normal range; high levels were seen only in a few. Children with normal BMI had higher self-esteem scores. Interestingly, underweight children also had high self-esteem scores.

Keywords: RSES Self-esteem Scores, Adolescents, School Children, BMI, Age, Gender, High Socioeconomic Class, Metro City

Joshi S et al.
Ind. J. Youth Adol. Health 2023; 10(2)

2

Introduction

Self-esteem and self-worth are important aspects of adolescent development. Self-esteem is most endangered during adolescence since self-concepts evolve and many self-decisions must be made.[1]

Rosenberg defines self-esteem as "one's positive or negative attitude toward oneself and one's evaluation of one's own thoughts and feelings overall in relation to oneself".[2] Self-esteem affects social adaptation; hence low self-esteem may lead to social maladjustment. This may cause a vicious cycle that lowers life quality. Good self-esteem is linked to life satisfaction, fewer interpersonal issues, higher and more consistent achievement, and less psychological (e.g., anxiety and depression) and physical illness.[3]

Low self-esteem causes stress and increases cortisol levels; stress during the early years lowers children's self-esteem, making them susceptible to depression later in life. Students with high self-esteem manage stress better and perform better academically. Stress management techniques like yoga, meditation, humour, mindfulness, and counselling are very helpful.[4] Low self-esteem is also strongly linked to cyberbullying,[5] smoking, illegal drug abuse,[6] alcohol intake and sexting[7] in children and high-school students. In a study in Vietnam, 19.4% of students had low self-esteem with increased anxiety, depression, and suicidal ideation. There is a necessity for a school-based or web-based solution focused on proactively enhancing students' self-esteem and skills for dealing with academic stress.[8]

Indian studies also show similar results. A study using the Rosenberg self-esteem scale showed moderate self-esteem in sixty 8th-graders.[9] In another study, low self-esteem was linked to poor academic self-efficacy, peer teasing, body dissatisfaction, family conflict, and gender discrimination in the family, while high self-esteem was linked to satisfaction with academic performance and less social comparison.[10] Another study by Dhal et al. in Delhi reported that 12-13-year-olds had lower self-esteem than 10-11-year-olds.[11]

The Association of Adolescent and Child Care India (AACCI) works for the holistic physical and mental health of young adults, adolescents, and children and conducts awareness programmes and workshops in various schools and colleges. We also collect multicentric data for youth behaviour using standardised scales to plan customised interventions. This article is a part of the multicentric data obtained in the self-esteem survey in children.

When studying self-esteem among 192 school-going children in Central India, a study highlighted the need for strengthening life skills education, a positive and healthy immediate environment, individual coping, social intelligence, and a cautious approach to boost self-esteem.[12] AACCI meets this need by regularly conducting Life Skill Education in schools and colleges for the last 15 years.

This study analysed the self-esteem of school-going children in Mumbai and its association with selected demographic variables and BMI.

Material and Methods

This is a cross-sectional study conducted in July 2017. The data were collected from a convenience sample of 334 high socio-economic background students from grades 5th to 9th in the age group of 10-15 years of an English-medium, co-ed school in Mumbai. Data collection was done in their classrooms and was supervised by the teachers trained by the fourth author.

Rosenberg's Self-Esteem Scale (RSES),[13] a highly reliable and valid self-report instrument for evaluating individual self-esteem, was used. It has 10 items rated on a 4-point Likert-type scale; one indicating 'strongly agree' and four being 'strongly disagree'. In this scale, there were five positively worded items i.e., items no. 1, 3, 4, 7, and 10, and the other five, i.e., items no. 2, 5, 6, 8 and 9, were negatively worded. These negatively worded items were reverse-scored for the analysis of the self-esteem scores of the population in this study. The scale scores range from 0-30 where a score of 15-25 means that the individual has normal self-esteem, a score lower than 15 indicates that the individual has low self-esteem, and a score in the range of 26-30 means that the individual has high self-esteem.

A customised demographic questionnaire was developed for obtaining additional information about the participants including their age, gender, height and weight to calculate the Body Mass Index (BMI). The researchers used the World Health Organisation's Asian cut-off to categorise the BMI of the participants.[14] According to the Asian cut-off, a BMI less than 18.5 indicates 'underweight', BMI ranging from 18.5 to 22.9 indicates 'normal weight', a range of 23-24.9 indicates 'overweight' and for the purpose of this study, an index of 25 and above was considered as 'obese'.[14]

For this study, parental permission of the children who participated was taken through the principal who permitted the study. A written assent of children was also taken while filling out the questionnaire. Ethical clearance and approval were given by AACCI Institutional Ethics Committee.

All school teachers were trained to administer the questionnaire, which asked about gender, age, class, height and weight, and the RSES scale. No names were asked to encourage honest answers. Results were shared with the school authority, students, and parents.

The data were analysed using SPSS 17.

3

Joshi S et al.
Ind. J. Youth Adol. Health 2023; 10(2)

Results

Table 1.Age and Gender Distribution

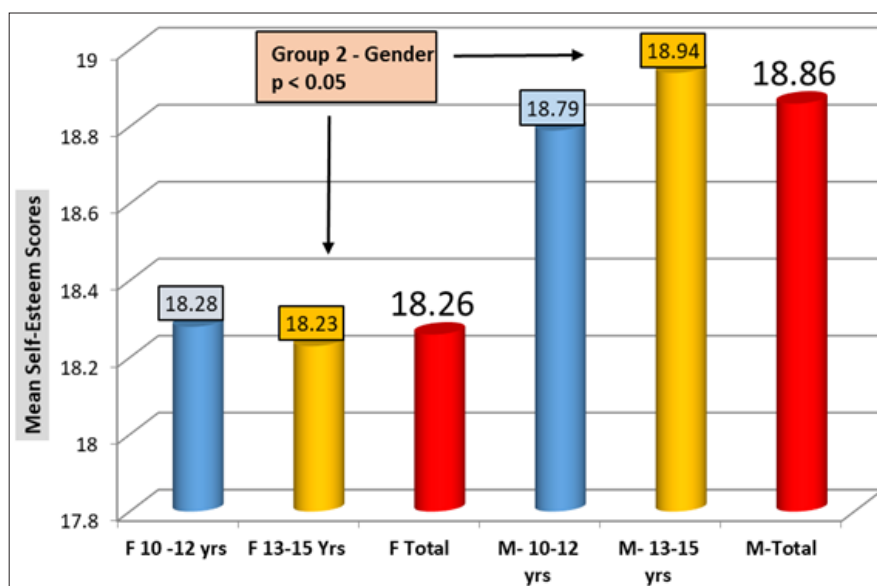| Characteristics	Groups (N = 334)	Number of Participants	Percentage (%)
Age (years)	10 to 12 (Group 1)	188	56.28
	13 to 15 (Group 2)	146	43.71
Gender	Group 1 boys	124	64.07
	Group 2 boys	90	
	Total boys	214	
	Group 1 girls	64	35.92
	Group 2 girls	56	
	Total girls	120	

Figure 1.Self-esteem Score in relation with Age and Gender

Table 2.Body Mass Index and Gender

BMI N = 296	< 18.5	18.5-22.9	23-24.9	≥ 25	Total N (%)
	Underweight N (%)	Normal N (%)	Overweight N (%)	Obese N (%)	
Boys	117 (62.57)	45 (24.06)	12 (6.42)	13 (6.95)	187 (100)
Girls	62 (56.88)	34 (31.19)	4 (3.67)	9 (8.26)	109 (100)
Total	179 (60.47)	79 (26.69)	16 (5.41)	22 (7.43)	296 (100)

*38 study participants did not submit either their height and/ or weight; hence their BMI could not be determined.

The analysis of this variable was calculated with n = 334-38 = 296.

Horizontal Calculation of (%)

BMI cut-offs were considered as per WHO recommendations for Asian populations.[14]

Table 3.BMI and Mean Self-esteem Scores

BMI (Asian Criteria) N = 296 (BMI Could not be Calculated for 38 Children)	Number of Students N (%)	Mean RSE Score	Standard Deviation
Underweight	179 (60.47)	18.67	2.018
Normal weight	79 (26.68)	18.67	2.233

Joshi S et al.
Ind. J. Youth Adol. Health 2023; 10(2)

4

Overweight	16 (5.40)	18.36	1.630
Obese	22 (7.43)	18.46	0.967
Total	296	18.64	2.022

*38 study participants did not submit either their height and/ or weight, hence their BMI could not be determined.

The analysis of this variable was calculated with n = 334-38 = 296.

BMI cut-offs were considered as per WHO recommendations for Asian populations.[14]

Table 4. High Self-esteem (RSES Score ≥ 26) in relation with Body Mass Index

BMI N = 296	Boys G1 (10-12 Years) N (%)	Girls G1 (10-12 Years) N (%)	Boys G2 (13-15 Years) N (%)	Girls G2 (13-15 Years) N (%)
Underweight	8 (4.47)	5 (2.79)	0	0
Normal	4 (5.06)	3 (3.79)	0	0
Overweight	0	0	0	0
Obese	0	0	0	0

38 study participants did not submit either their height and/ or weight, hence their BMI could not be determined.

The analysis of this variable was calculated with n = 334-38 = 296.

BMI cut-offs were considered as per WHO recommendations for Asian populations.[14]

Table 5. Comparsion of Mean Self-esteem Scores in the Overweight and Obese Category

BMI	G1 (10-12 Years) Mean SE Scores	G2 (13-15 Years) Mean SE Scores	P-value
Overweight	17.69 ± 1.20	20 ± 1.30	p = 0.002
Obese	17.53 ± 1.12	19.60 ± 1.10	p = 0.001

Discussion

The age and gender distribution (Table 1) showed that we had a higher percentage of boys i.e. 64.07% as compared to girls, which were 35.92%. For the comparison of age, we divided the 334 children into a younger (10-12 years) age group and an older (13-15 years) age group. These had 56.28% and 43.71% of participants respectively.

We found that overall, all the children showed mean values of normal self-esteem (mean = 18.64 ± 2.02) (Figure 1). Low self-esteem was not found in any participant in our study. This is a positive sign as self-esteem has been found to act as a protective factor against various high-risk behaviours as outlined in the introduction.[4-7] However, this finding can be attributed to the fact that the study was conducted in a private and elite English-medium school where there were not more than 20 children per class. Thus, positive self-esteem would have been fostered in school as well as at home resulting in the current findings. Past literature has shown the impact of a positive and healthy immediate environment on self-esteem.[12]

Self-esteem Score related to Age and Gender

In our study, the self-esteem scores of boys were higher than the scores of girls (18.86 > 18.26) (Figure 1). This was statistically significant in the older group; boys showed significantly higher self-esteem scores as compared to the girls in that group (p < 0.05). The higher score of boys in this sample can be attributed to gender socialisation and the culture of India where more autonomy is given to boys in general as compared to girls. Also, the lower self-esteem scores in girls could be a result of issues like body image, gender discrimination, impact of advertisements, etc. We also found that younger girls had higher self-esteem than older girls (18.28 > 18.23) (Figure 1). This could be as body image difficulties and increased self-awareness may cause older girls to have lower self-esteem. Among boys, older ones had higher self-esteem than their younger counterparts (18.79 < 18.94) (Figure 1). This may be because of fewer issues of self-objectification and higher maturity to protect them.

Dhal et al. reported that 12-13-year-olds had lower self-esteem than 10-11-year-olds.[11] This decline in self-esteem is caused by various changes the adolescent encounters, such as secondary sexual features, formative thought, peer acceptability, relationship failures, social inadequacy, etc.[10]

Body image and self-esteem are correlated. Body weight and Body Mass Index have been found to be related to body image dissatisfaction and self-esteem among children as seen in many studies.[15] So we also analysed the BMI categories in this sample (Table 2). In our study for BMI calculation, we could not include 38 students (27 boys and 11 girls) as they had not filled in either weight or height or both. The reason for this could be because either they were not aware of their latest height and weight, or if they

5

Joshi S et al.
Ind. J. Youth Adol. Health 2023; 10(2)

were obese or overweight, they may not want to report it. So from the total sample of 334 students, we analysed the BMI of 296 students.

We had a significant number of underweight (60.47%) children. We also had 5.4% overweight and 7.43% obese children. Only about 27% had a normal BMI. These findings are worrisome as they suggest that these adolescents probably have unhealthy food habits which must be affecting their ability to maintain a healthy BMI. AACCI has done studies regarding the food habits of adolescents. Bhave et al. found that only 35% of students had healthy BMI.[16] These studies identify the need to conduct interventions for healthy BMI and how to achieve it through diet, healthy life skills, and exercise.[17]

We compared the self-esteem scores with the BMI of the participants (Table 3). The mean self-esteem scores for all the BMI categories in our sample were found to be in the normal range (scores between 15 and 25). This is a good sign that overweight and obese children in this group aren't body conscious, but it could also mean they might continue their obesogenic behaviour, which might put them at risk for NCDs.

We did further analysis of the children who had high self-esteem scores (RSES scores ≥ 26) which were seen in 13 (7.26%) underweight and 7 (8.85%) normal-weight students (Table 4), and compared them with their BMI. It was interesting to note that these higher scores were seen only in the younger age group I and in two categories of underweight (4.47% in boys vs 2.79% in girls) and normal BMI (5.06% in boys vs 3.79% in girls). We did not have high self-esteem scores in either the overweight or obese category. Being normal weight seems to boost self-esteem. Overweight and obese kids are often bullied and body-shamed in schools and hence may feel more self-conscious and experience lower self-esteem. Though we had a significant number of underweight children (61%), none of them reported low self-esteem probably due to less mocking of underweight children in comparison to obese children. Fat shaming is a more prevalent issue in Indian culture than skinny shaming. Even the Indian movie industry glamourises 'size zero' which can set wrong beauty standards among children that being underweight is more attractive.

Other studies have also reported the highest self-esteem in the normal weight category and the lowest in the obese category.[18] Anitha and William examined self-esteem and BMI in 60 Indian preteens where they found a significant negative correlation between BMI and self-esteem which meant that as adolescent BMI increased, self-esteem decreased.[19]

On comparing BMI and gender (Table 2) in our study, we found that boys were more underweight than girls (62.57% vs 56.88%), and more overweight too (6.42% vs 3.67%) whereas, obesity was more in girls (8.26% vs 6.95%). Normal BMI was also more in girls (31.46% vs 24.06%) than in boys.

A study conducted in Haryana by Kukreja and Jyotsana on school children from grades 6th to 10th found no significant gender difference in self-esteem.[20] However, contrasting findings were reported in a study of adolescents aged 14-18 years showing a significant difference in the level of self-esteem between Indian adolescent girls and boys.[21] A study conducted in Karachi, Pakistan found a significant difference between the genders; but the girls in the sample had higher self-esteem than boys. However, this study was done on professional college students and the study claimed that this was due to the gender imbalance in the sample, with girls outnumbering boys.[18]

A study by Bhadouria and Bhadoria extended on these findings and reported that self-esteem was lower among adolescent girls who fall under the obese and overweight category than normal-weight girls.[22]

We compared self-esteem with BMI in the obese and overweight categories (Table 5). The mean SE score for the younger group (Group 1) in the obese category was 17.53 ± 1.12 as compared to the mean score of the older group (Group 2) which was 19.60 ± 1.10 and the p value was significant (p = 0.001). Similarly, even in the overweight category, the self-esteem of older children (Group 2) was 20 ± 1.30 which was higher than the younger children (Group 1) (17.69 ± 1.20). This difference also was statistically significant at 0.002 level (p = 0.002). This can be attributed to the emotional maturity that develops with age which results in better processing of body image and more acceptance of self.

Our findings suggest the need for providing inclusive and culture-based interventions that are tailor-made according to the needs of these school-going adolescents. It is important to educate them about the factors that affect self-esteem during this period of adolescence. Increasing the self-esteem of children with high BMI and guiding them accordingly in terms of healthy diet and lifestyle is the need of the hour. In this regard, a 'strength-based approach' to build on these children's strengths and competent and qualified LSE programmes or self-esteem training in schools becomes crucial. AACCI has been regularly conducting LSE programmes for the last 15 years. Self-esteem training and life-skill education programmes along with the provision of necessary counselling support can play a vital role in helping students build a physically and mentally holistic and healthier lifestyle.

Joshi S et al.
Ind. J. Youth Adol. Health 2023; 10(2)

6

The results from this study helped us to persuade the school management to organise awareness and intervention programmes in the school.

Limitation of the Study

The sample of this study included children from a cosmopolitan metro city of Mumbai who were part of an elite English-medium school. These factors can limit the generalisation of these findings. Further large cohort research is required for the results to be validated.

Conclusion

All children in this study showed normal self-esteem scores. This study also showed that boys in our sample had higher self-esteem than girls and this trend held true for younger (Group 1: 10-12 years) as well as older (Group 2: 13-15 years) age groups. The higher score of boys in this sample can be attributed to gender socialisation and the culture of India where more autonomy is given to boys in general as compared to girls. Also, the lower self-esteem scores in girls could be a result of issues like body image, gender discrimination, impact of advertisements, etc. Older girls showed better self-esteem than younger age groups probably due to more emotional maturity to handle issues.

Self-esteem was also seen to be lower in overweight and obese students as compared to normal-weight and underweight students, although the number of the latter in the sample was markedly higher. None of the students in the overweight and obese categories showed high self-esteem scores (≥ 26). Perhaps a lot of merciless body shaming may be taking place for the latter group, and this effect has already begun to show as early as the pre-teens.

Further, the change seen as they grow older and have significantly higher self-esteem scores although they continue to live with unhealthy body weight, does not really bode well, since they are perhaps using other means such as academic success or prowess in other areas to boost their esteem, but are in denial about their body weight and are not making efforts to adopt a healthier lifestyle. This points to the need to introduce more awareness programmes for parents of this age group as well as the children themselves, to avoid lifestyle diseases later in life.

Acknowledgements

References

1. Shanmugam V, Kathyayini BV. Assertiveness and self-esteem in Indian adolescents. Galore Int J Health Sci Res [Internet]. 2017 [cited 2023 Feb 17];2(4):8-13. Available from: https://www.gijhsr.com/ [Google Scholar]

2. Rosenberg M. Rosenberg self-esteem scale. APA PsycNet; 1965 Jul.

3. Brown JD. Self-esteem and self-evaluation: feeling is believing. In: Suls JM, editor. Psychological perspectives on the self. 1st ed. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc; 1993;27-58. [Google Scholar]

4. Galanakis MJ, Palaiologou A, Patsi G, Velegraki IM, Darviri C. A literature review on the connection between stress and self-esteem. Psychology. 2016;7:687-94. [Google Scholar]

5. Lei H, Mao W, Cheong CM, Wen Y, Cui Y, Cai Z. The relationship between self-esteem and cyberbullying: a meta-analysis of children and youth students. Curr Psychol. 2019;39(3):830-42. [Google Scholar]

6. Khajehdaluee M, Zavar A, Alidoust M, Pourandi R. The relation of self-esteem and illegal drug usage in high school students. Iran Red Crescent Med J. 2013;15(11):1-7. [PubMed] [Google Scholar]

7. Fannin H. Sexting among adolescents: examining the association between sexting and self-esteem. Phys Assis Stud. 2020;11:1-23. [Google Scholar]

8. Nguyen DT, Wright EP, Dedding C, Pham TT, Bunders J. Low self-esteem and its association with anxiety, depression, and suicidal ideation in Vietnamese secondary school students: a cross-sectional study. Front Psychiatry. 2019;10:698. [PubMed] [Google Scholar]

9. Balakrishnan P, Daisy A. Assessment of self-esteem among school children in selected schools at Raipur. Asian J Nurs Educ Res. 2021;11(1):89-91. [Google Scholar]

10. Dhillon M, Dhawan P, Ahuja K, Kalyani A, Papneja D. Factors influencing self-esteem of Indian female adolescents. IOSR J Humanit Soc Sci. 2016;21(7):56-63.

11. Dhal A, Bhatia S, Sharma V, Gupta P. Adolescent self-esteem, attachment and loneliness. J Indian Assoc Child Adolesc Ment Health. 2007;3(3):61-3. [Google Scholar]

12. Choudhary Y, Kumar M, Mahore R, Lanke GW, Dubey M. Aggression, self-esteem, and resilience among children: a school-based cross-sectional study from Central India. Asian J Soc Health Behav. 2022;5(3):115-21. [Google Scholar]

13. Rosenberg M. Society and the adolescent child. Princeton, NJ: Princeton University Press; 1965.

14. WHO Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004;10;363(9403):157-63. [PubMed] [Google Scholar]

15. Moradi M, Mozaffari H, Askari M, Azadbakht L. Association between overweight/obesity with

7

Joshi S et al.
Ind. J. Youth Adol. Health 2023; 10(2)

depression, anxiety, low self-esteem, and body dissatisfaction in children and adolescents: A systematic review and meta-analysis of observational studies. Critical Reviews in Food Science and Nutrition. 2020;62(2):555-70. doi:10.1080/10408398.2020.1823813 https://www.tandfonline.com/doi/abs/10.1080/10408398.2020.1823813

16. Bhave SY, Amin S, Nahata K, Bhalla L, Sovani A, Joshi S. Understanding the pattern of adolescents' nutritional behaviour and lifestyle. Indian J Youth Adol Health. 2023;10(1):1-7. [Google Scholar]

17. Bhave SY, Bhalla L, Sayyad YK, Bhave YS. Assessing self-efficacy of school children for making choices for physical activity and healthy food. Asia Pac J Pediatr Child Health. 2022;5:4-12. [Google Scholar]

18. Naz A, Ishaque F, Yasmeen S, Naz E, Afzal R, Khan F. Impact of body weight on self-esteem among undergraduate young adult students of Doctor of Physiotherapy, Karachi. J Rawalp Med Coll. 2022;26(2):174-9. [Google Scholar]

19. Anitha J, William BR. Relationship between body mass index and self-esteem among early adolescents in a selected school, Coimbatore. Int J Pediatr Nurs. 2020;6(1):13-7. [Google Scholar]

20. Kukreja T, Jyotsana. Self-esteem, anxiety and family climate for school going boys and girls in Haryana State. Learn Community Int J Educ Social Dev. 2015;6(1):1-12. [Google Scholar]

21. Devi S, Jyotsana. Identity formation: role of social support and self esteem among Indian adolescents. Int J Indian Psychol. 2016;3(2):114-24.

22. Bhadouria S, Bhadoria D. A study of adolescent girls' self-esteem in relationship with obesity. Int J Home Sci. 2017;3(3):106-10.