

## Body Image Perception among Adolescent students in a private School in Thrissur, Kerala

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**Introduction:** Body image perception is the way a person feels about his/her body and these feelings can be positive, negative or both. It is ever changing, and is influenced by individual and environmental factors. It can be both self-perceived or as perceived by others like family, friends, peer group, teachers etc. **Objectives:** To assess the body image perception of adolescents and the associated factors and to assess the effect of family, friends, peers and others on the body image perception of adolescents. **Methodology:** This was a cross sectional study. Four divisions from classes 9, 10, 11 and 12 of a private school, Thrissur were randomly selected. There were 179 students in total. A pretested self administered questionnaire was used to collect data. **Results:** The proportion of boys (50.3%) and girls (49.7%) were almost equal. In this study 65.4% of the adolescents were having normal BMI for their age. 26.2% of the subjects had overweight and 8.4% of the subjects were undernourished. Varying degrees of negative body image perception was seen among 84.91% of subjects. Erroneous body size perception was seen among 36.8% of the subjects. This was statistically significant. A larger proportion of females (40.4%) compared to males (23.4%) was dissatisfied by their body size. Mean BMI was significantly higher in those who were not satisfied with their body size and those who had tried to lose weight in their past. Negative correlation was observed between body image perception and academic performance of the students. **Conclusion:** A high proportion of adolescents had negative body image perception. Targeted activities have to be carried out to improve their perception.

**Keywords:** Adolescents, Body image perception, Cross sectional study

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## Introduction

The World Health Organization (WHO) defines adolescents as individuals aged between 10 to 19 years [1]. The term adolescent is derived from the Latin word 'adolescere' meaning 'to grow up'[2,3]. This group of young individuals, who are often thought to be healthy, are sadly the most neglected, as they are neither children nor adults [4]. Adolescents experience a variety of health and social problems like anxiety, depression, eating disorders, drug abuse, tobacco and alcohol abuse, learning disabilities and malnutrition.

There is growing literature that shows girls as young as 8 years old already show higher concern towards body image perception and weight [5, 6]. If left unchecked these problems might have a potentially devastating effect on their health as adults tomorrow [4].

Body image is considered a multi-dimensional concept that includes perceptual, attitudinal, affective, and behavioural dimensions [7]. It is the mental picture we have in our minds of the size, shape and form of our bodies and our feelings concerning these characteristics [8].

Body image perception is the way a person feels about his/her body and these feelings can be positive, negative or both. It is ever changing, and is influenced by individual and environmental factors. It can be both self-perceived or as perceived by others like family, friends, peer group, teachers etc.

Positive body image occurs when a person is able to accept, appreciate and respect their body and is one of the protective factors which can make them resilient to eating disorders, depression and anxiety [7].

When a person has dissatisfaction, negative thoughts and feelings about his or her own body it is called negative body image. It is an internal process but can be influenced by several external factors like media, magazines, internet and advertising [7].

These often promote unrealistic, unobtainable and highly stylised appearance ideals. Many adolescents with normal weight compare themselves to images of very thin men and women presented by the media and perceive themselves as being fat and overweight [9].

Those who feel they don't measure up in comparison to these images can experience intense body dissatisfaction which is damaging to their psychological and physical wellbeing. This dissatisfaction may continue to increase as the adolescent ages, with the greatest dissatisfaction peaking during young adulthood [10].

Many studies have been carried out regarding body image dissatisfaction. However, since cultural and environmental influences play a significant role, local studies are needed to ascertain the prevalence of body image dissatisfaction among adolescents of our.

This study was conducted with following objectives:  
01. To assess the body image perception of adolescents and the associated factors.

02. Effect of family, friends, peers and others on the body image perception of adolescents.

## Materials and Methods

This was a cross sectional study. The study was conducted from May 2018 to November 2018. The study was done for the Students of 9th, 10th, 11th and 12th standards of a private School in Thrissur.

The formula used for calculating sample size was:

$$N = \frac{Z_{2(1-\alpha)}^2 pq}{D^2(20/100 \times 0.51)^2}$$

$$= (1.96)^2 \times 0.51 \times 0.49 = 93$$

P = prevalence of negative body image perception

A = 0.05 = 1.96

Power = 80%

In a study done in Trinidad by Ramberan et al, 51% of the participants had a negative body image perception [11]. All the students of 9th, 10th, 11th, and 12th classes who gave consent to participate in the study were included in the study.

After obtaining prior permission from the school authorities, four divisions from classes 9, 10, 11 and 12 were randomly selected for the study. The purpose of the study was explained in detail to all students of these 4 classes.

They were assured of anonymity and confidentiality was strictly maintained during all stages of the study. Questionnaires in English language were distributed among students and were collected back after completion.

Data was entered using MS Excel. Statistical analysis was done using SPSS Version 20. Operational definition: Body image is a mental picture we have in our minds of the size, shape and form of our bodies and our feelings concerning these characteristics and one's body parts [12].

## Results

Majority of the study subjects were in the middle adolescence. The proportion of girls (49.7%) and boys (50.3%) were almost equal. There were 90 males and 89 females. The proportion of subjects studying in 9th (26.8%), 10th (22.9%), 11th (25.7%) and 12th (24.6%) were almost equal.

A large proportion of the study subjects were Christians (56.4%) and then followed by Hindus (32.4%) and Muslims (10.6%). Most of the subjects were day scholars (74.9%) and only few were hostellers (25.1%).

**Table-1: Distribution by stage of adolescence.**

| Stage (in years)          | Number(n) | %     |
|---------------------------|-----------|-------|
| Early adolescence(10-13)  | 22        | 12.3  |
| Middle adolescence(14-16) | 124       | 69.3  |
| Late adolescence(17-19)   | 33        | 18.4  |
| Total                     | 179       | 100.0 |

Most of the adolescents were having normal BMI for their age (65.4%).26.2% of the subjects had overweight and 8.4% of the subjects were undernourished.

**Table-2: Nutritional status according to BMI for Age.**

| Nutritional status | Frequency | Percent |
|--------------------|-----------|---------|
| Under nutrition    | 15        | 8.4     |
| Normal             | 117       | 65.4    |
| Over nutrition     | 47        | 26.2    |
| Total              | 179       | 100     |

**Table-3: Negative Body Image Perception among Adolescents.**

| Question  | No        |         | Yes       |         |
|---|-----------|---------|-----------|---------|
|   | Frequency | Percent | Frequency | Percent |
| I am constantly thinking about my body size, shape and weight and I'm always working to improve it. | 97        | 54.2    | 82        | 45.8    |
| I would be happier and my life would be better if I were thinner or more muscular.                  | 113       | 63.1    | 66        | 36.9    |
| I commonly skip meals to lose weight  | 164       | 91.6    | 15        | 8.4     |

|   |     |      |    |      |
|---|-----|------|----|------|
| I weigh myself at least once a day.   | 165 | 92.2 | 14 | 7.8  |
| I know/ want to know how many calories are in the foods I eat.                            | 132 | 73.7 | 47 | 26.3 |
| I work out/ exercise to lose weight or look better  | 100 | 55.9 | 79 | 44.1 |
| I completely exclude foods from one or more food groups to manage my weight.              | 165 | 92.2 | 14 | 7.8  |
| I don't participate in sports and other activities because I'm embarrassed about my body. | 162 | 90.5 | 17 | 9.5  |
| I like to wear oversized clothes to hide 'flaws' inmy appearance.                         | 158 | 88.3 | 21 | 11.7 |
| When I see a model/ an actor in a magazine or on TV, I want to look like him/her.         | 145 | 81.0 | 34 | 19.0 |

The above ten item scale was used to assess the presence or absence of a negative body image perception.

Each item were scored Yes= 1 and No=0. A total score of 0 indicates no negative image perception and, and a score of 10 indicates a strong negative body image perception

**Table-4: Negative body Image Grading.**

| Total Score on 10 | Frequency | Percent |
|-------------------|-----------|---------|
| 0                 | 27        | 15.08   |
| 1-3               | 116       | 64.80   |
| 4-8               | 34        | 18.99   |
| >8                | 2         | 1.12    |
| Total             | 179       | 100.00  |

A large proportion of the study population had negative body image perception (84.91%). 15.08% of the population had no negative body image perception.

**Table-5: Gender wise satisfaction with weight and height.**

| Are you happy with your body size? | Gender    |           | Total      |
|------------------------------------|-----------|-----------|------------|
|                                    | Male      | Female    |            |
| Yes                                | 58(64.4%) | 45(50.5%) | 103(57.5%) |
| Wish I was thinner                 | 21(23.4%) | 36(40.4%) | 57(31.8%)  |
| Wish I was fatter                  | 11(12.2%) | 8(8.98%)  | 19(10.3%)  |
| Total                              | 90        | 89        | 179        |
| Do you wish you were               | Gender    |           | Total      |
|                                    | Male      | Female    |            |
| Taller                             | 57(63.3%) | 47(52.8%) | 104(58.1%) |
| Shorter                            | 3(3.33%)  | 4(4.5%)   | 7(3.9%)    |
| The same                           | 30(33.3%) | 38(42.7%) | 68(37.9%)  |
| Total                              | 90        | 89        | 179        |

P value= 0.048

Majority (57.5%) of the adolescents were satisfied with their body size. A larger proportion of females

(40.4%) compared to males (23.4%) wanted to become thinner. This was found to be statistically significant.

A larger proportion of the males (63.3%) wished to become taller as compared to females (52.8%).

**Table-6: Perceived Body Image and associated factors.**

| Perceived body image            | BMI            |            |                | Total | P value |
|---------------------------------|----------------|------------|----------------|-------|---------|
|                                 | Undernutrition | Normal     | Over nutrition |       |         |
| Too thin                        | 3 (20%)        | 2 (1.7%)   | 0              | 5     | 0.0001  |
| Thin                            | 8(53.3%)       | 26 (22.2%) | 0              | 34    |         |
| Normal                          | 3(20%)         | 77 (52.3%) | 22 (46.8%)     | 102   |         |
| Fat                             | 1(6.67%)       | 11 (9.4%)  | 20 (42.5%)     | 32    |         |
| Too fat                         | 0              | 1 (0.85%)  | 5 (10.6%)      | 6     |         |
| Total                           | 15             | 117        | 47             | 179   |         |
| Perceived body image by parents | BMI            |            |                | Total | 0.0001  |
|                                 | Undernutrition | Normal     | Over nutrition |       |         |
| Too thin                        | 5(33.3%)       | 13(11.5%)  | 1(2.3%)        | 19    |         |
| Thin                            | 9(60%)         | 28(24.7%)  | 1(2.3%)        | 38    |         |
| Normal                          | 0              | 65(57.5%)  | 15(34.8%)      | 80    |         |
| Fat                             | 1(6.6%)        | 7(6.19%)   | 18(41.8%)      | 26    |         |
| Too fat                         | 0              | 0          | 8(18.6%)       | 8     |         |
| Total                           | 15(100%)       | 113(100%)  | 43(100%)       | 171   |         |
| Perceived body image by peers   | BMI            |            |                | Total | 0.0001  |
|                                 | Undernutrition | Normal     | Over nutrition |       |         |
| Too thin                        | 4(30.7%)       | 6(5.8%)    | 0              | 10    |         |
| Thin                            | 8(61.5%)       | 25(24.5%)  | 0              | 33    |         |
| Normal                          | 0              | 67(65.6%)  | 22(55%)        | 89    |         |
| Fat                             | 1(7.6%)        | 3(2.9%)    | 14(35%)        | 18    |         |
| Too fat                         | 0              | 1(0.9%)    | 4(10%)         | 5     |         |
| Total                           | 13(100%)       | 102(100%)  | 40(100%)       | 155   |         |

Of all the undernourished subjects 20% perceived themselves to be normal and 6.67% to be fat. 52.3% of the normally nourished subjects had correct perception of their body size. Of the normally nourished subjects 1.7% thought they were too thin, 22.2% thin, 9.4% fat, 0.85% too fat.

46.8% of the over nourished subjects perceived themselves to be normal. None of the over nourished perceived themselves to be too thin or thin. Erroneous body size perception was seen among 36.8% of the subjects. This was statistically significant.

The information for parents’ and peers’ perception is available only for 171 and 155 subjects respectively as the rest didn’t know about how their parents felt about their body size.

Rates of over estimation and under estimation of body size by parents were 6.25% and 37.17% and by peers were 4.34% and 21.83% respectively.

**Table-7: BMI and Body Image Variables.**

| Variable  | Response |       |        |       | t value | p value |
|---|----------|-------|--------|-------|---------|---------|
|   | Yes      |       | No     |       |         |         |
|   | Mean     | SD    | Mean   | SD    |         |         |
| Negative body image?                                  | 20.862   | 2.320 | 19.484 | 3.296 | 1.576   | 0.117   |
| Satisfied with body size?                             | 19.642   | 2.613 | 22.025 | 5.416 | 3.894   | 0.0001  |
| Satisfied with height?                                | 20.768   | 5.075 | 20.584 | 3.590 | 0.283   | 0.777   |
| Criticized because of appearance?                     | 21.022   | 5.086 | 20.412 | 3.509 | 0.951   | 0.343   |
| Tried to lose weight?                                 | 22.816   | 3.901 | 18.60  | 3.387 | 7.716   | 0.0001  |
| Pressured to look good?                               | 21.209   | 4.309 | 20.462 | 4.173 | 1.005   | 0.316   |
| Put effort into appearance?                           | 20.689   | 3.716 | 20.509 | 4.989 | .274    | 0.785   |
| Body size prevented from participating in activities? | 21.375   | 5.839 | 20.499 | 3.757 | 1.076   | 0.283   |

Both the parents (38.59%) and peers (37.41%) had erroneous body size perception of the subjects’ body size.

On univariate analysis using independent samples t-test, it was found out that the mean BMI was

Significantly higher in those who were not satisfied with their body size and those who had tried to lose weight in their past.

**Table-8: Body image perception and academic performance.**

|                              | Spearman's Correlation Coefficient(r) | P value |
|------------------------------|---------------------------------------|---------|
| Marks* body image perception | -0.167                                | .031    |

Negative correlation was observed between body image perception and academic performance of the students.

## Discussion

A total of 179 adolescents aged from 13 to 18 years were part of this study. In this study 65.4% of the adolescents were having normal BMI for their age. About 26.2% had overweight and 8.4% were undernourished. A study done by Praveen Kulkarni et al among both urban and rural adolescents in South India, showed that prevalence of undernutrition was 28.3%.

Our study shows a much lower prevalence of undernutrition, this may be due to the fact that only urban adolescents were studied [13]. A study done by M Shashidhar Kotian et al in South Karnataka showed that overall prevalence of overweight and obesity was 11.4% and 4% respectively [14].

The present study shows a much higher prevalence of over nutrition may be due to the fact that the study was done in urban population. 84.91% of the study population had negative body image perception. In a study done in Trinidad by Ramberan et al, 51% of the participants had a negative body image perception.

The largely higher proportion observed in our study may be due to the different ethnic and cultural setting [11]. 63.2% of the subjects correctly identified the body size. A study done by D.T Simeon among multi-ethnic adolescents in the Caribbean showed that 68% correctly identified their body size, which is almost similar to our study findings [15].

Erroneous body size perception was seen among 36.8% of the subjects. K Ramesh et al in their study based in adolescents in Kerala, showed that 82.8% had a false perception of their body weight [16]. Self-body size perception was seen to be better in our study. The most common mode of trying to lose

Weight was exercise (84.1%), followed by dieting (28%) and skipping meals (19.5%).

In a study by Chavada et al in Mumbai, most preferred way to maintain weight was exercise [17]. Harsh practices like not eating between meals (37.3%), consuming snacks instead of meals (35.6%) and skipping meals (28.8%) was observed. These findings are very similar to this study.

A study by Swati Dixit et al, showed that 73.4% were satisfied with their current body size, and among those satisfied 32.8% were under weight and 38.4% were stunted. 4.9% under estimated their weight and 32.8% over estimated [18]. It was seen that urban subjects were more dissatisfied than their rural and slum counterparts. Almost similar proportions of adolescents were found to be satisfied in the present study.

Dissatisfaction rates were seen to be 71.4% in a Brazilian study, 51% among girls and 60% among boys in a Spanish study [11, 19]. Rates of dissatisfaction were seen to be much higher in our study. The ethnic-socio-cultural background of adolescents and their exposure to media and internet probably have a profound bearing on body image dissatisfaction.

An Asian study involving 13- and 14-year-olds found that 78.1% were dissatisfied with their current body size, even though 50% of the students had normal BMI, and those with high body image discrepancy scores were reported to be more likely to have higher BMI [20].

In another study using the Figure Rating Scale among 14- and 16-year-olds, 95% of female students tended to choose the silhouette representing 10% underweight as their ideal or desired body image. The overweight students showed significantly greater body image dissatisfaction [21].

Those who are overweight and obese had higher body image dissatisfaction compared to those with normal weight. This is higher than results demonstrated among Iranian adolescents in the CASPIAN-IV (Childhood Adolescent Surveillance and Prevention of Adult Noncommunicable disease) study [22].

The CASPIAN-IV survey, done among 13,486 Iranian adolescents with the mean age of 12.5 years, showed that 53.5% were dissatisfied with their weight [22]. This discrepancy could be due to the vast difference in the sample population of both

Studies.

On the other hand, our prevalence is lower than that found by Pallan et al., who showed that more than 80% of South Asian children aged 5e7 years old were not satisfied with their body image [23].

Similarly, another study using the figure rating scale and involving 1530 children aged 7e10 also showed higher prevalence in body image dissatisfaction, at 82.9% among their students, of whom 59.9% desired a smaller body size and 23.0% desired a larger body size [24].

These findings indicate that the problem of body image dissatisfaction is not isolated to certain ethnicities or regions but has become a global phenomenon, and the fact that it is also high among younger adolescents may indicate that interventions should be undertaken seriously to curb its spread.

In a study conducted in Malaysia, more than half of the students were dissatisfied with their body image (60.1%). Overweight and obese students had higher body image dissatisfaction (79.6%) compared to students with normal weight (51.7%) or underweight students (57.6%).

Among the students with normal BMI, only 48.3% were satisfied with their current body image. Female students had higher body image dissatisfaction (66.1%) compared to male students (52.0%).

The proportion of body image dissatisfaction was higher than satisfaction for all students, regardless of their academic performance, parental education level or their family income [25]. But in our study a negative correlation was obtained between body image perception and academic performance.

## Conclusion

Varying degrees of negative body image perception was seen among the subjects with a larger proportion of females with body size dissatisfaction.

### Recommendations

The findings and conclusions drawn from this study have paved way for the following recommendations:

01. Educate adolescents, their peers, teachers and parents about body image perception and the immediate and long term effects it can have on the health of an adolescent.
02. Screen for negative body image perceptions in the adolescents. Provide counselling for those

With body image issues.

## Contribution by authors

GKK conducted the research, collected and interpreted the data and wrote the initial draft of the manuscript. NCJ conceived the idea for the study, provided advice on study design and methodology and edited the final draft of the manuscript. AMG contributed to the conception and design of the study. VMJ contributed to data analysis. All the authors have critically reviewed and approved the final draft of this manuscript and are responsible for the content of the manuscript.

### Contribution of the study to the existing literature.

Adolescence is a critical period for body image development because of the various social, cultural, physical, and psychological changes occurring between the ages of 10 years and 19 years of age.

The relationship between weight status and body image is complex, such that additional variables must be considered when explaining this association, including internalization of body ideals, weight-related pressures and concerns, and a range of social influences (e.g., social comparison, fat talk, and weight-related teasing and bullying).

Consequences associated with having a negative body image for adolescents include physical activity avoidance, eating disorders, and dysfunctional exercise. Therefore, promotion of a healthy body image should be integrated across all interventions aimed to address obesity, eating disorders, and other health-related concerns among adolescents.

## Reference

01. <http://apps.who.int/adolescent/seconddecade/section2/page1/recognizing-adolescence.html>. [Crossref]
02. MacMillan Dictionary for Students. MacMillan Pan Limited. 1981;p-14. [Crossref]
03. <http://www.merriam-webster.com/dictionary/adolescence>. [Crossref] [PubMed] [Google Scholar] [Crossref]
04. [http://www.who.int/topics/adolescent\\_health/en/](http://www.who.int/topics/adolescent_health/en/). [Crossref]

05. Heron KE, Smyth JM, Akano E, Wonderlich SA. Assessing body image in young children- a preliminary study of racial and developmental differences. *SAGE Open*. 2013;3(1)32-34. [Crossref]
06. Damiano SR, Gregg KJ, Spiel EC, et al. Relationships between body size attitudes and body image of 4-year-old boys and girls, and attitudes of their fathers and mothers. *J Eat Disord*. 2015;Apr;10;3;16. doi: [Article] [Crossref]
07. Sophia B Greene. *Body Image- Perceptions Interpretation and attitudes*. Nova Science Publishers. 2011. [Crossref]
08. Lightstone J. *Improving body image*. 2011. Available at: [Article] [Crossref]
09. Chang FC, Lee CM, Chen PH, et al. Association of thin-ideal media exposure, body dissatisfaction and disordered eating behaviors among adolescents in Taiwan. *Eat Behav*. 2013 Aug;14(3)382-5. doi: [Article] [Crossref]
10. Bucchianeri MM, Arikian AJ, Hannan PJ, et al. Body dissatisfaction from adolescence to young adulthood- findings from a 10-year longitudinal study. *Body Image*. 2013;Jan;10(1)1-7. doi: [Article] [Crossref]
11. Ramberan K, et al. Ethnicity, body image perception and weight related behaviour among adolescent females attending secondary school in Trinidad. *West Indian Med J*. 2006;56(6)388-93. [Crossref]
12. <http://nrhm.gov.in/nrhm-components/rmnch-a/adolescent-health/adolescenthealth/background.html>. [Crossref]
13. <http://southasia.oneworld.net/news/over-50-adolescent-girls-in-india-anaemicunicef#.VCRRGZSSxGY>. [Crossref]
14. M Shashidhar Kotian. Prevalence and Determinants of overweight and obesity among adolescent school children of south Karnataka, India. *IJCM*. 2010;35(1)176-178. [Crossref]
15. DT Simeon et al. Body image of adolescents in a Multi-ethnic Caribbean population. *European Journal of Clinical Nutrition*. 2003;57;157-162. [Crossref]
16. K Ramesh, et al. Body weight/ image perceptions and prevalence of obesity among adolescents- Kerala, India. *Int J of Health and Allied Sciences*. 2012;1(2)92-97. [Crossref]
17. Chavada V K, et al. Prevalence and perceptions regarding obesity, body image and weight reducing practices among college girls in Mumbai, India. *Global Science Heritage*. Available at: [Article] [Crossref]
18. Dixit S, Agarwal G, Singh J, et al. A study on consciousness of adolescent girls about their body image. *Indian J Community Med*. 2011;Jul;36(3)197-202. doi: [Article] [Crossref]
19. Andreia Pelegrini, et al. Dissatisfaction with body image among adolescent students- Association with socio demographic factors and nutritional status. *SciELO*. 2014;19(4)1201-1208. [Crossref]
20. Farah Wahida Z, Mohd Nasir MT, Hazizi AS. Physical activity, eating behaviour and body image perception among young adolescents in Kuantan, Pahang, Malaysia. *Malays J Nutr*. 2011;Dec;17(3)325-36. [Crossref]
21. Pon Jr LW, Kandiah M, Mohd Nasir MT. Body image perception, dietary practices and physical activity of overweight and normal weight Malaysian female adolescents. *Malays J Nutr*. 2004;10(2)131- 147. [Crossref]
22. Bahreynian M, Qorbani M, Motlagh ME, et al. Association of Perceived Weight Status versus Body Mass Index on Adherence to Weight-modifying plan Among Iranian Children and Adolescents- The CASPIAN- IV Study. *Indian Pediatr*. 2015;Oct;52(10)857-63. [Crossref]
23. Pallan MJ, Hiam LC, Duda JL, et al. Body image, body dissatisfaction and weight status in South Asian children- a cross-sectional study. *BMC Public Health*. 2011;Jan-9;11;21. doi: [Article] [Crossref]

24. CostaLdCF, Silva DAS, Alvarenga MdS, de Vasconcelos FdAG. Association between body image dissatisfaction and obesity among schoolchildren aged 7-10years. *Physiol Behav.* 2016;160;6-11.  
[Crossref]

25. Azmira Ab Latiff, Juliawati Muhamad, Razlina A Rahman. Body image dissatisfaction and its determinants among young primary-school adolescents. *Journal of Taibah University Medical Sciences.* 2017;13(1)36-37.  
[Crossref]