ORIGINAL ARTICLE

Understanding body image perception and body image discontentment in early adolescence

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Citation

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Abstract

Background: The mounting trends of beauty perceptions have contributed to distorted body image among adolescents. This demand understanding about current pointers of body image satisfaction to prevent eating disorders associated with mismanagement of weight in adolescents. **Aim & Objective**: The objectives of this cross-sectional study were to apprehend body image perception and dissatisfaction among adolescents (12-14years) across the genders and associate it with their actual BMI along with identifying the factors influencing body image perception. **Settings and Design**: A structured questionnaire was developed and administered on randomly selected 112 adolescents (68% boys & 34% girls, 12-14 years), mean age=12.8 ±0.45 from urban coeducational school of western India. Anthropometric measurements were taken with standardized tools and BMI z-scores were calculated. The actual and perceived weight was compared using paired t-test and descriptive statistics. Association between body image indicators, gender, and BMI were assessed using Chi-square test and One-way ANOVA. Factor analysis was done by Principal component analysis. **Results**: There was a significant difference in the perceived (M=2.31, SD=0.93) and actual BMI (M=1.96, SD=0.69), p=0.002. A significant association between gender and the influence of media idols, discrimination due to physical appearance and BMI was observed (p≤.0.005). Self-perception and judgements of others, behaviors related with self-fixation, social influence and inappropriate dietary practices and comparison with models and actors were the emerging factors identified. **Conclusion**: The body image perception was distorted among adolescents of both sexes, with higher body image discontent shown by girls. The perceived body image, when compared with their BMI was found to be incongruent across sexes.

Keywords

Introduction

Early adolescence has been recognized as a transitional risk period for developing faulty body image as adolescents experience various physical, psychological and emotional instabilities such as the search for identity, social acceptance, and peer pressures. (1, 2) The growing evidence of depression, psychopathology and low self-esteem among adolescents often points at body image discontent and weight dissatisfaction as a significant contributing factor.(3, 4)

The concept of body image dynamically evolves through ideas, feelings, and senses unconsciously throughout life. (5) The obsession with body shape and size developed during adolescence in due course contours their body image perception(.6) Also, the image projected by action figures, dolls, film personalities is a contributor to the development of perceptions related to body image from an early age .However ,they are in no way representative of the average Indian physiques across the genders. Body dissatisfaction is a growing public health concern as it is one of the major reasons for eating disorders and fad diets

among adolescents.(7)The unrealistic image created and propagated by the mass media are also often blamed for faulty diet trends followed by adolescence.(8) The extensive use of highly visual social media (HVSM) for example, Instagram and Snap chat focusing on celebrities and peers have specified rising body image apprehensions among adolescents.(9) The perpetual skirmish vouching ultra-thin models in the mass media is a substantial contributor to negative body image among individuals and adolescents are no exception to this.(10)

Often the perceptions thus developed may not match with their actual body weight or nutritional status. If these perceptions are gauged, suitable policy and communication strategies can be planned. Given this background, this study was undertaken to comprehend the judgment of adolescents about their body shape, size and the prevalence of dissatisfaction towards their bodies in relation to their actual nutritional status.

Aims & Objectives

Primary objectives:

- To assess the body image perception and body image discontent among adolescents
- To compare body image perception and discontent with their BMI levels.

Secondary objective:

- To identify the factors leading to body image perceptions and assess their variance among adolescents.

Material & Methods

Study design and participants: This was cross-sectional study conducted on randomly selected 112 adolescents (n=74 boys and 38 girls) between the age group of 12-14 years recruited from an urban middle income co-education school of Pune city, in western India.

Ethics: Approvals from the Independent Ethics Committee (IEC) of Symbiosis International (Deemed University) and school management were taken. Written informed consents of the parents, and assent of adolescents were taken. The adolescents were oriented about the questionnaire to be administered in advance and were informed about their right to withdraw from the study anytime.

Inclusion and exclusion criteria: Apparently healthy adolescents with no known psychotic illnesses or eating disorders were included in the study. Participants with known mental health issues and physical disabilities were excluded.

Questionnaire development and administration: A structured short questionnaire containing dichotomous and polychotomous responses for various indicators of body image perception was developed and adapted from validated body image questionnaires developed and widely in use in UK and Spain.(11, 12) Questions having dichotomous responses were scored as 0 and 1 and

questions having polychotomous responses were scored on a scale of 0 to 2.

The content of the questionnaire was assessed by a panel of pediatrician, a psychologist, and a nutritionist. A pool of thirty questions was generated and panel rated the questions as most relevant, relevant and least relevant. The final questionnaire consisted of fourteen questions on various indicators of body image perception such as body size perception, satisfaction with their looks and body, choices to change physical appearance, influence of peers, social media, celebrities and idols, discrimination due to body image, following of diet, opinions of others, comparisons with models, actors and others, frequency of beauty apps, mirror usage and selfies to check physical appearance. The questionnaire was pretested on adolescent boys and girls (n=10) and with minor modification, it was administered through interview mode Every answer entered in the questionnaire was read out for confirmation to avoid any recording errors.

The socio-demographic profile of adolescents was assessed using Kuppuswamy socioeconomic scale, 2018.(13) Questions related to their ethnicity, type of family, age and gender were also included in the questionnaire.

Anthropometric measurements: In order to assess the actual nutritional status of the participants, their body weights were measured in light clothing using a TANITA digital weighing scale Model 240MA (TANITA Corporation, Japan) to the nearest 0.1 kg by adjusting the average clothes weight of 0.5 kilograms. A portable SECA Stadiometer (Model 213 - SECA, Germany) was used to measure the height to the nearest 0.1 cm. BMI z-scores for age and sex were calculated using WHO Anthroplus software version 1.03 and classified as underweight (BMI below 3rd percentile), normal weight (between 3rd and 85th percentile), overweight (between 85 and 97th percentile) and obese (above 97th percentile)(14). The anthropometric measurements were collected after a week of administration of the questionnaire to avoid bias in responses while answering the questionnaire.

Data analysis: The data was entered and analyzed using IBM SPSS Version 20 for Windows (Armonk, NY: IBM Corp). Descriptive statistics were calculated for socio-demographic data, mean age, anthropometric measurements and association between body image indicators, gender and BMI were assessed using the Chi-square test. One-way ANOVA was performed to observe the difference between groups of BMI categories and indicator items of the questionnaire on body image perception. Paired t test was used to compare the actual BMI with the perceived BMI. Association between body image indicators, gender, and BMI were assessed using Chi-squared test and One-way ANOVA. Factor analysis was performed by principal component analysis on 14 items of the questionnaire to extract the variables component-wise and assess the variance among them to

understand the important factors that influence the body image perceptions and discontent.(15)

Results

The mean (+SD) age of adolescents was 12.8 ± 0.45. The adolescents belonged to upper middle income group. The socio-demographic profile of adolescents along with the anthropometric data is represented in (Table-1). As per the BMI z-score classification, 54% were underweight and almost a quarter of them were overweight or obese (Figure 1). The responses to indicators of body image perceptions gender-wise are represented in (Table-2). The paired t-test analysis revealed a significant (p=0.002) difference in the perceived and actual BMI.

ANOVA revealed that there was a significant (p = 0.045) effect of BMI with discrimination and mistreatment observed among adolescents. Also, a significant (p = 0.047) effect of BMI with the diets being followed presently or in past was observed. Chi-squared test revealed significant associations between body image perception indicators, BMI and gender as represented in (Table-3).

A principal component analysis (PCA) was performed on the 14 item questionnaire which suggested four most important components which explained a total variance of 58.75%, as represented in (Table-4). The first component represented largely the body image self-perception related items and judgements by others. The maximum proportion of variance 20.98 % on items such as contention related with body and physical appearance, choices to change appearance, perception of body size and weight, opinions of friends, family, and others, discrimination and mistreatment observed because of physical appearance. The second component showed a variance of 18.7% showing behaviors related with self-fixation such as the use of the mirror, beauty apps, clicking selfies and comparison with others. The third component grouped variables such as choices of idols, choices presented in the change of appearance and physical appearance suggestive of happiness suggesting of social influence as a component , while the fourth component grouped the practices such as comparison with others and dieting practiced by adolescents suggesting inappropriate dietary practices and undue comparison as a component . The components showed a variance of about 9.7 %and 9.2 %respectively.

Discussion

This cross-sectional study offered an insight into the various dimensions of body image perception and dissatisfaction among the adolescents' boys and girls. There were no significant associations between the socio-demographic profile and indicators of body image perception in this study which suggests that body shape discontent is prevalent across the socio, economic and gender groups. The anthropometric measurements of adolescents suggested prevalence of dual malnutrition across genders in terms of under nutrition as well as over nutrition. However, the body weight and size perception were distorted and did not align with the reality. It was observed that 20.2% of boys were overweight. However, 42% perceived themselves to be overweight. Likewise, 42% of girls perceived them to be overweight but only 23.6% were actually overweight. It was observed that 44.7% of girls were underweight however unexpectedly none of the girls perceived themselves to be underweight or too thin. Also, only 2% of the boys perceived themselves to be underweight or too thin but as per BMI z-scores, 58.1 % of boys were underweight. These findings are in tune with earlier studies conducted in the Indian context. Similar Indian studies have shown a misperception of body image as compared to their body mass index and weight status. (16)

There was a significant difference observed between dissatisfaction related to looks and appearance among the girls and boys. The study revealed that girls were more dissatisfied compared to boys about the way they looked and also the majority of girls wanted to change their body shape. Though both the sexes idolized actors and models, girls articulated to idolize models and actors significantly more than boys. It has been evidenced that media figures are considered as 'pseudo friends' by adolescents and they form a para-social connection with media figures rapidly. (17) This is indicative of the high influence of media figures upon adolescents. Frustrations and insufficiency among girls was significantly higher compared to boys when they compared with models and actors. The contributing factor is the stereotypical portrayal of girls and women in media which contributes to unrealistic body image especially a thin body image. The world of animation and multimedia is also no exception as it portrays women and girls having thinner waistlines and unrealistic body frames compared to the other gender.(18, 19) Such frustrations observed among adolescent girls are suggestive of physiological changes taking place as the girls are undergoing pubertal changes and are moving away from thin-ideal body types.(20)

Girls were also leading in the use of beauty apps to correct body shape and appearance of their images and photographs. These results are in line with a study in which adolescent girls showing social comparison tendencies were using manipulated and enhanced images on social media. (21)

Both girls and boys often compared themselves with the peers and people around them who they thought had better figure or physique respectively. However, girls compared themselves more with people around them having better figures. There was a significant difference between the BMI categories of adolescents and discrimination, mistreatment observed among adolescents. It was observed that overweight and underweight adolescents showed higher discrimination and mistreatment compared to normal-weight

adolescents. Similarly, observance of dieting in past or dieting being followed presently without supervision from a nutritionist/dietician/doctor was observed among overweight adolescents and underweight adolescents compared to normal weight. This dieting trend followed is a risk factor for developing eating disorders in the future. (22)

Conclusion

The body weight and size perception was distorted among adolescents of both sexes. The perceived body image perception when compared with their BMI was found to be incongruent across sexes. Girls have shown a higher body image discontent compared to boys in the present study. It was also observed that adolescents with higher BMIs had followed diets or were following diets without clinical supervision and experienced mistreatment and discrimination among peers. The anthropometric measurements also suggested dual malnutrition (i.e. over nutrition as well as under nutrition) in both sexes. The factors influencing body image were self-perception and judgements by others, behaviors related with self-fixation, social influences and inappropriate dietary practices and comparison with models and actors which explained for 58.75% of the variance.

Recommendation

The study emphasized the need to consider body image perception and dissatisfaction before planning any interventions to improve nutritional status among adolescents. This study calls for targeted interventions on developing realistic body image satisfaction and self-esteem using health-promoting behaviors.

Limitation of the study

Being a cross-sectional study, the interpretations related to the perceptions are based on the self-reported data of adolescents. Due to the limited sample size restricted to an urban area, the study outcomes may have limited generalizability.

Relevance of the study

The rising new perception on beauty and diet has contributed to unhealthy body image among adolescents which necessitates understanding of current pointers of body image satisfaction in relation to BMI, to prevent faulty mismanagement of weight in adolescents. The study holds relevance with its multifactorial nature which captured perceptions and practices towards body image followed among adolescents.

Authors Contribution

RH contributed in designing the study, study protocol, data collection, data analysis and manuscript preparation. GMSR contributed to designing study, data analysis interpretation, manuscript preparation and also supervised the study.

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Tables

TABLE 1 SOCIO-DEMOGRAPHIC PROFILE AND ANTHROPOMETRIC DATA OF ADOLESCENTS (N=112)

Variable	Group (%)
Gender	Boys (n=74) (66)
	Girls (n=38) (34)
Religion	Hindu (94.4)
	Muslim (4.6)
	Christian (0.5)
	Sikh (0.5)
Family Type	Joint (36.1)
	Nuclear (63.9)
Anthropometric Measures	Mean $\pm$ SD
Height (Cm)	155.34±7.2
Weight (Kg)	44.50±1.05
Body Mass Index (BMI) (Kg/m^2)	18.9 ±4.2
BMI z-score	-.51±1.8

TABLE 2 DESCRIPTIVE STATISTICS OF INDICATORS OF BODY IMAGE PERCEPTIONS EXPRESSED THROUGH ITEMS IN THE QUESTIONNAIRE (N=112)

Variables	Responses	Girls (n=38) (%)	Boys (n=74) (%)	Pooled (n=112) (%)
Body size and weight perception	Too thin (underweight)	0 (0)	2 (2.7)	02 (1.7)
	Too fat (overweight)	16 (42.1)	16 (21.6)	32 (28.5)
	All right (normal weight)	22 (57.8)	56 (75.6)	78 (69.6)
Satisfaction of adolescents with their looks and body	Yes	8 (21.0)	50 (67.5)	58(51.7)
	No	30 (78.9)	24 (37.8)	54(48.3)
Choice to change physical appearance	Face	9 (23.6)	23 (31.0)	32(28.5)
	Body shape	15 (39.4)	18 (24.3)	33(29.4)
	Nothing	14 (36.8)	33 (44.5)	47(42.2)
Importance given to opinion of family, friends, others	A lot	8 (21.0)	10 (27.0)	18 (16.0)
	A little	18 (47.3)	37 (19.9)	55(49.1)
	Not at all	12 (31.5)	27 (10.3)	39(34.8)
Discrimination and mistreatment observed due to physical appearance	Yes	10 26.3)	14 (44.4)	24 (21.4)
	No	28 (73.6)	60 (10.3)	88 (78.5)
Followed dieting or following diet presently	Yes	7 (18.4)	14 (44.4)	21(18.7)
	No	31 (81.5)	60 (10.3)	91(81.3)

Assets making the person beautiful and attractive	Thinness	10 (26.3)	10 (10.3)	20 (17.8)
	External beauty	3 (7.8)	14 (37.0)	17 (15.1)
	Character	25 (6.5)	50 (4.4)	75 (66.9)
Idols among adolescents	Family members	3 (7.8)	5 (6.7)	8 (7.1)
	Actors and Models	35 (92.1)	60 (81.0)	95(84.8)
	Sports persons	0 (0)	9 (12.1)	9 (8.0)
Comparison with models and actors	Good	1 (2.6)	3 (4.0)	4 (3.5)
	Don't care	24 (63.1)	62 (83.7)	86(76.7)
	Frustrated and insufficient	13 (34.2)	9 12.1)	22(19.6)
Physical appearance indicative of happiness	A lot	9 (23.6)	12 (17.0)	21(18.7)
	Partially	6 (15.7)	23 (28.8)	29(25.8)
	Not at all	23 (60.5)	39 (5.9)	62(55.3)
Frequency of mirror usage to check body shape and size	Most of the time	24 (63.1)	8 (28.1)	32(28.5)
	Accidently	11 (28.9)	38 (20.7)	49(43.7)
	Rarely	3 (7.8)	28 (7.4)	31(27.6)
Frequency of selfies to check physical appearance	Often	23 (60.5)	10 (33.3)	33 (29.4)
	Occasionally	11 (28.9)	45 (14.1)	56(50.0)
	Rarely	4 (10.5)	19 (2.2)	23(20.5)
Usage of beauty apps to edit body shape and size before putting it on social media platforms	All the time	21 (55.2)	3 (28.1)	24(21.4)
	Sometimes	13 (34.2)	38 (24.4)	51(45.5)
	Never	3 (7.8)	33 (28.8)	36(32.1)
Comparison with people who have a better figure or physique	Most of the time	23 (60.5)	39 (14.0)	62(55.3)
	Sometimes	14 (36.8)	19 (11.1)	33(29.4)
	Never	1 (2.6)	15 (20.2)	16 (14.2)

TABLE 3 SIGNIFICANT ASSOCIATIONS BETWEEN INDICATORS OF BODY IMAGE PERCEPTION, BMI AND GENDER

Associations found between body image perception indicators and BMI	
Items of the questionnaire	Chi-square (P value)
Discrimination and mistreatment observed due to physical appearance	8.37 (P<0.05)
Followed dieting or following diet presently without supervision from Nutritionist/Dietician/Doctor	7.48 (P<0.05)
Association between body image perception indicators and Gender	
Indicators	Chi-square (P value)
Choose to change physical appearance	6.14 (P<0.05)
Idols among adolescents	8.91 (P<0.05)
Comparison with models and actors	7.75 (P<0.05)
Frequency of mirror usage to check body shape and size	35.09 (P<0.001*)
Frequency of selfies to check physical appearance	26.07 (P<0.001*)
Usage of beauty apps to edit body shape and size before putting on social media platforms	44.23 (P<0.001*)
Comparison with people who have a better perceived figure or physique	6.77 (P<0.05)
* Correlation significant at 1% level of significance	

TABLE 4 IMPORTANT FACTORS THAT INFLUENCE BODY IMAGE PERCEPTION AND DISCONTENT OBTAINED THROUGH PRINCIPAL COMPONENT ANALYSIS

Components	Variance (%)
Component I-Body image self-perception and judgement by others	20.98
Satisfaction of adolescents with their looks and body	
Body size and weight perception	
Importance given to opinion of family, friends, others	
Discrimination and mistreatment observed due to physical appearance	
Assets making the person beautiful and attractive	
Component II- Behaviours related with self- fixation	18.77

Frequency of mirror usage to check body shape and size	
Frequency of selfies to check physical appearance	
Usage of beauty apps to edit body shape and size before putting it on social media platforms	
Comparison with people who have a better perceived figure or physique	
Component III- Social influence related with body image	9.78
Choice to change physical appearance	
Idols among adolescents	
Physical appearance indicative of happiness	
Component IV- Inappropriate dietary practice and undue comparison related with body image	9.22
Followed diet or following diet presently without supervision from a Nutritionist/Dietician/Doctor	
Comparison with models and actors	

Figure

FIGURE 1 BMI Z- SCORE CLASSIFICATION OF ADOLESCENTS (N=112)