

**Original Article**

**Body Image, Eating Disorders and Role of Media among Indian  
Adolescents**

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**Abstract**

**Background:** Undue concern about one's body image is one of the psychological problems. Body image concerns are on the rise among adolescents and research suggest that it may accumulate even further. **Aim:** To estimate the proportion of adolescents who have concerns about their body image and to understand the relationship between eating attitudes, media and famous personalities with body image concerns. **Methods:** Study employed 550 students of pre-university colleges of Udupi taluk, Karnataka, India through multi stage sampling technique. Eating Attitudes Test and Socio-Cultural Attitudes Towards Appearance Questionnaire were used to collect the data. Data were analyzed using Statistical Packages for Social Sciences version 15.00. Analysis of variance and multinomial logistic regression were performed for analysis. **Results:** Of the total participants 47.82 % were males. Participants who perceived themselves to be thin and fat were 29.82% and 32.54% correspondingly. Tendency to develop an eating

disorder, prevalent among 31.09% participants, and being influenced by famous personalities were found to be significantly associated with body image concerns.

**Conclusion:** Parents, teachers and providers of health care should interact with their kin regarding the ill effects of being excessively concerned about their body structure and dieting. One should not believe anything and everything portrayed through the media. Policies and legislations should be employed to diminish the exposure of possible detrimental media messages on children and adolescent.

### **Keywords**

Adolescents; Body image; Eating attitudes; Media; Famous personalities.

### **Introduction**

Undue concern about one's body image is one of the psychological problems. Developing undesirable thoughts, esteem and admiration of one's body image is characterized by means of significant incongruity between what one perceives about his/her own body and what he/she desires to be. Excessive body image concern is determined by various factors such as eating disorders [1-3], low self-esteem [4, 5], genetics [6], increased body mass index [5-7], age, gender, race, socio-cultural factors; peers, media, parents [5, 6], body dissatisfaction, depression [4] and internalization of thin ideal [4, 6].

Over the years, the number of people having body image concerns [1, 8] and eating disorders [9, 10] have increased worldwide; and longitudinal research suggest that it may accumulate further [4, 11]. Body image concern is said to be uncommon in the non-Western environment [8] and has been neglected in diagnosis and treatment [10]. It is

evident that physical appearance is important and it has a strong influence on behavioral changes in humans, explicitly regarding health and food [6].

Studies conducted among adolescents from Brazil [12], Korea [13] and Malaysia [14] reported the prevalence of body image concerns to be 24.1%, 51.8%, 87.3% respectively. The latter study [14] also reported that 35.4% of the participants indulged in binge eating and 36% were using dietary restraints. Few studies conducted in India, reported the proportion of adolescents having body image concerns to be 54% [15], 81% [16], 27% [17] and 33% [18] in different cities of the nation.

By the age of 15 years, girls have three times more likelihood of displaying eating disorder than boys. Literature suggests that body image is an issue across entire lifespan of a human being [19] predominantly in the adolescent age group [2, 6, 20], because of the developmental changes associated with puberty [1, 2]; and cultural and societal influences [2, 4-7]. Children acquire and register that fat is ‘bad’ and thin is ‘good’ from their families, teachers, friends and the media [21]. In general, girls give utmost importance on their external look, on the other hand boys tend to focus on their muscular strength to boost up their confidence and popularity [5, 7]. Athletic features in boys’ delineate their popularity [10]. Girls tend to believe that thin body shape would enhance their external appearance irrespective of their age [4]. This concern may sometimes lead them to using anabolic-androgenic steroids and other “body image drugs”, though, this is mostly found in men [4, 8, 10].

Media is one of the powerful influencing factor for body image concern [1, 6, 9, 21] and it is significantly associated with body dissatisfaction [22] and development of dieting disorders [1, 5, 19]. Media influences people to follow and accept what it depicts as a mythic concept in their daily life [11]. It often over represents models and actors who are thin and under represents overweight or obese characters [11]. Influence and impractical expectations from media [1, 4, 5, 10, 11], peers [6], environmental and societal pressures [1, 6] convinces the adolescents, to attain a perfect body, like the ones depicted in the media.

There are few websites which focus on eating disorders, these websites have interactive features which allow users to interact and support each other [4, 5, 20]. Many healthy living blogs emphasize on thin appearance and disordered eating and they also contain self-objectifying messages [4]. However, these websites provide information and links to help users recover from eating disorders as well [5]. Though, most general as well as health related magazines contain information on the importance of diet and exercise, these magazines also highlight the ads for reducing weight in a hasty manner by unhealthy means such as appetite suppressants and so on, at the same time [9]. Evidence shows that increase in the number of these advertisements is parallel with the rise in eating disturbances [2] and body shape concerns in both men and women [5, 6, 20]. It is also a fact, that not everybody who is exposed to idealized media images, develop negative feelings about their physical body or develop eating disorders which can be diagnosed clinically [2, 5].

All the above mentioned factors lead to excessive concerns about one's body image as well as development of unhealthy dieting habits, binge eating, purging and skipping meals [11]. Anorexia nervosa and bulimia nervosa are the two main eating disorders that can have detrimental, even devastating and life threatening effects [6]. These disorders have a peak incidence in youth [5].

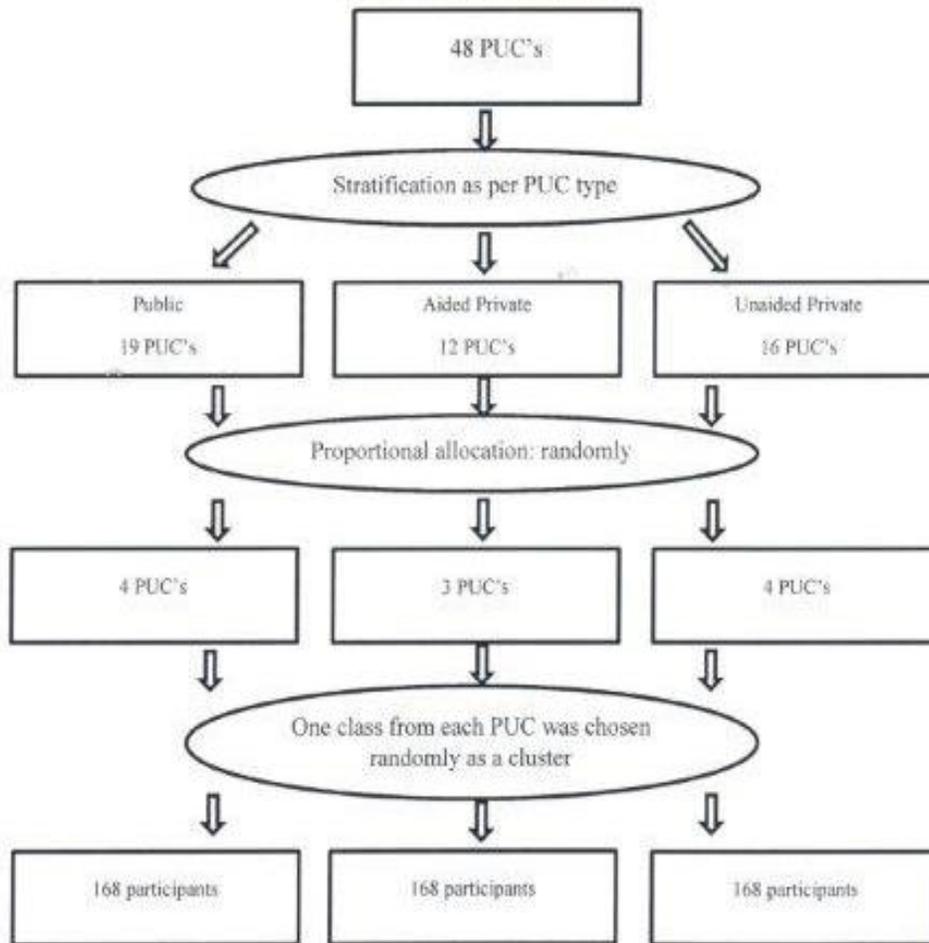
Since, evidence suggests that adolescents are more prone to develop body image concerns, it becomes important to understand if eating disorders and media have an effect on it. Body image concerns among adolescents are gradually increasing in India [23]. Although research on this issue and factors influencing it is emerging in Asian countries including India [3], the evidence is markedly deficient. The few studies which have been conducted in India till date, does not take into consideration the sub-clinical and undiagnosed variants of eating disorder [3, 5]. With the growing advent of technology, it is of prime importance to understand how media affects the adolescents with regard to body image concerns. Thus, this study intends to understand the perception of adolescents about their body image, determine whether they have tendency of developing eating disorder and find out if media influences their perception about body image or not.

Objectives: 1. To estimate the percentage of pre-university college (PUC) students who have concerns about their body image. 2. To find the relationship among eating attitudes, media [television (TV), music videos, print, magazines and movies] and famous personalities as well as other covariates on body image concerns.

**Methods**

*Study setting, sample and participant:* A cross sectional study was carried out among student studying in PUCs, in one taluk of Udupi district for six months, beginning from the month of January 2014. Expecting minimum prevalence of 27.4 % as per the previous study conducted in Udupi [24], with 5% absolute precision, 95% confidence interval, design effect of 1.5 and non- response rate of 10%, the final sample size came out to be 504. Multistage sampling technique was employed to recruit the participants. A total of 48 PUCs in Udupi taluk, was stratified based on their type. We assumed that each class will have approximately 40-50 students, hence, eleven PUCs were considered and these were selected randomly, employing proportional allocation technique from each stratum. Within each PUC, a class was randomly chosen as a cluster and all the students from the class were employed in the study. Figure 1 depicts the selection process.

Figure 1: Sampling technique



*Operational definitions:* Body image was defined as “A mental representation of one's own physical appearance, based partly on self-observation and partly on the reactions of others” [25]. It has been categorized into thin, normal and fat in the present study. Eating attitudes include thoughts, beliefs, feelings, behaviors and relationship with food. Eating disorders were defined as, “A class of mental disorders characterized by disturbances or problems associated with feeding or eating” [25].

*Study tool:* Self-administered structured questionnaire was used to collect the data. It included socio-demographic details, Eating Attitudes Test -26 (EAT-26) [26] and the Sociocultural Attitudes Towards Appearance scale-3 (SATAQ-3) [27]. The EAT-26 included variables such as eating habits, calorie consciousness, dieting behavior, excessive exercising and going on binge diet. It is a Likert scale and ranges from “always” to “never”. If the participant scores more than 20 on this scale, then he/she has an affinity to develop an eating disorder. SATAQ-3 explores the influences of advertisements, television, movie stars, music videos etc. on perception about oneself. It is also a Likert scale ranging from “definitely disagree” to “definitely agree”. It has four sub scales namely, general, athlete, pressure and information. Obtaining higher score on a particular sub scale indicates the participant as being more influenced by that particular sub scale. The questionnaire was administered in English and in the local language (Kannada). The Kannada version of the questionnaire was validated by experts. Participants who did not give consent and those who did not come to PUCs on the day of data collection were excluded.

*Procedure:* Data collection was done according to the time and date given by the Principal/ head of the institute. Efforts were made to reduce the bias by, stratifying the PUC's as per their types, randomly selecting the PUC's from each strata and randomly choosing the class from each PUC. Participants were made to sit on separate benches in order to avoid copying of each other's responses.

*Ethics:* Ethical clearance was obtained from Institutional Ethical Committee, Kasturba Medical College, Manipal (IEC16/2014). Permission was taken from deputy director of

PUCs, Udupi taluk and Principal/ head of the institute to conduct the study. Informed consent was taken from the participants and for those who were under 18 years of age, parental consent was obtained prior to data collection. Privacy and concealment was maintained, participation was voluntary.

*Statistical analysis:* Statistical package for social sciences' version 15 was used to analyze the data. Quantitative variables were arranged in tables. Only two variables, television/magazine and famous people, from the SATAQ-3 questionnaire were considered for univariate and multinomial logistic regression in order to achieve the objective. Crude Odds ratio (cOR) was calculated and reported along with 95% confidence interval (CI). Multinomial logistic regression was performed for the variables which came out to be statistically significant in univariate analysis and adjusted odds ratio (aOR) along with 95% CI has been reported. The table for multinomial logistic regression has been split into two (association of thin with normal and fat with normal and participants in normal category in both tables are same), for ease of understanding. ANOVA (Analysis of variance test) was used for the SATAQ-3 questionnaire sub scales (general, pressure, athlete and information), to determine whether there were any significant differences between thin, normal and fat body image perception. For the pressure sub scale, Welch test was used, as it did not follow the equality of variance assumption. For the other three sub scales, Tukey Post Hoc test was conducted. Multiple comparisons were then conducted to find out which groups were significantly different from each other.

**Result**

A total of 550 participants were enrolled in the study. Few classes had more number of students than expected, hence the number of participants were more than the calculated sample size. As per the type of PUC; 35.45% belong to the public PUC, 31.09% to aided private and 33.46% to unaided private PUC. The age of the participants ranged from 15 to 19 years. Of the total participants 47.82 % were males and majority (86.73%) of the participants was studying in 11<sup>th</sup> grade. One fifth of the participants belonged to the Science and Arts stream each and the remaining to the Commerce stream. About 67.45% participants were from a nuclear family, while rest belonged to joint family. Majority of the participants (70.36%) were living in rural areas in comparison to urban areas of Udupi taluk.

The distribution of participants as per their body image perception and affinity of developing an eating disorder are depicted in table 1.

**Table 1: Distribution of participants according to perception of body image and affinity to develop an eating disorder (n=550)**

<b>Variables</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
	<b>n</b>	<b>n</b>	<b>n (%)</b>
<b>Perception of Body Image</b>			
Thin	80	84	164 (29.82)
Normal	99	108	207 (37.64)
Fat	84	95	179 (32.54)
<b>Affinity to develop an eating disorder</b>			
Yes (score >20)	80	91	171 (31.09)
No (score ≤20)	183	196	379 (68.91)

With regard to SATAQ-3 questionnaire, approximately 15 % of the participants agreed that they have felt the pressure from influence of TV/magazine to lose weight. About one in three participants stated that, they perceived famous personalities to be an important source of information about fashion and to be attractive. According to sub scales of SATAQ-3 questionnaire, approximately quarter of the participants were getting influenced by the information obtained from media. The responses pertaining to the other questions and mean of the sub scales has been illustrated in table 2.

**Table 2: Distribution of participants according to SATAQ-3 (n=550)**

Attitudes	Definitely	Mostly	Neither	Mostly	Definitely
	disagree	disagree	agree nor	agree	agree
	n (%)	n (%)	disagree	n (%)	n (%)
			n (%)		
<b>Information Sub scale: Mean (SD)- 24.22(6.56)</b>					
TV is an important source for fashion and "being attractive"	121 (22.00)	74 (13.45)	124 (22.55)	160 (29.09)	71 (12.91)
TV commercials are an important source for fashion and "being attractive"	152 (27.64)	77 (14.00)	116 (21.09)	146 (26.54)	59 (10.73)
Music videos are not an important source for fashion and "being attractive"	59 (10.73)	73 (13.27)	130 (23.64)	106 (19.27)	182 (33.09)
Magazine articles are not an important source for fashion and "being attractive"	56 (10.18)	68 (12.36)	133 (24.18)	139 (25.27)	154 (28.00)
Ads are not an important source for fashion and "being attractive"	157 (28.55)	78 (14.18)	114 (20.73)	135 (24.54)	66 (12.00)
Pictures in magazines are an important source for fashion and "being attractive"	169 (30.73)	85 (15.45)	119 (21.64)	134 (24.36)	43 (7.82)

Table 2 continued....

	Definitely disagree	Mostly disagree	Neither agree nor disagree	Mostly agree	Definitely agree
Attitudes	n (%)	n (%)	n (%)	n (%)	n (%)
<b>Information Sub scale: continued..</b>					
Movies are an important source for fashion and "being attractive"	158 (28.73)	79 (14.36)	139 (25.27)	109 (19.82)	65 (11.82)
Movie stars are not an important source for fashion and "being attractive"	69 (12.55)	76 (13.82)	133 (24.18)	105 (19.09)	167 (30.36)
Famous people are an important source for fashion and "being attractive"	154 (28.00)	84 (15.27)	125 (22.73)	122 (22.18)	65 (11.82)
<b>Pressure Sub scale: Mean (SD)- 14.84(5.43)</b>					
No pressure from TV/magazines to look pretty	117 (21.27)	94 (17.09)	93 (16.91)	91 (16.55)	155 (28.18)
Pressure from TV to lose weight	317 (57.64)	102 (18.54)	45 (8.18)	59 (10.73)	27 (4.91)
Pressures from TV/magazines to be thin	319 (58.00)	84 (15.27)	54 (9.82)	67 (12.18)	26 (4.73)

Table 2 continued....

	Definitely disagree	Mostly disagree	Neither agree nor disagree	Mostly agree	Definitely agree
Attitudes	n (%)	n (%)	n (%)	n (%)	n (%)
<b>Pressure Sub scale: continued..</b>					
Pressures from TV/magazines to have perfect body	302 (54.91)	85 (15.45)	68 (12.36)	76 (13.82)	19 (3.45)
Pressures from TV/magazines to diet	329 (59.82)	92 (16.73)	66 (12.00)	48 (8.72)	15 (2.73)
Pressures from TV/magazines to exercise	233 (42.36)	100 (18.18)	77 (14.00)	112 (20.36)	28 (5.09)
Pressures from TV/magazines to change my appearance	250 (45.45)	98 (17.82)	85 (15.45)	82 (14.91)	35 (6.36)
<b>General Sub scale: Mean (SD)- 22.53(6.66)</b>					
No concern whether his/her body looks like people on TV	62 (11.27)	66 (12.00)	118 (21.45)	94 (17.09)	210 (38.18)
Compares if his/her body looks like people on TV	229 (41.64)	100 (18.18)	77 (14.00)	110 (20.00)	34 (6.18)
Want their body to look like models in magazine	223 (40.55)	77 (14.00)	84 (15.27)	112 (20.36)	54 (9.82)
Compares appearance to those of TV/movie stars	224 (40.73)	90 (16.36)	84 (15.27)	103 (18.73)	49 (8.91)

Table 2 continued....

	Definitely disagree	Mostly disagree	Neither agree nor disagree	Mostly agree	Definitely agree
Attitudes	n (%)	n (%)	n (%)	n (%)	n (%)
<b>General Sub scale: continued..</b>					
Want their body to look like people in movies	156 (28.36)	70 (12.73)	108 (19.64)	153 (27.82)	63 (11.45)
Doesn't compare his/her body to people in magazines	122 (22.18)	72 (13.09)	110 (20)	94 (17.09)	152 (27.64)
Desire to look like models in music videos	235 (42.73)	83 (15.09)	77 (14.00)	106 (19.27)	49 (8.91)
Compares his/her body to people in magazines	275 (50.00)	82 (14.91)	85 (15.45)	71 (12.91)	37 (6.73)
Do not try to look like people on TV	104 (18.91)	91 (16.55)	111 (20.18)	98 (17.82)	146 (26.54)
<b>Athlete Sub scale: Mean (SD)- 13.07(4.55)</b>					
Doesn't wish to look like athletes in magazines	81 (14.73)	90 (16.36)	107 (19.45)	101 (18.36)	171 (31.09)
Wish to look as athletic as sports star	156 (28.36)	87 (15.82)	111 (20.18)	118 (21.45)	78 (14.18)
Compares his/her body to people who are athletic	229 (41.64)	94 (17.09)	90 (16.36)	86 (15.64)	51 (9.27)

Table 2 continued....

	Definitely disagree	Mostly disagree	Neither agree nor disagree	Mostly agree	Definitely agree
Attitudes	n (%)	n (%)	n (%)	n (%)	n (%)
<b>Athlete Sub scale: continued..</b>					
Try to look like sports athlete	192 (34.91)	75 (13.64)	97 (17.64)	108 (19.63)	78 (14.18)
Compares his/her body to people who are in good shape	168 (30.55)	97 (17.64)	99 (18)	124 (22.54)	62 (11.27)

Gender and type of PUC as well as other socio-demographic variables were not found to be significantly associated with body image concern. Those participants who had an affinity to develop an eating disorder were 21.47 times more likely to perceive themselves as fat (Table 4) and some of them were 0.4 times less likely to perceive themselves as thin (Table 3). The participants who agreed that famous personalities were an important source of information about fashion and being attractive, were 2.4 times more probable of perceiving themselves to be fat (Table 4).

**Table 3: Thin body image perception and its association with affinity to eating disorders, pressure from TV/magazine and famous personalities (n=550)**

Variables	Body image perception		Crude OR (95% CI)	Adjusted OR (95% CI)
	Thin	Normal**		
	n	n		
<b>Affinity to eating disorder</b>				
Yes (score >20)	8	25	.37 (.16, .85)	.4(.17,.91)
No (score ≤20)*	156	182		
<b>TV/magazine</b>				
Agree	7	17	.48(.15,1.55)	.56(.17,1.84)
Neutral**	12	14		
Disagree	145	176	.96(.43,2.14)	.98(.44,2.21)
<b>Famous personalities</b>				
Agree	44	53	1.01(.57, 1.8)	1 (.56,1.79)
Neutral**	41	50		
Disagree	79	104	.93(.56, 1.54)	.91(.54,1.52)

Note: \* is reference category in each independent variable

^ Neutral means neither agree nor disagree

\*\* is reference category in the dependent variables

\*participants in normal category in table 3 and 4 are same

**Table 4: Fat body image perception and its association with affinity to eating disorders, pressure from TV/magazine and famous personalities (n=550)**

Variables	Body image perception		Crude OR (95% CI)	Adjusted OR (95% CI)
	Fat n	Normal <sup>***</sup> n		
<b>Affinity to eating disorder</b>				
Yes (score >20)	138	25	24.5(14.22,42.23)	21.47(12.05,38.26)
No (score ≤20) <sup>*</sup>	41	182		
<b>TV/magazine</b>				
Agree	62	17	2.69(1.12,6.44)	.78(.25,2.45)
Neutral <sup>**</sup>	19	14		
Disagree	98	176	.41(.2,.85)	.42(.17,1.06)
<b>Famous personalities</b>				
Agree	90	53	2.5 (1.44,4.34)	2.4(1.16,4.95)
Neutral <sup>**</sup>	34	50		
Disagree	55	104	.78(.45,1.33)	.96(.48,1.92)

Note: <sup>\*</sup> is reference category in each independent variable

<sup>^</sup> Neutral means neither agree nor disagree

<sup>\*\*</sup> is reference category in the dependent variable

<sup>\*\*\*</sup> participants in normal category in table 3 and 4 are same

There was a statistically significant difference between groups (perception of being fat, thin and normal) as determined by one way ANOVA ( $p < .001$ ). Significant differences were observed between the participants perceiving themselves as fat than those who perceive themselves as thin and normal in all the four subscales of SATAQ-3

questionnaire (general, pressure, athlete and information), which was determined by Tukey post hoc and Welch test. (Table 5)

**Table 5: Association between the sub scales of SATAQ-3 questionnaire and body image perception (ANOVA) (n=550):**

Sub scales	Groups	Mean ( $\pm$ SD)	p value
<b>General scale</b>	Thin	20.65 ( 6.37)	<.001*
	Normal	21.42 ( 6.19)	
	Fat	25.54 ( 6.46)	
<b>Athlete scale</b>	Thin	11.94 ( 4.40)	<.001*
	Normal	12.85 ( 4.71)	
	Fat	14.36 ( 4.17)	
<b>Information scale</b>	Thin	22.58 ( 6.50)	<.001*
	Normal	23.92 ( 6.46)	
	Fat	26.08 ( 6.28)	
<b>Pressure scale</b>	Thin	12.97 ( 4.09)	<.001*
	Normal	13.55 ( 4.21)	
	Fat	18.02 ( 6.30)	

\* Statistically significant p values (p <0.05)

All the participants provided the required information pertaining to the study tool and hence there were no missing data.

## **Discussion**

The present study was conducted to find out the proportion of students enrolled in PUCs who were concerned about their body image and if it was influenced by eating attitudes, media (TV/ magazine), famous personalities and other covariates.

In the present study, a considerable number of participants had concerns about their body image, some of them perceived themselves to be thin (29.82%) while some others as fat (32.54%). Previous studies conducted in India [17, 18, 24] and Brazil [12] reported that more number of participants were satisfied with their bodies than in the present study. While, studies conducted in India [16] and Malaysia [14] reported high prevalence of body image concerns. Whereas, few studies [15, 13] reported approximately half of the participants having body image concern. A study conducted in US among younger age group, reported that two fifth of the obese/overweight participants were not satisfied with their body [28].

In the current study, approximately one third (31.09%) of the participants had a propensity of developing an eating disorder, while this number was found to be less in a study conducted among American adolescents [29]. Eating attitudes were found to be significantly associated with body image concern in the present study. Socio-demographic factors and media (TV, music videos, print, magazines and movies) were not associated with body image concerns (except for famous personalities with respect to participants who perceive themselves as being fat). A study conducted in England [30], showed significant association between getting influenced from famous personalities and

having body image concerns (this finding was seen only among female participants), and this finding is consistent with the present study.

It was also comprehended in the present study that, participants who perceived themselves to be fat got more influenced by all the four subscales of SATAQ- 3 questionnaire which was statistically significant as concluded through the use of ANOVA. This finding was congruent with the previous literature [1, 4, 5, 10, 11, 22]. In a study conducted in Chennai [16], it was reported that around two fifth of the participants were compelled by commercials to look pretty and four of five participants were dissatisfied with their present body structure.

Our study is the first of its kind to be conducted among male and female adolescents in Karnataka, India and it provides data on body image perception and its relationship with eating attitude, media and famous personalities, although, one more study was conducted seven to eight years back in Udupi [24], it was done only among females and it assessed relationship between self-esteem, depression and body image concern.

The strengths of the present study were that, biases were less likely to occur as we made efforts to reduce them by stratifying the PUC's, randomly selecting them from each stratum and then randomly selecting a class from each PUC. Participants were made to sit in separate benches in order to avoid copying. For the ease of the participants, the questionnaire was administered in two dialects. While, the limitations being psychiatric/ medical disorders and body mass index (BMI) of the participants could not be assessed.

Since this study was conducted among adolescents of 15-19 years studying in PUCs, we recommend that future research should incorporate wider age ranges and can be carried out in the community. The issue of body image concern can be explored by using a qualitative design, thus forthcoming studies can consider the same. Our study was restricted to exploring influences of eating disorders, famous personalities and media; but literature suggests that other factors such as depression, substance abuse, internet, social media, BMI, self-esteem and suicidal tendencies might also influence body image concerns and hence all of them can be taken in to consideration by future researchers.

### **Conclusion**

This study was conducted to evaluate the proportion of adolescents studying in PUC's, who were apprehensive about their body image and if this was influenced by eating attitudes, media, famous personalities and other covariates. A considerable number of participants were concerned about their body image. Approximately one third of the participants had an inclination of developing an eating disorder. The participants who had issues with their body image were more likely to develop disordered eating and were probably more influenced by famous personalities.

Parents, teachers and providers of health care should interact with their kin regarding the ill effects of being excessively concerned about their body structure, dieting and that one should not believe in anything and everything portrayed through the media. They also need to identify people who might have body image issues, at an earlier stage in order to avoid the development of eating disorders and obsessive thinking about one's body.

Educational institutes are a vital part of children and adolescents lives, thus it would be beneficial if preventive strategies are executed in these institutes. Policies and legislation should be employed to diminish the exposure of possible detrimental media messages on children and adolescents. To sum up, each person is unique in their own way and this fact, should be respected rather than trying to modify the way one looks.

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