A Cross-sectional Study on Body Image Perception and Self-esteem among Adolescent Girls in Urban and Rural Areas of Kolkata, West Bengal, India

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ABSTRACT

Introduction: Adolescence is one of the most important and crucial phases of learning and individual development. Adolescents are particularly vulnerable due to the physiological, social, and psychological changes they undergo. Understanding the factors responsible for the development of body image perception and self-esteem is crucial for adolescent health and well-being.

Aim: To estimate the prevalence of body image dissatisfaction among urban and rural girls and its impact on self-esteem.

Materials and Methods: A cross-sectional study was conducted in two Government schools located in urban and rural areas of Calcutta National Medical College, Kolkata, West Bengal, India. The sample size of the study was 397, with 206 girls from urban areas and 191 girls from rural areas. The Rosenberg Self-esteem Scale was used to measure self-esteem. The Stunkard Silhouettes Figure Rating Scale (FRS) was used to measure adolescents' body image dissatisfaction. The height and weight of the participants were measured, and Body Mass Index (BMI) was calculated. Data was compiled, presented in tabular form, and analysed using Statistical Package for Social Sciences (SPSS) version 23.0.

Results: A total of 206 (51.89%) study subjects in the present study resided in urban areas, with a mean age of 15±3.32 years. Among the study population, 242 adolescent girls (60.95%) were dissatisfied with their body image. Body image dissatisfaction was higher among urban girls (57.85%) compared to adolescent girls in rural areas. A significant association between self-esteem and body image perception was found. Among the girls in the study population, 126 (52.1%) were both dissatisfied with their body image and had low self-esteem.

Conclusion: The present study shows that the majority of adolescent females were dissatisfied with their body image, and a significant association between low self-esteem and body image perception was established.

INTRODUCTION

In India, the adolescent population constitutes 20% of the total population, reaching nearly 30 crores. Therefore, gathering information about their health needs, both physical and mental, is a national imperative with global implications [1]. Adolescence is a crucial phase of growth and development, as many health-related behaviours that arise during this time have long-lasting implications. The mental health of adolescents not only affects their present well-being but also influences their personality, attitude, and behaviour as adults [2]. During this period, rapid and simultaneous physiological changes occur in the body [3], making it a critical stage for the development of positive or negative body image perceptions [4,5].

Body image is a multidimensional construct that encompasses a person's perceptions, feelings, actions, and thoughts about their body. It is typically perceived as including body size estimation, evaluation of body attractiveness, and emotions associated with body shape and size [6]. The struggle with body image is prevalent across all adolescent age groups but is experienced more by adolescent girls than boys, as shown by a study conducted by Van den Berg PA et al., in 2010 [7]. The rapid physical changes in shape and weight during adolescence, along with socio-cultural influences, play a significant role in shaping body image perceptions and contribute to the emotional and social development of adolescents [8].

According to a study by Paxton SJ et al., although there are many factors that influence an adolescent's self-esteem, body image is a critical factor. Self-esteem, which refers to a sense of self-respect and personal appraisal, is an important aspect of an individual's

identity [9]. Self-esteem arises automatically from within based on a person's beliefs and consciousness. Self-esteem and body image perceptions are terms that are often used interchangeably. Evaluative perceptions of oneself and one's physical appearance are crucial for the development of self-confidence in adolescents. These self-evaluations impact emotional experiences, future behaviour, and long-term psychological adjustment and achievements in life [10].

Stress, developmental changes, and social adjustment problems are concerning issues for adolescents, especially rural teens. Overvaluing body image as a determinant of one's self-worth is a crucial risk factor that can make individuals more susceptible to eating disorders. Adolescence represents a critical stage in the development of positive or negative body image. Therefore, although screening for psychosocial problems by teachers and other school personnel is infrequent, it can be a useful health promotion strategy [11].

With growing public health concerns regarding weight status, physical inactivity, obesity, eating disorders, and their associated spectrum of health consequences, the topic of body image has attracted significant attention worldwide, particularly in psychological sciences and philosophy. However, it has not been extensively studied in India, especially in terms of comparative urban-rural studies focusing on self-esteem and body image perception. The aim of the present study was to estimate the prevalence of body image dissatisfaction among urban and rural adolescent girls and explore any potential association, if any, between body image dissatisfaction and self-esteem within the study population.

MATERIALS AND METHODS

A cross-sectional study was conducted over a period of six months (June 2022 to November 2022) in two government schools located in urban and rural areas associated with Calcutta National Medical College. Permission was obtained from the school authorities, and ethical clearance was granted by the Institutional Ethical Committee (CM/CNMC/2467).

The details and necessity of the study were explained to the students and teachers. School records obtained from both schools revealed a total of 452 adolescent girls enrolled in middle, secondary, and higher secondary classes. Among them, 206 adolescent girls were from the urban area school, and 191 were from the rural area school. For the study sample, purposive sampling was used, including all girls in the age group of 10-19 years who were willing to participate and available during the data collection period.

Inclusion and Exclusion criteria: Girls who were absent, unwilling, or had confirmed mental or physical disabilities were excluded. After obtaining verbal assent from the students and informed consent from their parents/guardians, a total of 397 students were included in the study.

Study Procedure

A predesigned, pretested self-administered questionnaire was used for data collection after translation into the local language, Bengali. The validation of the questionnaire was done with the assistance of three public health experts. Standardised and reliable tools were used to assess body image perception and self-esteem.

Section I: Demographic Profile: This section includes items related to the demographic data of the study subjects, such as age, education, religion, type of family, and residency.

Anthropometric measurements of height and weight were taken, and BMI was calculated.

Section II: Rosenberg Self-esteem Rating Scale: This section consists of 10 items that assess the self-esteem of the participants. The scoring of the items was based on a 4-point Likert Scale, ranging from strongly agree (score 1) to strongly disagree (score 4). Out of the 10 items, five negative statements were scored as given below, and five positive statements were reverse-scored. The scale ranges from 0 to 30, with scores between 15 and 25 falling within the normal range, while scores below 15 suggest low self-esteem [12].

Section III: Body Image Dissatisfaction: The Stunkard Silhouettes FRS was used to measure body image dissatisfaction in adolescents. It includes drawings of nine silhouettes ranging from very thin (1) to very heavy (9). Students were given the FRS (female version) and asked to indicate the figure that they currently identified themselves with the most. Body image dissatisfaction was assessed by examining the difference between perceived body image and actual body size based on BMI categories. The numbers on the body image perception scale (perceived or ideal) were classified into four groups using standard procedures: 1 and 2 for underweight, 3 and 4 for normal weight, 5-7 for overweight, and 8 and 9 for obese shape [13,14]. Hence, participants who showed discrepancies in the chosen figures were identified as having body image dissatisfaction.

STATISTICAL ANALYSIS

The collected data were entered into Microsoft excel and analysed using SPSS Inc., version 16.0, for Windows (Chicago, USA, SPSS Inc.). Descriptive analysis was conducted using frequencies, means, standard deviations, and proportions. Chi-square (χ^2) statistical tests were performed to explore further associations.

RESULTS

The mean age of the study population was 15±3.32 years. The youngest study subject was 11 years old, and the oldest study subject was 19 years old. Among the population, 153 (38.54%) belonged to the early adolescent group, i.e., from 10 to 14 years [Table/Fig-1]. The majority 241 (60.71%) belonged to nuclear families. In the present study, most of the participants (172) were in middle school (43.32%). A total of 206 (51.89%) study subjects resided in urban areas, while 191 (48.11%) were from rural areas. Among the study population, 126 (31.73%) were classified as underweight according to the World Health Organisation (WHO) BMI classification, and 95 (23.93%) were overweight [Table/Fig-2].

Socio-demographic characteristics	Frequency	Percentage (%)
Residence		
Urban	206	51.89
Rural	191	48.11
Age (years)		
Early adolescents (10-14 y)	153	38.54
Late adolescents (15-19 y)	244	61.46
Education		
Middle school	172	43.32
Secondary	114	28.71
Higher secondary	111	27.95
Religion		
Hindu	251	63.22
Muslim	130	32.75
Others	16	4.03
Type of family		
Nuclear	241	60.71
Joint	117	29.47
Broken	39	0.098
BMI		
Underweight	126	31.73
Normal	176	44.33
Overweight	95	23.93

[Table/Fig-1]: Distribution of study population according to sociodemographic profile (N=397).

Body image perception	Residence		Total
	Urban	**Rural**	
Satisfied	66 (42.9%)	89 (57.41%)	155 (39.04%)
Not satisfied	140 (57.85%)	102 (42.15%)	242 (60.95%)
Total	206	191	397

[Table/Fig-2]: Distribution of study population according to body image perception (N=397).
χ^2=8.826, p=0.0029

[Table/Fig-2] showed that the majority, 242 adolescent girls (60.95%), in the study population were not satisfied with their body image. Among those not satisfied, 140 (57.89%) were from urban areas. A significant association was found between residence and body image perception. [Table/Fig-3] suggests that among underweight school girls with body image dissatisfaction, the majority (54; 56.25%) were from urban areas, while among overweight adolescent girls with body image dissatisfaction, the majority (66.67%) were also from urban areas. [Table/Fig-4] shows that 59.78% of adolescent

BMI	Body image dissatisfaction	
	Rural (n=102)	**Urban (n=140)**
Underweight (n=96)	42 (43.75%)	54 (56.25%)
Normal (n=113)	49 (43.36%)	64 (56.62%)
Overweight (n=33)	11 (33.33%)	22 (66.67%)

[Table/Fig-3]: Distribution of study population according to BMI and body image dissatisfaction (n=242).
χ^2=1.22, p=0.54

girls with low self-esteem resided in urban areas, whereas 40.21% of adolescent girls with low self-esteem were from rural areas.

Residence	Self-esteem	
	Normal	Low
Urban (n=206)	96 (45.07%)	110 (59.78%)
Rural (n=191)	117 (54.93%)	74 (40.21%)
Total	213	184

[Table/Fig-4]: Distribution of study population according to self-esteem and residence (N=397).
χ^2=8.559, p=0.003

Finally, the study suggests that 52.1% of the study population had both low self-esteem and dissatisfaction regarding body image, and 47.93% of adolescent girls with normal self-esteem had body image dissatisfaction, as shown in [Table/Fig-5].

Body image	Self-esteem		Total
	Normal	Low	
Satisfied	97 (62.50%)	58 (37.42%)	155
Dissatisfied	116 (47.93%)	126 (52.1%)	242
Total	213	184	397

[Table/Fig-5]: Association between self-esteem and body image in study population (n=397).
χ^2=8.151, p=0.004

DISCUSSION

Adolescence represents a crucial time for building a healthy body image as it is a period of physical and psychological changes influenced by social surroundings. Importantly, body image development has developmental significance as it is a dynamic aspect that changes over the lifespan [4]. The present study aimed to estimate the prevalence of body image dissatisfaction among urban and rural school girls and understand the factors significantly influencing it.

The findings of the present study showed that 60.95% of the study population were dissatisfied with their body image perception. These results were similar to a study conducted in Chennai by Sasi RV and Maran K among adolescents above the age of 12, which revealed a prevalence of 81% [15]. According to the present study, 42.15% of adolescent girls from rural areas and 57.85% of girls from urban areas were dissatisfied with their body image. These findings correlate with a study done by Dixit S et al., wherein dissatisfaction was higher in urban areas (30.20%) compared to rural areas (22.3%) [16].

A study by Ganesan S et al., showed that 77.6% of the adolescents were dissatisfied with their body image, and 56.25% of them were from urban areas [17]. Mishra S et al., reported that urban girls outnumbered rural girls in following a weight reduction diet, and significant differences in perceptions of their own body weight and shape were noticed among girls from different residential areas, which corroborates the present study results [18].

Musaiger A in their study, concluded that approximately 32-39% of females were dissatisfied with their body weight [19]. The study findings by Thakur K and Kaur S revealed that 12% of adolescent girls were dissatisfied, 73% were partially dissatisfied, and 15% were highly satisfied, supporting the results presented in [Table/Fig-2] [20]. A study done by Srivastava R and Joshi S suggests that no significant association exists with regard to self-esteem in urban and rural adolescents [21]. No significant differences were found in the prevalence of mild underweight girls and overweight girls in the urban and rural groups (26.5% vs 22.3% and 7.5% vs 5.2%, respectively), as reported in a study by Moshago Berheto T et al., [22]. Lata S and Devi A reported in their study that 86% of female adolescent college students desired to be slim [23].

A study by Ganesan S et al., showed that in their study, 71% of the study population with normal BMI were dissatisfied, while among the underweight category, 23.3% were satisfied and 7% wanted to lose further weight, which corroborates with our study where 47.3% of school girls with normal BMI were dissatisfied with their body image perception [17].

The present study shows that among underweight school girls, 43.75% of girls were dissatisfied with their body image in rural areas, while 56.25% had body image dissatisfaction in urban areas. Among overweight girls, 66.67% had body image dissatisfaction in urban areas, whereas 33.33% of rural overweight girls were dissatisfied. The findings of research by Divya V and Mayuri K show an effective relationship between body image perceptions and self-esteem of adolescents [24]. According to Adrian Furnham's study, girls had a higher prevalence of body image-associated low self-esteem than boys, and it was concluded that body image dissatisfaction is strongly influenced by self-esteem [25]. Similarly, the present study findings also show a significant association between self-esteem and body image perception. 52.1% of the study population had both body image dissatisfaction and low self-esteem. A study conducted by Paxton SJ et al., shows that body image dissatisfaction is a risk factor for low self-esteem, affirming the present findings [9].

There should be better awareness of a nutritious diet and regular physical activity for maintaining a normal body weight. Special interventions must be taken to explain the media propaganda on unnatural images of perfect body figures and the side-effects of unnatural fad diets. School administration, teachers, and students were made aware of the Adolescent Friendly Health Services delivered through trained service providers-Mobile Originated (MO), Auxillary Nursing Midwifery (ANM), and Counsellors at Adolescent Friendly Health Clinics located at Primary Health Centres (PHCs), Community Health Centres (CHCs), District Hospitals (DHs), and Medical Colleges.

Limitation(s)

Although the study was conducted in large Government schools that included adolescents from varied socio-economic and cultural backgrounds, it is important to note that only a single school was selected from urban and rural areas for inclusion in the study. This restriction may limit the generalisability of the findings.

CONCLUSION(S)

The present study establishes the fact that body image dissatisfaction is no longer solely a Western concept and significantly affects both rural and urban Indian adolescent girls. A substantial portion of girls were dissatisfied with their body image regardless of their BMI. On further exploration, a significant association was found between low self-esteem and dissatisfaction with body image. Therefore, there should be proper planning for interventions to educate adolescents on proper nutrition and the concept of BMI in order to protect these young adults. Negative perception of one's body image has the effect of lowering self-esteem, which in turn increases psychological distress and negatively impacts overall well-being of individuals.

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AUTHOR DECLARATION:
• Financial or Other Competing Interests: None
• Was Ethics Committee Approval obtained for this study?   Yes
• Was informed consent obtained from the subjects involved in the study?   Yes
• For any images presented appropriate consent has been obtained from the subjects.   Yes