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Original Article

Community Medicine Section

A Cross-sectional Study of the Pattern of Body Image Perception among Female Students of BBM College in Vijayapur, North Karnataka

B.M. RASHMI[1], SHAILAJA S. PATIL[2], MAHABALESHWAR MAHANTAPPA ANGADI[3], TANUJA P. PATTANKAR[4]

ABSTRACT

Introduction: Body image is an essential aspect of young girls' self-definition and individual identity which is influenced by various biological, psychological and social factors. Excessive concern about body image, body image misconception are leading to dissatisfaction, disturbed eating patterns, affecting the nutritional status and also leading to depression and anxiety disorders. This concept of body image has been less explored in Indian context, especially among young girls.

Aims: The objectives of the study were to assess the body image perception among young college going girls, using a visual analog scale and to compare body image perception and satisfaction with their BMI levels and weight changing methods adopted.

Materials and Methods: An exploratory cross-sectional study was conducted among 63 female students studying BBM course at a private commerce institution in Vijayapur city. Data was collected using a self administered questionnaire containing details of basic socio-demographic information and a validated visual analogue scale. Height was measured by Seca Stadiometer, weight was measured using Digital weighing machine and Body Mass Index levels were calculated. Percentages were calculated for descriptive variables. Chi-square test was applied for analysing categorical variables. Spearman Rank correlation test was applied for analysing ordinal data.

Results: A 39.7% of participants were underweight and 15.9% were overweight/obese. Majority of underweight and overweight girls (72% and 89%, respectively) perceived themselves as normal weight. Body image satisfaction of participants was found to be significantly associated with their body image perception, mothers' educational status and also with relatives' and peer group's opinions about their body weight. Unhealthy weight changing patterns like skipping meals (13%), increasing quantity and frequency of meals (17%) were reported among study participants.

Conclusion: This exploratory study highlights the gap between young girls' body image perception and their BMI levels, indicating body image misconception. Lower literacy level of mothers and opinions of relatives and friends significantly influenced body image satisfaction among study participants. Higher percentage of underweight (39.7%) coupled with unhealthy weight changing patterns reportedly adopted by participants (30%) indicates need for further research on this issue, to help inform public health nutrition programmes.

Keywords: Body image satisfaction, Body mass index, India, Peer influence on body weight, Young adult nutrition

INTRODUCTION

Body image is an essential multidimensional dynamic component in the intricate mechanism of an individual's identity, influenced by biological, psychological and social determinants [1-4]. The concept of body image has been defined in different terms in scientific literature. As per Gardener's definition, body image is "the mental picture we have of our body's measures, contours and shape; and our feelings related to these characteristics and to our body parts" [5-7].

Body image is an important aspect of young girls' self-definition and is found to be significantly associated with self esteem, because they are socialized to believe that appearance is a vital basis for both self-evaluation and for evaluation by society [8].

Young girls' eating behaviour is influenced by a variety of individual and environmental factors. Individual level factors (psychological or biological), socio-cultural factors including family, friends, peer networks are known to influence eating behaviours and macro-environmental factors like easy availability of junk foods, influence of mass media, marketing and advertising have also been linked with the eating behaviour of young girls [9]. Studies have shown that excessive concern about body weight, body image misconception and internalization of socio-cultural attitudes towards appearance are increasingly being witnessed among young girls [9-15]. These factors have been found to result in disordered eating behaviours and disturbed eating patterns affecting the nutritional status and may also result in psychiatric illnesses like anxiety and depression [2,10,14].

Body image consciousness and attempts to change weight are being witnessed more among adolescents in urban India than in rural India [14]. It has been observed that Indian female adolescents are more consciousness to control their weight by restricting diet rather than doing physical exercise [14].

The available literature on body image issues in India has been mainly related to eating disorders like anorexia nervosa and bulimia [2]. Very few studies have explored the body image perception, body image satisfaction and weight changing patterns among young girls in less urbanised cities of India [2,10,12,16].

AIM

This exploratory cross-sectional study was conducted among young college going girls, to assess their body image perception using a visual analogue scale and to compare body image perception and satisfaction with their BMI levels and weight changing methods adopted.

MATERIALS AND METHODS

The cross-sectional study was undertaken in the month of December 2015, after obtaining ethical clearance from institutional ethical committee of BLDE University, Shri B.M. Patil Medical College Hospital and Research Centre, Vijayapur. Vijayapur aka Bijapur is a developing city located in socioeconomically underdeveloped region of north Karnataka. Undergraduate female students attending Bachelor of Business Management (BBM) course at a private commerce institution in Vijayapur city, constituted the study sample (female students =150). Only those who were willing to participate were included in the final sample, after obtaining the permission from the college principal and written informed consent from the participants. Total 63 female students completed both the survey and anthropometric measurements.

Data was collected using a self administered, validated visual analogue scale, which consisted of 8 pictures depicting girls of different silhouettes [17]. First three girls depicted in the picture were lean, next two were normal weight, and last three were overweight. Participants were asked to mention the silhouette that they felt best represented their current weight. The selected silhouette was compared with their actual BMI. The final survey questionnaire had details of basic socio-demographic information of participants like family socio-economic status, family size, parents' educational status and occupation, including the visual analogue scale. Height was measured by Seca Stadiometer to the nearest to 0.1 cm and weight was measured using Digital weighing machine to the nearest to 0.1 kg. Body mass index levels were calculated according to the revised guidelines for Asians (especially South East Asian adults including Indians) {Underweight: BMI < 18.5; Normal Weight: BMI 18.5-22.9; Overweight: BMI 23.0 – 27.5; Obese: BMI > 27.5} [18-20].

STATISTICAL ANALYSIS

Data was analysed in SPSS version 16.0. Percentages were calculated for descriptive variables. Chi-square test was applied for analysing categorical variables. Spearman Rank correlation test was applied for analysing ordinal data like BMI levels. Associations with p-value < 0.05 at 95% CI were considered to be statistically significant.

RESULTS

Majority of participants were 18-year-old (36.5%), 90.5% belonged to Class I Socio economic status (according to Modified BG Prasad Classification). A 62% of participants' fathers had education more than higher secondary level and 44% of mothers had education up to high school. A majority of 39.7% of girls was underweight and 15.9% were overweight/obese [Table/Fig-1].

Majority of participants perceived to be of normal weight (76.2%). Even though 50.8% were either satisfied or very satisfied with their body image, 11% were unsatisfied and 7.9% were very unsatisfied. A 43% of girls had ever tried to lose weight and 46% were currently trying to lose weight [Table/Fig-2].

Majority of participants who were underweight or overweight, perceived themselves as normal weight (72% and 88.9% respectively). There was a weak positive correlation between body image perception and BMI levels (rho = 0.297, p = 0.018). More number of girls aged 21 years (40%) perceived to be overweight. This association was not found to be statistically significant. Body image perception among girls was found to be significantly associated with their mothers' literacy levels but not significantly associated with their fathers' education levels. Majority of participants whose mothers had education level more than high school perceived themselves to be of normal weight and participants with illiterate mothers perceived themselves to be of overweight (66.7%) [Table/Fig-3].

Variables	Frequency (N=63)	Percent
Age of participants (in years)		
17	15	23.8
18	23	36.5
19	19	30.2
20	1	1.6
21	5	7.9
SES (Acc to Modified BG Prasad Classification)		
Class 1	57	90.5
Class 2	4	6.3
Class 3	2	3.2
Class 4	0	0
Education status of father		
Illiterate	1	1.6
1st to 7th standard	4	6.3
8th to 10th standard	19	30.2
PUC / Degree/ Diploma	39	61.9
Education status of mother		
Illiterate	3	4.8
1st to 7th standard	12	19
8th to 10th standard	28	44.4
PUC / Degree/ Diploma	20	31.7
BMI levels (BMI: Kg / m^2)		
Underweight (< 18.50)	25	39.7
Normal Weight (18.50 – 22.99)	28	44.4
Overweight (23- 27.49)	9	14.3
Obese (> 27.5)	1	1.6

[Table/Fig-1]: Socio-demographic characteristics and BMI levels of study population.

Variables	Frequency (N=63)	Percent
Body image perception		
Lean	9	14.3
Normal weight	48	76.2
Overweight	6	9.5
Satisfaction about their body image		
Very Satisfied	10	15.9
Satisfied	22	34.9
Neutral	19	30.2
Unsatisfied	7	11.1
Very unsatisfied	5	7.9
Participants reporting attempts to change weight		
Ever tried to lose weight	27	43
Currently trying to lose weight	29	46
Ever tried to gain weight	15	24
Currently trying to gain weight	10	16

[Table/Fig-2]: Body image perception, satisfaction with body image and attempts to change weight as reported by participants.

Majority of girls who perceived to be lean or overweight were 'unsatisfied/ very unsatisfied' (44.4% and 66.7% respectively) and those who perceived to be normal weight were 'satisfied/ very satisfied' with their body image (58.3%). Majority of girls with illiterate mothers felt unsatisfied/very unsatisfied with their body image (66.7%) whereas those whose mothers had literacy levels of primary school and above, felt satisfied with their body image. These associations were found to be statistically significant. There was no significant association of body image perception of girls with their fathers' education status [Table/Fig-4]. Body image satisfaction found to be significantly associated with relatives' and

Body image perception	Lean (%)	Normal weight (%)	Overweight (%)	Total N=63 (%)	
Age of participants (in years)					
17	1 (6.7)	13 (86.7)	1(6.7)	15 (100.0)	χ^2 = 8.871 p = 0.353
18	5 (21.7)	16 (69.6)	2 (8.7)	23 (100.0)	
19	2 (10.5)	16 (84.2)	1 (5.3)	19 (100.0)	
20	0 (0)	1 (100.0)	0 (0)	1 (100.0)	
21	1 (20.0)	2 (40.0)	2 (40.0)	5 (100.0)	
BMI levels					
Underweight	6 (24.0)	18 (72.0)	1 (4.0)	25 (100.0)	rho = 0.297* p=0.018
Normal Weight	3 (10.7)	22 (78.6)	3 (10.7)	28 (100.0)	
Overweight	0 (0)	8 (88.9)	1(11.1)	9 (100.0)	
Obese	0 (0)	0 (0)	1 (100)	1(100.0)	
Fathers education status					
Illiterate	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)	χ^2 = 4.038 p = 0.672
1st to 7th standard	0 (0.0)	3 (75.0)	1 (25.0)	4 (100.0)	
8th to 10th standard	2 (10.5)	14 (73.7)	3 (15.8)	19 (100.0)	
PUC/Degree/ Diploma	7 (17.9)	30 (76.9)	2 (5.1)	39 (100.0)	
Mothers education status					
Illiterate	0 (0.0)	1 (33.3)	2 (66.7)	3 (100.0)	χ^2 = 12.943 p = 0.044
1st to 7th standard	2 (16.7)	9 (75.0)	1 (8.3)	12 (100.0)	
8th to 10th standard	3 (10.7)	23 (82.1)	2 (7.1)	28 (100.0)	
PUC /Degree / Diploma	4 (20.0)	15 (75.0)	1 (5.0)	20 (100.0)	
Total	9 (14.3)	48 (76.2)	6 (9.5)	63 (100.0)	

[Table/Fig-3]: Association of body image perception with age, BMI levels and parents' educational status.
*Spearman Rank correlation test was used.

peer group's opinions, wherein about one third of participants felt 'unsatisfied/very unsatisfied' with their body image, when their relatives and friends opined that they were fat (33.3% and 37.5% respectively).

A 33.3% of girls who perceived to be lean and 16.7% of girls who perceived to be normal weight, tried to increase weight by increasing frequency and quantity of meals. This association was not found to be significant. According to BMI levels, 32% of underweight girls and 10.7% of normal weight girls were trying to increase their weight by increasing quantity and frequency of meals. This association was found to be significant [Table/Fig-5].

None of the girls who perceived to be lean were skipping meals to reduce weight whereas, 14.6% of girls who perceived to be of normal weight and 16.7% girls who perceived to be overweight, skipped meals to reduce weight. This association was not found to be significant. According to BMI levels, 10.7% of the normal weight girls and 50% of overweight/ obese girls were trying to lose weight by skipping meals. This association was found to be statistically significant [Table/Fig-5].

DISCUSSION

Few studies have been conducted on body image perception, body image satisfaction and weight reducing patterns among young females in Indian setting [2,10,12]. The present study was an attempt to explore the patterns of body image perception, assess the BMI and grades of obesity and change in eating patterns to reduce weight among young girls in northern Karnataka. A validated questionnaire (a modified version of American Indian Pathways Study for girls) including visual silhouette perception scale developed by Mciza et al., was used to assess participants' body image perception [17,21].

	Satisfaction about body image				
	Satisfied / Very Satisfied (%)	Neutral (%)	Unsatisfied / Very unsatisfied (%)	Total N=63 (%)	
Body image perception					
Lean	3 (33.3)	2 (22.2)	4 (44.4)	9 (100.0)	χ^2 = 16.247 p= 0.003*
Normal weight	28 (58.3)	16 (33.3)	4 (8.3)	48 (100.0)	
Overweight	1 (16.7)	1 (16.7)	4 (66.7)	6 (100.0)	
Education status of mother					
Illiterate	1 (33.3)	0 (0)	2 (66.7)	3 (100.0)	χ^2 = 14.213 p= 0.027
1st to 7th standard	9 (75.0)	2 (16.7)	1 (8.3)	12 (100.0)	
8th to 10th standard	17 (60.7)	7 (25.0)	4 (14.3)	28 (100.0)	
PUC / degree / diploma	5 (25.0)	10 (50.0)	5 (25.0)	20 (100.0)	
Education status of father					
Illiterate	1 (100.0)	0 (0)	0 (0)	1 (100.0)	χ^2 = 6.928 p= 0.328
1st to 7th standard	3 (75.0)	0 (0)	1 (25.0)	4 (100.0)	
8th to 10th standard	11 (57.9)	3 (15.8)	5 (26.3)	19 (100.0)	
PUC/Degree/ Diploma	17 (43.6)	16 (41.0)	6 (15.4)	39 (100.0)	
Relatives opined that participants were fat					
Yes	7 (29.2)	9 (37.5)	8 (33.3)	24 (100.0)	χ^2 = 8.417, p = 0.015
No	25 (64.1)	10 (25.6)	4 (10.3)	39 (100.0)	
Friends opined that participants were fat					
Yes	7 (29.2)	8 (33.3)	9 (37.5)	24 (100.0)	χ^2 = 10.630 p= 0.005
No	25 (64.1)	11 (28.2)	3 (7.7)	39 (100.0)	
Relatives opined that participants were thin					
Yes	14 (53.8)	10 (38.5)	2 (7.7)	26 (100.0)	χ^2 = 4.090, p=0.129
No	18 (48.6)	9 (24.3)	10 (27.0)	37 (100.0)	
Friends opined that participants were thin					
Yes	13 (54.2)	7 (29.2)	4 (16.7)	24 (38.1)	χ^2 = 0.215, p=0.898
No	19 (48.7)	12 (30.8)	8 (20.5)	39 (100.0)	
Total	32 (50.8)	19 (30.2)	12 (19.0)	63 (100.0)	

[Table/Fig-4]: Association of participants' satisfaction about their body image with their body image perception, parents' education status and comments about their body weight by relatives and friends.
*The visual analogue scale had pictorial depictions of 8 continuous silhouettes, wherein first 3 depictions were categorised to be lean, next 2 depictions to be normal weight and last 3 were categorised to be overweight.

Increased frequency/ quantity of meal intake	Yes (%)	No (%)	Total N=63	
Body image perception				
Lean	3 (33.3)	6 (66.7)	9 (100)	χ^2 = 2.864 p = 0.239
Normal weight	8 (16.7)	40 (83.3)	48 (100)	
Overweight	0 (0)	6 (100.0)	6 (100)	
BMI levels				
Underweight	8 (32.0)	17 (68.0)	25 (100.0)	χ^2 = 6.667 p = 0.036
Normal weight	3 (10.7)	25 (89.3)	28 (100.0)	
Overweight / Obese	0 (0)	10 (100.0)	10 (100.0)	
Skipping meals to reduce weight	**Yes (%)**	**No (%)**	**Total N=63**	
Body image perception				
Lean	0 (0)	9 (100)	9 (100)	χ^2 = 1.54 p = 0.461
Normal weight	7 (14.6)	41 (85.4)	48 (100)	
Overweight	1 (16.7)	5 (83.3)	6 (100)	
BMI levels				
Underweight	0 (0)	25 (100)	25 (100)	χ^2 = 16.29 p = 0.001
Normal weight	3 (10.7)	25 (89.3)	28 (100)	
Overweight/obese	5 (50.0)	5 (50.0)	10 (100)	
Total	8 (12.7)	55 (87.3)	63 (100)	

[Table/Fig-5]: Association of body image perception and BMI levels with weight changing patterns adopted.

In the present study, the grades of obesity were classified according to the revised guidelines for Asian Indians [18-20]. In our study, underweight females (39.7%) were more compared to overweight/obese females (15.9%). A 44.4% of participants were normal weight [Table/Fig-1]. Similar results were found in the study conducted by Priya D et al., among female MBBS students in Mangalore [5]. An overall prevalence of overweight and obesity among adolescents in Delhi, in a study conducted by Stigler MH et al., was found to be 16.6% [22].

A 19% of participants in the present study reported to be unsatisfied/ very unsatisfied with their body image [Table/Fig-2]. Similar rates of body image dissatisfaction have been found in studies conducted by Goswami S et al., (13.5%), Dixit S et al., (26.6%) and Priya D et al. (33.3%) [1,5,16]. Globally, findings of studies on body dissatisfaction among Asian women have been inconsistent. Few studies have shown that there is lesser body image dissatisfaction among Asian women compared to Caucasian and American women [23,24], whereas other studies have shown that body image dissatisfaction was higher among Asian women compared to white women [25,26].

Upon comparison of actual BMI levels of participants with their body image perception, it was found that a majority of underweight and overweight girls perceived themselves to be of normal weight (72% and 88.9%, respectively), however, Spearman Rank correlation test showed a weak positive correlation between actual BMI levels and their image perception (rho = 0.297, p = 0.018). This finding of perceiving unhealthy weight (both underweight and overweight) as normal weight indicates the lack of awareness about healthy body image among the study participants. Similar results have been found in other studies [5,7]. In the present study, education status of mothers was found to be significantly associated with respondents' body image perception, wherein majority of girls of illiterate mothers (66.7%) perceived to be overweight when compared to those of literate mothers [Table/Fig-3]. In a study conducted by Shagar PS et al., it was found that respondents whose mothers received a lower level of education had 3.7 times greater risk of misperception of own weight status compared to respondents whose mothers received higher level of education [27].

In the present study, majority (66.7%) of participants having mothers, who were illiterate, reported dissatisfaction with their body image [Table/Fig-4]. Whereas in study done on body image satisfaction among female college students by Goswami S et al., it was found that mother's education was inversely associated with the respondents' body satisfaction [1]. In the present study, body image dissatisfaction was found to be significantly higher among girls whose relatives and friends opined that they were fat (33.3% and 37.5%). Body image dissatisfaction was also higher among those participants who perceived to be overweight or lean (66.7% and 44.4%, respectively) [Table/Fig-4]. Nearly one third of underweight girls (32%) reportedly tried to increase their weight by increasing quantity and frequency of meals. The percentage of participants who skipped meals was higher among those who were actually overweight/obese (50%) as per their BMI levels and also among those who perceived to be overweight (16.7%) [Table/Fig-5]. The above findings reflect the fact that body image perception and opinions by relatives and peer group play an important role in body image satisfaction, which in turn may have played a major role in unhealthy weight changing eating patterns. Similar results have been found in studies conducted by Mallick N et al., and Priya D et al., [5,10]. The scientific literature has shown that there are various psychological, biological and social factors that influence body image dissatisfaction and weight changing eating patterns among the youth. The changing cultural context, transitional phase in dietary pattern, mass media, marketing and advertising, rapid urbanization and globalization in India have resulted in an inclination towards concept of thin body image which may be leading to dissatisfaction over body weight, further provoking body weight concerns and disordered eating behaviours among young girls [10,12,13].

LIMITATIONS

Sample size is less as it is an exploratory cross-sectional study. Hence the results cannot be generalised. The influence of mass media and fast food outlets on body image perception and weight changing patterns was not explored.

CONCLUSION

A higher percentage of underweight (39.7%) and (14%) overweight BMI levels found among young girls in the present study is a concern. Body image perception of young girls is found to be influenced by maternal educational status, wherein higher percentage of girls with illiterate mothers perceived themselves to be overweight. An encouraging aspect documented in this study is the higher percentage of body image satisfaction, but it is found to be significantly influenced by peer group and relatives' opinions. It is also found that majority of underweight and overweight girls (72% and 89% respectively) perceived themselves as normal weight. This highlights the gap between young college girls' body image perception and their BMI levels, indicating body image misconception. Unhealthy weight changing patterns are also reported in the study wherein 13% skipping meals to reduce weight, 17% increasing frequency and quantity of meals and 3% taking energy supplements to increase weight. This exploratory study shows that there is a need for correct nutritional education and the need to inculcate concept of healthy weight among young girls.

RECOMMENDATIONS

Nutritional educational programmes have to be conducted at educational institutions to sensitise, create awareness among young adults to adapt healthy life style habits to attain optimal health and wellbeing. The concept of positive body image, its health benefits and importance of not yielding to harmful practices or using unscientific methods to attain perceived ideal body weight have to be emphasised through regular health educational programmes at colleges. Mass media programmes focussing on healthy nutrition, hazards of unhealthy practices to reduce or gain weight need to be designed and telecasted aiming at young adults, to curb the emerging double burden of malnutrition in India.

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REFERENCES

[1] Goswami S, Sachdeva S, Sachdeva R. Body image satisfaction among female college students. *Indian Psychiatry Journal*. 2012;21(2):168-72.
[2] Cavale J, Singh DC. Curent status of body image research in India. *Indian Journal of Psychological science*. 2014;5(1):124-31.
[3] Cash T, Pruzinsky T, editors. Body images: Development, deviance and change. New York: The Guilford Press; 1990 . Pp. 20-24.
[4] Geller J, Srikameswaran S, Cockell SJ, Zaitsoff SL. Assessment of shape- and weight-based self-esteem in adolescents. *Int J Eat Disord*. 2000;28:339-45.
[5] Priya D, Prasanna KS, Sucharitha S, Vaz NC. Body image perception and attempts to change weight among female medical students at Mangalore. *Indian J Community Med.* 2010;35(2):316-20.
[6] Gardner RM. Methodological issues in assessment of the perceptual component of body image disturbance. *Br J Psychol.* 1996;87:327-37.
[7] Kakeshita IS, Almeida SS. Relationship between body mass index and self-perception among university students. *Rev Saude Publica*. 2006;40(3):497-504.

[8] Clay D, Vignoles VL, Dittmar H. Body image and self-esteem among adolescent girls: testing the influence of sociocultural factors. *Journal of Research on Adolescence.* 2005;15(4):451–77.
[9] Stang J, Story M. eds. Guidelines for adolescent nutrition services [Internet]. Minneapolis, MN: Center for Leadership, Education and Training in Maternal and Child Nutrition, Division of Epidemiology and Community Health, School of Public Health, University of Minnesota; 2005. Chapter 2, Understanding Adolescent Eating Behaviors [Cited 2015 Dec 14]. Available from http://www.epi.umn.edu/let/pubs/img/adol_ch2.pdf
[10] Mallick N, Ray S, Mukhopadhyay S. Eating behaviours and body weight concerns among adolescent girls. *Advances in Public Health.* 2014;2014:1-5.
[11] Pokhrel S, Acharya B, Adhikari C. Nutritional Status and Body Image Dissatisfaction among Adolescent Girls in Kaski District, Nepal. *IJHSR*. 2015;5(6):462-69.
[12] Singh MM, Parsekar SS, Bhumika TV. Body image, eating disorders and role of media among indian adolescents. *J Indian Assoc Child Adolesc Ment Health*. 2016;12(1):9-35.
[13] Story M, Neumark-Sztainer D, French S. Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic Association*. 2002;102(3):S40-51.
[14] Shah HD, Shaikh WA, Singh SK. Are Indian adolescent girl students more conscious about their body image than their colleague boys? *National Journal of Community Medicine*. 2012;3(2).
[15] Dohnt HK, Tiggemann M. Body image concerns in young girls: The role of peers and media prior to adolescence. *Journal of Youth and Adolescence*. 2006;35(2):135-45.
[16] Dixit S, Agarwal GG, Singh JV, Kant S, Singh N. A study on consciousness of adolescent girls about their body image. *Indian Journal of Community Medicine.* 2011;36(3):197.
[17] Mciza Z, Goedecke JH, Steyn NP, Charlton K, Puoane T, Meltzer S, et al. Development and validation of instruments measuring body image and body weight dissatisfaction in South African mothers and their daughters. *Public Health Nutrition*. 2005;8(05):509-19.
[18] Bhalvar R, Vaidya R, Tilak R, Gupta R, Kunte R. Textbook of Public health and Community Medicine. 1st ed. Pune : Department of Community Medicine, Armed Forces Medical College, Pune ; 2009. Chapter 136, Nutritional Assessment and Surveillance of a Community; pp. 788.
[19] Geissler CA, Powers HJ, editors. Human Nutrition. 11th ed. Edinburgh: Elsevier/Churchill Livingstone; 2005. pp. 380-95.
[20] WHO EC. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet* (London, England). 2004;363(9403):157.
[21] Caballero B, Clay T, Davis SM, Ethelbah B, Rock BH, Lohman T, et al. Pathways: a school-based, randomized controlled trial for the prevention of obesity in American Indian schoolchildren. *The American Journal of Clinical Nutrition*. 2003;78(5):1030-38.
[22] Stigler MH, Arora M, Dhavan P, Shrivastav R, Reddy KS, Perry CL. Weight-related concerns and weight-control behaviors among overweight adolescents in Delhi, India: A cross-sectional study. *Int J Behav Nutr Phys Act*. 2011;8(1):9.
[23] Akan GE, Grilo CM. Sociocultural influences on eating attitudes and behaviors, body image, and psychological functioning: a comparison of African-American, Asian-American, and Caucasian college women. *Int J Eat Disord*. 1995;18:181–87.
[24] Tsai CY, Hoerr SL, Song WO. Dieting behavior of Asian college women attending a U.S. university. *J Am College Health.* 1998;46:163–70.
[25] Mintz LB, Kashubeck S. Body image and disordered eating among Asian American and Caucasian college students. *Psychol Women Quart*. 1999;23:781–96.
[26] Grabe S and Hyde JS. Ethnicity and body dissatisfaction among women in the united states: a meta-analysis. *Psychological Bulletin*. 2006;132(4):622-40.
[27] Shagar PS, Shakiba N, Rahmah MA. Factors associated with misperception of own weight status among 18-21 year old university students. *IOSR-JNHS*. 2014;3(5):25-31.

PARTICULARS OF CONTRIBUTORS:
1. Postgraduate student, Department of Community Medicine, Bijapur Liberal District Education University, Shri B.M. Patil Medical College, Vijayapur, Karnataka, India.
2. Professor and Head of Department, Department of Community Medicine, Bijapur Liberal District Education University, Shri B.M. Patil Medical College, Vijayapur, Karnataka, India.
3. Professor and Head of Department, Department of Community Medicine, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India.
4. Postgraduate student, Department of Community Medicine, Bijapur Liberal District Education University, Shri B.M. Patil Medical College, Vijayapur, Karnataka, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. B.M. Rashmi,
337/16-A-14, Ganesha Layout, Behind Vishwas Fuels, Near Fire Station,
PB Road, Davanagere, 577001, India.
E-mail: dr.rashmi.bgm@gmail.com

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