



A study on consciousness of urban girls about their body image and body weight in north Kolkata, West Bengal

Body image and body weight among girls

Prof. Subho Roy¹, Dr. Nandini Ganguly², Sanchari Roy³

¹ Professor at the Department of Anthropology, University of Calcutta, ² Post doctoral Fellow of ICSSR at the Department of Anthropology, University of Calcutta; ³ Research Scholar at the Department of Anthropology, University of Calcutta. Corresponding: ngangulyanthro@gmail.com

KEYWORDS

urban girl, body image perception, body image attitude, body weight concern, body weight related behaviour, north Kolkata

ABSTRACT

The present study explores the association between body image attitude and perception and age and actual weight status of urban girls aged between 14 and 22 years. The association of body weight concern and related behaviour with age and actual weight status of these girls were also examined. The study sample included 150 unmarried and married girls residing in the city of north Kolkata, West Bengal. Information on socioeconomic and demographic characteristics, body image perception and attitude, weight concern and related behaviour was collected using standard pretested questionnaires. Anthropometric measurements taken included height and weight. Results show that there was a significant association of body image perception and attitude with age group and actual weight status of the participants. Moreover, multivariate analysis shows that age and actual weight status of the participants were the significant predictors of body weight concern and related behaviour among them.

Introduction

Adolescence is one of the most complex transitions in the life span during which many important body changes take place that are determined by pubertal development. It is a period of not only physical but various emotional changes as well. Girls in this age group have an overbearing desire to look beautiful, leading them to feelings of wrong body image perception. Body image is defined: an evaluative element of how a person values, supports, approves or disapproves him or herself (Frost & McKelvie, 2005).

Adolescence can be a confusing time, as peer and family relationships contribute to how teens perceive themselves (Davison & McCabe, 2006). Literature shows that body image is highly influenced by several factors. Those are family influences (Green & Pritchard, 2003), peer Influences (Davidson & McCabe, 2006), cultural believes, social pressure, teasing (Neumark-Sztainer et al.1998; Smolak et al.1999) and socio-economic context (Costa et al., 2008). The research indicates that family members who criticize their daughters contribute significantly to body dissatisfaction more than the others (Green & Pritchard, 2003).

The media has a strong influence on a girl's body image perception (Field et al., 2001). The same

study further reveals that mass media are believed to encourage girls to form unrealistically thin body ideals, which is an unattainable goal. We found that there is a significant association between exposure to beauty and fashion magazines and higher levels of weight concerns among adolescent girls.

Modern society encourages the search for the perfect body. Concern over body weight and related behaviours are common among the adolescent, particularly girls in western countries (French et al., 1995). This problem has now also assumed alarming proportions in India (Srinivasan et al., 1998).

In India, Mishra & Mukhopadhyay (2010) found that Sikkimese adolescent girls due to their excessive concern over body weight often skipped their meals. Another study in Delhi shows that body image perception and dissatisfaction over body weight were highly prevalent among underweight and overweight girls (Chug & Puri, 2001). A study conducted by Gopalan (1998) revealed that the prevalence of obesity among middle-class urban families in Delhi was as high as 50 % for females and 32 % for males.

To understand the body image perception, attitudes, consciousness and related behaviour of adolescent girls are becoming important as well as necessary for number of reasons. Negative perception about body image, body weight dissatisfaction and weight loss behaviour may be a risk indicator for the development of eating disorders such as anorexia nervosa and bulimia nervosa (French & Jeffery, 1994). Weight loss is a major symptom of anorexia nervosa (Casper & Davis, 1977).

Thus, the objectives of the present study were to examine the association of body image attitude and perception with age and actual weight status of urban girls aged between 14 and 22 years. Moreover, the association of body weight concern and related behaviour with age and actual weight status of these girls were also examined.

Materials and Methods

In the present cross sectional study, different municipal areas of North Kolkata were selected randomly from the ward-list of Kolkata Municipal Corporation. A sample of 150 unmarried and married women aged between 14 and 22 years were identified for the study. Prior to the collection of data, the nature and objectives of the study were explained to the participants and informed consent was taken.

Data on socio-demographic characteristics, body image perception and attitudes, body weight concern along with weight related behaviours were collected using pretested questionnaires.

Socio-demographic characteristics include age during interview and birth order of the participant, religion, marital status, monthly household expenditure [in Indian rupees (INR)], their parents' educational status and occupational type.

Silhouettes of eight female body images (A-H) developed by Mciza et al. (2005), ranging from very thin to very heavy, was used to assess the perception of the participants regarding their body image. These silhouettes were allocated A to H from left to right and the alphabets were used for comparative analyses. The silhouettes were grouped into four categories following internationally used and cross culturally tested classification (McElhone et al., 1999; Pimenta et al., 2009): silhouettes A, B and C are equivalent to underweight (BMI \leq 19.9 kg/m² or the World Health Organization (WHO) BMI \leq

49.9th percentile), silhouettes D and E to normal weight (BMI = 20 - 24.9 kg/m² or WHO BMI = 50 - 84.9th percentile), silhouettes F and G to overweight (BMI = 25 - 29.9 kg/m² or WHO BMI = 85 - 94.9th percentile) and silhouette H to obesity (BMI ≥ 30 kg/m² or WHO BMI ≥ 95th percentile). To measure body image perception, each participant was shown the afore-mentioned sets of age-adjusted silhouettes and asked them to select the silhouette which resembles them. Responses of each of the participants for this question were compared with their respective BMI values to determine validity. Participants who selected a silhouette that was higher than their measured BMI category was classified as overestimating their body size, whereas, individuals were classified as underestimating their body size when they selected a silhouette that was lower than their measured BMI category.

Body image attitude was assessed through Feel–Ideal Difference (FID) index scores (Mciza et al., 2005). The FID index scores were created by determining the difference in the number of the silhouette selected that best represented their current appearance ('Feel') and the one they thought to be 'Ideal' (the silhouettes they would want to look like). When a participant selected a smaller sized 'Feel' silhouette than their 'Ideal' silhouette, a negative FID index score was obtained. A higher score represents greater body image dissatisfaction. On the other hand, a zero score represents no dissatisfaction regarding body image.

Information regarding 'concern over body weight' was collected using a standard questionnaire used by Mciza et al. (2005) with little modification following cultural norms. Selective questions from original questionnaire were used for the present study; for example, "Have you ever thought that you are fat?", "Have you ever thought that you are thin?", "Do you worry about being fat?", "Do you worry about being thin?" The response options were 'yes' or 'no'. For other questions like "Are you satisfied with your present weight?" the response options were 'satisfied', 'not sure' and 'dissatisfied' and for "What do you perceive about your weight?" the response options were 'underweight', 'normal' and 'overweight' were also used.

A structured questionnaire was used to assess the participant's weight related behaviours. This questionnaire consisted of few statements. The statements were "Attempt to reduce weight", "Attempt to gain weight", "Currently trying to reduce weight" and "Currently trying to gain weight". The response options of each statement were 'yes' or 'no'.

Height and weight were measured, and BMI was calculated according to WHO cutoff (WHO, 2000): underweight (<18.5), normal weight (18.5-24.99), and over-weight / obese (≥25).

The SPSS version 16 was used for data analysis. Descriptive statistics were used to calculate the frequency of the variables for different categories. Chi square test was used to assess the association between the variables (table 2-5). A minimum cut off point of $p < 0.05$ was used to determine the significance level. Binary logistic regression (using step wise) analyses (table 6) was done to find out the factors significantly associated with the body weight concerns and related behaviours. In these analyses, the categorical variables which were used as reference for comparison as follow: actual weight status (normal weight), marital status (unmarried), birth order (other than only child), monthly household expenditure (\leq Rs. 8000/-), religion (Muslim), father's occupation (others), mother's working status (working). Age during interview was treated as continuous variable.

Results

Table 1 shows the general characteristics of the study participants. Comparatively higher numbers of the participants were aged between 20 and 22 years (42.0%). Most of them were unmarried and belonged to Hindu religion. Result further reveals that the parents of the participants mostly attained education up to grade X. Fathers of these participants were mostly in business (35.8%), whereas only one-fifth of the mothers of them were working (23.8%). It is notable that about 26.0% of the participants were the only child of their parents and 60.0% of them were in normal weight. A significant association was noticed between the body weight perception and age of the participants ($\chi^2=9.84$, $p \leq 0.05$) (table 2).

Table 3 shows that most of the participants perceived their body image in accordance with their actual weight status. A significant association was found between body image attitude and their actual weight status ($\chi^2=51.65$, $p \leq 0.001$).

Table 4 depicts that the older participants [(22-24) years old] were dissatisfied with their body weight and perceived themselves as more overweight and fatter compared to their respective counterparts. On the other hand, surprisingly, older participants were less worried about their thinness or fatness compared to their respective counterparts. The association was statistically significant only for the variable of 'worried of being thin' with their age group.

Comparatively higher numbers of the older participants were found to engage in weight reducing as well as weight gaining activities.

Table 5 shows concern over body weight according to actual weight status (based on BMI) among the participants. Most of the underweight participants dissatisfied with their present body weight (67.6%); perceived themselves as thin (75.7%) and worried about their thin body structure (56.8%), whereas, 51.4% of them misperceived themselves as normal weight. It is interesting to note that above 50% of the normal weight participants misperceived themselves as underweight. A large proportion of these overweight participants (78.3%) perceived them as fat and worried about their fat body structure.

The association was statistically significant for the variables such as, 'satisfied with present body weight' ($p \leq 0.001$), 'perception about self as thin' ($p \leq 0.001$), 'perception about self as fat' ($p \leq 0.001$) and remain 'worried of being fat' ($p \leq 0.001$). Additionally, a majority of the overweight participants were significantly engaged in weight reducing attitudes ($p \leq 0.001$).

Results of multivariate binary logistic regression analyses (stepwise) reveal that after adjusting for socio-demographic variables, actual weight status of the participants significantly predicted all of the variables considered for body weight concerns and related behaviours (table 6). Overweight participants were more likely to perceive themselves as overweight and fat, be dissatisfied with their body weight and express fear of becoming fat compared to normal-weight participants. Similarly, the likelihood of showing concerns over body weight was significantly higher for underweight participants compared with their normal-weight counterparts. Results of the same table also reveal that weight-related behaviours of the participants were found to be significantly predicted by their actual weight status after adjusting for the effects of socio-demographic variables. As compared with normal-weight participants, overweight participants were more likely to show weight reducing attitudes.

Discussion

The findings of the present cross-sectional study suggest that body image attitude and perception are largely associated with the age and actual weight status of the present study participants. Moreover, body weight concerns and related behaviours of them are also significantly associated with their age and actual weight status. Previous literature shows that older young girls are more concerned with their body weight than the younger ones (Marchi et al., 1990; Neumark-Sztainer et al., 2000 and Gowers et al., 2001). With an increase in age, girls tend to become concerned with their bodyweight more than others (Field et al., 2001; Holt & Riccidelli, 2008). In the present study, multinomial logistic regression analysis revealed that the likelihood of having weight gaining attitude was found to increase with an increase in participant's age, whereas interestingly the likelihood of showing worried about being thin was decreased with an increase in participant's age.

The present study also identifies that overweight participants are more likely to show weight reducing attitude with the prime concerns over body weight compared to their normal-weight and underweight counterparts, whereas, underweight participants are more likely to show weight gaining attitudes with body weight concerns compared to their respective counterparts.

The rising incidence of obesity among the adolescent girls develops a discrepancy between their body image perception and cultural expectations (Paxton et al., 2006; Quick et al., 2013). As a result, overweight and obese girls remain excessively concerned with their body weight. An interesting finding of our study was that even a small number of underweight participants reported weight reducing attitudes. Internationalization of societal pressure to remain thin plays a significant role in the development of body weight dissatisfaction or eagerness to reduce body weight among girls in general and overweight girls in particular (Stice & Whitenton, 2002; Myers & Crowther, 2007; Rodgers & Chabrol, 2009).

In the present study, an overweight participant (4.3%) was dissatisfied with her body weight with a desire to get healthy body shape and perceived herself as thin. An explanation for this puzzling result may simply be that some adolescents and young adults unaware of their body weight, and are not affected by common body image stereotypes. Some research studies also reported the same (Smith & Cogswell, 1994; Wilkinson et al., 1994; Cogan et al., 1996).

In modern day, girls are extremely conscious of perceptions of a perfect body. With the growing sense of an ideal body image during adolescence, they try to lose or gain body weight to attain the perfect body (Neumark-Sztainer & Hannan, 2002). Studies across the globe have identified that several factors such as age, gender, economic status, frequent dieting, preoccupation with thinness, being teased about body shape or size, peer influence and media pressure are important in the development of body image perception and attitude with consciousness over body weight among adolescents (Gowers and Shore, 2001; Clay et al., 2005; Field et al., 2005 and Plotnikoff et al., 2007). Thus, we conclude from the present study that age group of the participants and actual weight status of them was significantly associated with the body image perception and attitude as well as body weight concerns and their related behaviours.

We are aware the limitations of our study. Limited sample size did not allow the researcher to draw a generalized reflection of the population. In addition, participants may distort their weight concerns and related behaviours by either under-reporting or over-reporting.

The present study may help to take up future studies incorporating psychological, ecological and environmental aspects associated with body image perception and attitude, and dissatisfaction with the purpose of correcting and preventing emotional and personal problems of adolescents/young adults regarding this upcoming issue.

Table 1 Characteristics of the study participants

Characteristics		Study participants (N=150)	
Age groups (years)			
14 -16		56(37.3)	
17 - 19		31(20.7)	
20-22		63(42.0)	
Religion			
Hindu		132(88)	
Muslim		18(12)	
Marital status			
Married		12(8)	
Un-married		138(92)	
Monthly household expenditure (in rupees)			
Rs. ≤ 8,000		76 (50.66)	
Rs. > 8,000		74 (49.33)	
Father's education	Father (N=150)	Mother's education	Mother (N=150)
Secondary and below	84	Secondary and below	86
Above secondary	66	Above secondary	64
Father's occupation	Father (N=150)	Mother's occupation	Mother (N=150)
Service	44(29.1)	Non-working	114(75.5)
Business	54(35.8)	Working	36(23.8)
Others*	42 (28.0)		
Birth order of the participants		Study participants (N=150)	
Only child		39 (26.0)	
First born		47 (31.3)	
More than first born		64 (42.6)	
Body Mass Index			
Underweight		37 (24.7)	
Normal weight		90 (60.0)	
Overweight		23 (15.3)	

* Others: driver, carpenter, mason, factory worker, jari worker; figures in the parenthesis indicate percentages

Table 2 Age wise distribution of body image perception and body image attitude among the participants

Body image perception	Age groups			2-values	Total (N=150)
	(14-16) years (N=56)	(17-19) years (N=31)	(20-22) years (N=63)		
Correct identification of body weight	38 (67.9)	22 (71.0)	45 (71.4)	9.84*	105(70.0)
Overestimation of body weight	12 (21.4)	5 (16.1)	3 (4.8)		20(13.3)
Underestimation of body weight	6 (10.7)	4 (12.9)	15 (23.8)		25(16.7)

Body image attitude (using FID index)					
No dissatisfaction regarding body image	21 (37.5)	14 (45.2)	27 (42.9)	1.30	62 (41.3)
Dissatisfaction associated with a desire to get thin image	15 (26.8)	8 (25.8)	19 (30.2)		42 (28.0)
Dissatisfaction associated with a desire to get healthy body shape	20 (35.7)	19 (30.2)	17 (27.0)		46 (30.7)

*p value ≤ 0.05 , figures in the parenthesis indicate percentages

Table 3 Body image perception and body image attitudes according to actual weight status (based on BMI) among the participants

Body image perception	Weight status			χ^2 -values	Total (N=150)
	Underweight (N=37)	Normal weight (N=90)	Overweight (N=23)		
Correct identification of body weight	23(62.2)	70 (77.8)	12 (52.2)	NA	105 (70.0)
Overestimation of body weight	14 (37.8)	6 (6.7)	-		20 (13.3)
Underestimation of body weight	-	14 (15.6)	11 (47.8)		25 (16.7)
Body image attitude (using FID index)					
No dissatisfaction regarding body image	10 (27.0)	46 (51.1)	6 (26.1)	51.65*	62 (41.3)
Dissatisfaction associated with a desire to get thin image	2 (5.4)	24 (26.7)	16 (69.6)		42 (28.0)
Dissatisfaction associated with a desire to get healthy body shape	25 (67.6)	16 (69.6)	1 (4.3)		46 (30.7)

*p value ≤ 0.001 , figures in the parenthesis indicate percentages, NA: not applicable

Table 4 Age wise distribution of concern over body weight and related behaviours among the participants

Body weight concern	Age group			χ^2 -values	Total (N=150)	
	(14-16) years (N=56)	(17-19) years (N=31)	(20-22) years (N=63)			
Satisfaction level of present body weight				6.19		
Satisfied	22 (39.3)	13 (41.9)	26 (41.3)			61 (40.7)
Not sure	28 (50.0)	9 (29.0)	24 (38.1)			61 (40.7)
Dissatisfied	6 (10.7)	9 (29.0)	13 (30.6)		28 (18.7)	
Perceived own body weight as				6.10		
Underweight	12 (21.4)	6 (19.4)	10 (15.9)			28 (18.7)
Normal weight	38 (67.9)	22 (71.0)	37 (58.7)			97 (64.7)
Overweight	6 (10.7)	3 (9.7)	16 (25.4)		25 (16.7)	
Perception about self as thin				1.45		
Yes	23 (20.9)	13 (11.6)	20 (23.5)			56 (37.3)
No	33 (35.1)	18 (19.4)	43 (39.5)		94 (62.7)	
Perception about self as fat				1.89		
Yes	19(33.9)	7 (22.6)	23 (36.5)			49 (32.7)
No	37 (66.1)	24 (77.4)	40 (42.4)		101 (67.3)	

Whether worried of being thin					
Yes	15 (26.8)	8 (25.8)	7 (11.1)	5.68*	30 (20.0)
No	41 (73.2)	23 (74.2)	56 (88.9)		120 (80.0)
Whether worried of being fat					
Yes	19 (33.9)	11 (35.48)	19 (30.2)	0.63	46 (30.7)
No	37 (66.1)	20 (64.51)	44 (69.8)		104 (69.3)
Body weight related behaviours					
Attempt to reduce body weight					
Yes	16 (28.6)	5 (16.1)	24 (38.1)	4.86	45 (30.0)
No	40 (71.4)	26 (83.9)	39 (61.9)		105 (70.0)
Attempt to gain body weight					
Yes	15 (26.8)	10 (32.3)	25(39.68)	0.35	50(33.3)
No	41 (73.2)	21 (67.7)	38 (60.31)		100(66.6)
Currently trying to reduce body weight					
Yes	13 (23.2)	5 (16.1)	17 (27.0)	1.36	35 (23.3)
No	43 (76.8)	26 (23.8)	46 (73.0)		115 (76.7)
Currently trying to gain body weight					
Yes	14 (25.0)	8 (25.8)	10 (15.9)	1.93	32 (21.3)
No	42 (75.0)	23 (74.2)	53 (84.1)		118 (78.7)

*p value ≤ 0.05 , figures in the parenthesis indicate percentages

Table 5 Body weight concern and related behaviours according to actual weight status (based on BMI) among the participants

Body weight concern	Weight status			χ^2 -values	Total (N=150)
	Underweight (N=37)	Normal weight (N=90)	Overweight (N=23)		
Satisfaction level of present body weight					
Satisfied	9(24.3)	49(54.4)	3(13.0)	32.55*	61(40.7)
Not sure	19(51.4)	34(37.8)	8(34.8)		61(40.7)
Dissatisfied	9(24.3)	7(7.8)	12(52.2)		28(18.7)
Perceived own body weight as				NA	
Underweight	20(54.1)	8(8.9)	-		28 (18.7)
Normal weight	16(43.2)	73(81.1)	8(34.8)		97 (64.7)
Overweight	1(2.7)	9(10.0)	15(65.2)		25 (16.7)
Perception about self as thin				36.01*	
Yes	28 (75.7)	27 (30.0)	1 (4.3)		56 (37.3)
No	9 (24.3)	63 (70.0)	22 (95.7)		94(62.7)
Perception about self as fat				31.98*	
Yes	3 (8.1)	28 (31.1)	18 (78.3)		49(32.7)
No	34 (91.9)	62 (68.9)	5 (21.7)		101(67.3)
Whether worried of being thin				NA	
Yes	21 (56.8)	9 (10.0)	-		30(20.0)
No	16 (43.2)	81 (90.0)	23 (100.0)		120(80.0)
Whether worried of being fat				35.74*	
Yes	2 (5.4)	26 (28.9)	18 (78.3)		46(30.7)
No	35 (94.6)	64 (71.1)	5 (21.7)		104(69.3)
Body weight related behaviours					

Attempt to reduce body weight Yes No	1 (2.7) 36 (97.3)	27 (30.0) 63 (70.0)	17 (73.9) 6 (26.1)	34.24*	45(30.0) 105(70.0)
Attempt to gain body weight Yes No	27 (73.0) 10 (27.0)	23 (25.5) 67 (74.4)	- 23 (100.0)	-	50(33.3) 100(66.6)
Currently trying to reduce body weight Yes No	2 (5.4) 35 (94.6)	18 (20.0) 72 (80.0)	15 (65.2) 8 (34.8)	29.76*	35(23.3) 115(76.7)
Currently trying to gain body weight Yes No	25 (67.6) 12 (32.4)	7 (7.8) 83 (92.2)	- 23 (100.0)	-	32(21.3) 118(78.7)

*p value \leq 0.001, figures in the parenthesis indicate percentages

Table 6 Multivariate binary logistic regression analyses (stepwise) using each of the variables considered for body weight concerns and weight related behaviours as a dependent variable

Dependant variable(s)	Independent variable(s)	Exp(B)	P value	C.I. 95%
Perceived as overweight	Actual weight status	Ref		
	Normal weight	0.27	0.05	0.05-0.90
	Underweight	16.87	0.001	5.61-50.70
Body weight dissatisfaction	Marital status	Ref		
	Unmarried	0.26	0.05	0.06-0.99
	Married			
	Actual weight status	Ref		
	Normal weight	4.07	0.002	1.67-9.89
	Underweight	7.96	0.002	2.18-29.08
Perception about self as thin	Actual weight status	Ref		
	Normal weight	7.25	0.001	3.02-17.43
	Underweight	0.10	0.032	0.01-0.82
Perception about self as fat	Marital status	Ref		
	Unmarried	0.98	0.001	0.01-0.02
	Married			
	Actual weight status	Ref		
	Normal weight	0.19	0.012	0.05-0.70
	Underweight	0.10	0.001	2.73-28.62
Worried about being thin	Age of the participants during interview	0.75	0.03	0.55-0.97
	Actual weight status	Ref		
	Normal weight	11.81	0.001	4.58-30.46
Worried about being fat	Underweight	0.99	0.001	0.01-0.02
	Overweight			
	Age of the participants during interview	0.82	0.01	0.55-0.97
	Marital status	Ref		
	Unmarried	0.99	0.001	0.01-0.02
	Married			
	Actual weight status	Ref		
	Normal weight	0.02	0.004	0.02-0.49
	Underweight	14.97	0.001	4.17-53.74
	Overweight			

Attempt to lose weight	Marital status			
	Unmarried	Ref		
	Married	0.99	0.001	0.01-0.02
	Actual weight status			
	Normal weight	Ref		
	Underweight	0.06	0.009	0.008-0.50
	Overweight	7.05	0.001	2.35-21.13
Attempt to gain weight	Age of the participants during interview	1.29	0.008	1.07-1.56
	Actual weight status			
	Normal weight	Ref		
	Underweight	24.40	0.001	7.84-75.89
	Overweight	0.99	0.01	0.01-0.02
Currently trying to reduce body weight	Actual weight status			
	Normal weight	Ref		
	Underweight	0.22	0.05	0.05-1.04
	Overweight	7.50	0.001	2.75-20.41
Currently trying to gain body weight	Actual weight status			
	Normal weight	Ref		
	Underweight	24.70	0.05	8.78-69.46
	Overweight	0.99	0.01	0.01-0.02

Ref: reference category

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