### **Original Research Article**

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# A study on body image satisfaction, BMI status and dietary patterns among newly entrant girl students of Punjab Institute of Medical Sciences, Jalandhar

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#### **ABSTRACT**

**Background:** Body image is the perception that a person has of their physical self but more importantly the thoughts and feelings the person experiences as a result of that perception. Individuals who perceive their body negatively may have low self-esteem, low satisfaction in life and feeling of inferiority and pose themselves at a higher risk of depression. The aims and objectives of the study were to determine body image satisfaction among newly entrant girl students of Punjab Institute of Medical Sciences and to study dietary pattern of newly entrant girl students of Punjab Institute of Medical Sciences and estimate their BMI status.

**Methods:** This was a cross - sectional study conducted among 80 newly entrant college girls of Punjab Institute of Medical Sciences. Between ages group of 17- 19 years attending first professional. The study strategy employed was via questionnaires and interviews.

**Results:** In the current study majority of the girls i.e. 52% were dissatisfied with their body appearance. The striking finding was that 97% of participants who were dissatisfied belonged to urban area whereas 44.4% of the participants who were happy with their body image belonged to rural area and this difference was statistically significant (p<0.001). 89.7% girls despite having normal BMI were not satisfied with their body image where as 44.4% who had normal BMI were satisfied with their appearance.

**Conclusions:** In the current study majority of the girls i.e. 52% were dissatisfied with their body appearance. Girls belonging to urban area had significantly higher body image dissatisfaction compared to girls from rural area.

Keywords: Adolescents, Body image, BMI

#### INTRODUCTION

Body Image is the perception that a person has of their physical self but more importantly the thoughts and feelings the person experiences as a result of that perception. The concept of body image as a psychological phenomenon was initially established in 1935 by Austrian psychiatrist Paul Ferdinent Schildren. Body image is a multidimensional construct that involves

internal biological and psychological factors. Individuals who perceive their body negatively may have low self-esteem, low satisfaction in life and feeling of inferiority and pose themselves at a higher risk of depression.<sup>2</sup>

Adolescence represents a pivotal stage in the development of positive or negative body image. Many influences exist during the teen years including transition (e.g. puberty) that affect one's body shape, weight status

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and appearance.<sup>3</sup> 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.<sup>4</sup> The Western concept of thinness as a symbol of beauty and attractiveness is not confined to Western countries anymore but is diffusing among the youth of non – western countries as well. Thinness is considered as a symbol of beauty, success, control, and sexual attractiveness, while obesity represents laziness, self-indulgence and lack of will power.<sup>1</sup> To achieve thin and stylized body image young girls often remain engaged with their body weight, shape and adopt disordered eating behavior.

Weight status of youth (i.e. overweight and obese) is strongly connected to body image. Specifically, research consistently shows that greater body mass index is associated with heightened weight concerns in both adolescent girls and boys. Indeed appearance and weight related concerns and pressures mediate associations between body weight /BMI and body image. Weight concerns and pressures are experienced when individuals worry about their weight or physique, such as believing that their body is too fat or not muscular enough and perceive that others also believe that their body shape or size is unacceptable.

Apart from this there are many factors like peer influence, family pressure and socio-cultural factors which have a bearing on body image. Dissatisfaction over body weight provokes development of body weight concerns and disordered eating pattern like skipping meals, use of diet pills and laxatives. It has been observed that Indian females adolescents are more conscious to control their weight by restricting diet rather than doing physical exercise.<sup>5</sup> Currently India is witnessing transition in dietary pattern, a shift from traditional eating pattern to western pattern Easy availability of junk foods, influence of mass media, marketing and advertising have also been linked with the eating behavior of girls.<sup>4</sup> All these changes clubbed with stylized images of celebrities portrayed by media influence young girls and desire to achieve such attractive stylized image is often unrealistic and inability to achieve this leads to body image dissatisfaction. Therefore the study intends to assess body image satisfaction and dietary pattern among newly entrant girls students of Punjab Institute of Medical Sciences.

#### Aims and objectives

- To determine body image satisfaction among newly entrant girl students of Punjab Institute of Medical Sciences.
- To study dietary pattern of newly entrant girl students of Punjab Institute of Medical Sciences and estimate their BMI status.

#### **METHODS**

#### Study area

The study was carried out in Punjab Institute of Medical Sciences among newly entrant college girls. This Institute is located in Jalandhar city of Punjab.

#### Study design

This was a cross - sectional study conducted among newly entrant college girls of Punjab Institute of Medical Sciences.

#### Study population

The study subjects embraced in the current study were newly entrant college girls of Punjab Institute of Medical Sciences. A total of 80 study participants between age group of 17- 19 years attending first professional were contacted for the purpose of study.

#### Inclusion criteria

Newly entrant college girls willing to participate in the study.

#### Exclusion criteria

Girls who were not willing to participate were excluded from the study.

#### Study period

June 2016 to September 2016.

#### Study strategy

The study strategy employed was via questionnaires and interviews. Prior to interview, each participant was explained the purpose of the study and consent was obtained from the participant. Considering feasibility, all available newly entrant female students attending first professional classes residing in girl's hostel were contacted. Data collection was done by administering self-designed pretested questionnaire by a female investigator, maintaining strict confidentiality. Girls who were not available on first visit were revisited.

#### Study tools

Comprised of self-designed pretested questionnaire in which study variables included were socio- demographic variables, body image satisfaction, overall satisfaction in life, particularly in academic life (marks obtained in class 12th), body image perception, different bodily features of concern and distress if any due to perceived body image.

#### Anthropometric assessment

Height in meters, weight in kilograms, hip and waist circumference were carried out under comfortable conditions for computing BMI (weight in kg/ height in m2) and waist hip ratio respectively.

#### Details of study tools used

Comprised of self-designed pretested questionnaire in which study variables included were socio- demographic variables like age of the participant, area of residence, type of family, education of mother, employment status of father. Other variables included were body image satisfaction, overall satisfaction in life particularly in academic life (marks obtained in class 12th).

Body image satisfaction was assessed by asking questions on opinion regarding their appearance, importance of physical appearance and if physical appearance influences them Questions regarding different bodily features of concern were also asked and distress caused due to any particular feature. Questions were asked regarding their interest in fashion magazines and influence of these magazines on the way they perceive their body image. For assessment of self-esteem Rosenberg Self-esteem scale will be used. This scale is a ten item Likert scale with items answered on a 4 point scale from strongly agrees to strongly disagree. Scoring of which is strongly agree =3, agree =2, disagree =1, strongly disagree =0. Items with an asterix are reverse scored that is strongly agree =0, agree =1, disagree =2, strongly disagree =3. The sum of scores of 10 items will be taken. The higher the score, the greater will be selfesteem.

History of dietary pattern was recorded using self-administered questionnaire based on consumption pattern, frequency of meals, type of meals, vegetables and fruits intake, water intake, consumption of fast food etc. History of type of meals consumed was recorded, whether skipped breakfast or not and how many times the participant ordered food from outside. Dietary pattern was assessed by food frequency questionnaire containing following items: consumption of starch (bread, bagel, roll, cereal, pasta, noodles, rice, potato), fruits, vegetables, dairy (milk, yogurt etc.), meat, fish, poultry eggs, cheese, fat (butter, margaraine, mayonnaise, oil, salad dressing, sour cream, cream cheese) and sweets (candies, chocolate, cakes).

Anthropometry: Height, weight, hip and waist circumference were carried out as per standard protocols under comfortable conditions for computing BMI (weight in kg/height in m²) and waist hip ratio respectively. BMI ranges taken were in accordance to WHO recommended for Asian population.<sup>6</sup> Body weight of the candidate wearing light clothing and without footwear was measured to the nearest 0.5 kg using a weighing scale and height was assessed to the nearest 0.1 cm by using non-

elastic measuring tape, with the participant standing erect against a wall, without shoes and the head looking straight.

Midpoint of inferior margin of last rib and the crest of ilium was used for measuring waist circumference. The hip circumference was measured around the maximum circumference of the hips. Waist - hip ratio is related to the metabolic complications of obesity and criteria recommended by WHO, of absence of risk (<0.8) and risk of abdominal obesity (>0.8) will be adhered to. <sup>17</sup>

#### Equipments used

Weighing machine, Seca stadiometer, Non-elastic measuring tape.

#### Ethics consideration

The study was approved by Institutional Ethics Committee. The present study did not impose any financial burden to the participants and consent was obtained from the participant prior to the study.

#### Data analysis

The data collected during the survey was entered in MS Excel and was analysed via SPSS (Statistical Package for the Social Sciences) version 20.

#### **RESULTS**

In the current study total 80 participants were contacted, five refused to participate in the study so 75 girls were included in the study. These girls were between age group of 17-19 years. Out of 75 girls who participated in the study, majority i.e. 39 (52%) were dissatisfied with their body image and only 36 (48%) were satisfied. 56% of the respondents belonged to nuclear family where as 44% respondents lived in joint families. 58.6% participants obtained more than 80% in 12th standard. 56% of the respondents mothers had received education up to 12<sup>th</sup> whereas 44% mothers of the respondents were graduates.

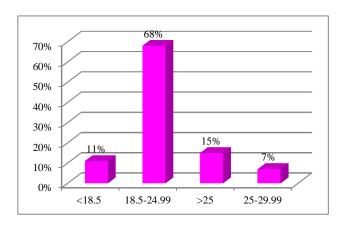


Figure 1: BMI status of the respondents.

Table 1: Relationship of socio-demographic variables with body image satisfaction.

Variables	Satisf	ied	Not Sa	tisfied	Total	N =75	P value
Native	N	%	N	%	N	%	
Urban	20	55.5	38	97	58	(77.3)	<0.001
Rural	16	44.4	1	2.5	17	(22.6)	<0.001
Type of Family							
Nulear	24	66.6	18	46.1	42	56	
Joint	12	33.4	21	61.5	33	44	0.07
Marks obtained in 12 <sup>th</sup>							
<80%	12	33.4	19	48.7	31	37.3	0.17
>80%	24	66.	20	51.3	44	58.6	
<b>Education of Mother</b>							
Upto 12 <sup>th</sup>	14	38.8	28	71.9	42	56	.004
Graduate and above	22	61.1	11	28.2	33	44	

Table 2: Influence of fashion magazines on body image satisfaction.

Number of times fashion magazines are read	Satisfied with body appearance (%)	Not satisfied with body appearance (%)
Several times a week	1 (2.7)	6 (15.3)
Once a week	2 (5.55)	2 (5.1)
Once a month	5 (13.8)	11 (28.2)
Once a year	3 (8.33)	12 (30.7)
Never	25 (69.4)	8 (20.5)
Total	36 (100)	39 (100)

P value=0.001.

Table 3: Influence of physical appearance on academics.

Physical appearance	Satisfied	1	NotSatisf	ïed	Total (9/)
influences academics	N	%	N	%	Total (%)
Strongly Agree	5	13.88	20	51.28	25 (33.3)
Agree	15	41.66	11	37.93	26 (34.6)
Disagree	8	22.22	6	15.38	14 ( 18.6)
Strongly disagree	8	22.22	2	05.12	10 (13.3)
Total	36	48	39	52	75 (100)

P<0.05.

Table 4: Relationship of BMI with body image satisfaction.

BMI	Satisfied (%)	Not satisfied (%)	Total (%)
<18.5	7 (19.4)	1 (2.5)	8 (11)
18.5-24.99	16 (44.4)	35 (89.7)	51(68)
>25	10 (27.7)	1 (2.5)	11 (15)
25-29.9	3 (8.3)	2 (5.1)	5 (7)
Total	36 (48)	39 (52)	75 (100)

P<0.001.

Table 5: Association of dietary pattern with BMI.

BMI	Dietary pattern				
	Western (%)	Healthy (%)	Mixed (%)	Total (%)	
<18 -underweight	3 (37.5)	3 (37.5)	2 (25)	8 (10.6)	
18.5-24.99 -normal	6 (11.7)	25 (49)	20 (39.2)	51 (68)	
>25 -overweight	8 (72.7)	2 (18.1)	1 (9)	11 (14.6)	
25-29.9 -preobese	3 (60)	1 (20)	1 (20)	5 (6.6)	
Total	20 (26.6)	31 (41.3)	24 (32)	75 (100)	

p=0.003.

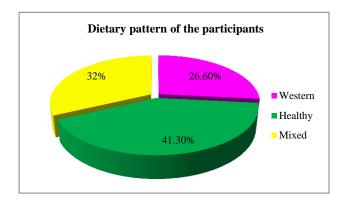


Figure 2: Different types of dietary pattern.

Table 1 represents relationship of socio-demographic variables with body image satisfaction. 77.3% of the participants were from urban area and 22.6% were from rural area. The striking finding was that 97% of participants who were dissatisfied belonged to urban area whereas 44.4% of the participants who were happy with their body image belonged to rural area and this difference was statistically significant (p<0.001). Other factors like type of family, marks obtained in class 12th were not significantly associated. Mother's education had a significant influence on body image satisfaction as majority of the participants (71.9%) whose Mothers were educated up to 12th were more dissatisfied with their body appearance compared to participants whose mothers were graduates i.e. 61.1% and this difference was statistically significant (p<0.05).

Table 2 shows depict influence of fashion magazines on body image satisfaction. Majority of the participant's i.e. 69.4% who never read fashion magazines and those who read once a year were more satisfied with their body appearance compared to those who read them several times a week and once a month. This difference was statistically significant (p=0.001).

Table 3 represents Influence of physical appearance on academics. Majority of the participants i.e. 51.28% who were not satisfied with their body image strongly agreed that physical appearance influences academics compared to 13.88% who were satisfied with a significant difference (p<0.05).

Figure 1 show represents BMI status of the respondents. Majority of the girls i.e. 68% had normal BMI. 15% were overweight and 7% were pre obese.

Table 4 shows that majority of the girls i.e. 68% had normal BMI. 89.7% girls despite having normal BMI were not satisfied with their body image where as 44.4% who had normal BMI were satisfied with their appearance. 27.7% girls with higher BMI>25 were satisfied with their body image. This difference was statistically significant (p<0.001).

Figure 2 shows different types of dietary pattern observed among respondents. Predominantly three types of dietary pattern were observed, Western, healthy and mixed. Western pattern consisted of high intake of take away foods, processed foods, full fat dairy products, sweets, bakery, confectionery, French fries, soft drinks. Healthy pattern included –high intake of whole grains, fruits, vegetables, pulses, legumes, eggs, fish, chicken and milk. Mixed pattern consisted consumption of roots, tubers, pasta rolls, eggs and butter.

Table 5 shows that BMI was significantly associated with dietary pattern. 49% of the respondents and 39.2% of the respondents who followed healthy and mixed dietary pattern respectively had BMI within normal range. 72.7% over weight and 60% preobese adhered to western dietary pattern. There was a statistically significant (p=0.003) association between dietary pattern and BMI.

#### **DISCUSSION**

Body Image refers to an individual's emotional attitudes, perceptions and beliefs regarding their own body and this have a bearing on health and nutritional status. In addition to this other factors like mass media, TV, family and friend influence the way one perceives about his or her own body. In India there is paucity of studies on body image satisfaction. Therefore this study attempts to determine body image satisfaction among newly entrant college girls. The discussion will be done in accordance to objectives outlined earlier.

In the current study 75 participants between 17- 19 years were contacted. Out of 75, 77.3% and 22.6% were from Urban and rural area respectively. Out of 75 girls who participated in the study, majority i.e. 39 (52%) were dissatisfied with their body image and only 36 (48%) were satisfied. These are similar to the findings of a study conducted by Prasad et al (2015) in Puducherry in which it was observed that 62.2% participants were not satisfied with their body image. This was further supported by Khan et al in a study on body image among adolescents in Pakistan observed that 54.4% participants had negative body image perception. 8

Majority (97%) of the dissatisfied participants were from Urban area and 44.4% participants who were satisfied were from rural area and this difference was statistically significant (p<0.001). In a study conducted by Dixit et al among 151 girls in Uttar Pradesh, it was observed that 70.2% girls who were dissatisfied with their body image belonged to urban area. These findings are in consonance with the current study. The urban scene in India is one where there is mushrooming of beauty salons, spas, beauty clinics and clubs growing rapidly to meet the needs of young girls and women who wish to be more beautiful and are more conscious about their body image. Also girls living in urban area have a better access to media, TV, internet and fashion magazines.

Mother's education also have a bearing on body appearance satisfaction as in current study 71.9% girls whose Mothers were educated up to 12<sup>th</sup> were more dissatisfied with their body appearance compared to participants whose mothers were graduates i.e. 61.1% and this difference was statistically significant (p<0.05). These observations corroborate with findings of Rashmi et al in a study on body image perception among female college students in Karnataka in which it was found that mother's education status was significantly (p<0.05) associated with respondents body image perception where in majority of girls of illiterate mothers (66.7%) perceived to be overweight.<sup>4</sup> Many studies indicate that parents particularly mothers have a considerable influence on child's eating pattern. In some cases Mothers emphasis on losing weight without having proper knowledge of the same. 10

# Influence of media and fashion magazines and media on body image perception

Women are influenced by what they see every day on the TV, Internet and foreign print magazines. The influence is visible by the change in health consciousness and body weight among women who make efforts to change how they look. The huge boom in the beauty industry and slimming clubs are testimony of this change. <sup>11</sup>

The current study revealed that majority of the participants i.e. 69.4% who never read fashion magazines and those who read once a year were more satisfied with their body appearance compared to those who read them several times a week and once a month. This difference was statistically significant (p<0.05). The findings of the current study are supported by Khan et al in a study on impact of media on body image reported that that individuals with a high media exposure had a higher statistically significant prevalence of negative body image dissatisfaction (84.0%) compared to those with lower media exposure (16.0%).

#### BMI status and body image perception

Majority of the girls i.e. 68% had normal BMI. 89.7% girls despite having normal BMI were not satisfied with their body image where as 44.4% who had normal BMI were satisfied with their appearance. 27.7% girls with higher BMI >25 were satisfied with their body image. This difference was statistically significant (p<0.001). Respondents with BMI within normal range and who were not satisfied with their body image had a desire to be more slim whereas preobese girls perceived themselves as healthy. These findings are in consonance with observations made by Zofiran et al in Malaysia in a study conducted on relationship between eating behavior, body image and BMI status among adolescents. And striking finding was that body image perception was significantly associated (p=0.000) with BMI. Specifically studies have shown that greater BMI is associated with heightened weight concerns in both adolescent's boys and girls. 12

#### Dietary patterns and associated BMI status

Predominantly three types of dietary pattern were observed, Western, healthy and mixed. Western pattern consisted of high intake of take away foods, processed foods, full fat dairy products, sweets, bakery, confectionery, French fries, soft drinks. Healthy pattern included -high intake of whole grains, fruits, vegetables. pulses, legumes, eggs, fish, chicken and milk. Mixed pattern consisted consumption of roots, tubers, pasta rolls, eggs and butter. 41.3% followed healthy pattern, 26.6% followed western pattern and 32% adhered to mixed pattern. Similar findings were reported by Rodrigues et al in a study on dietary pattern Brazilian adolescents in which three dietary patterns were observed "Western, Healthy and Mixed. Western pattern comprised of high intake of fast foods, french fries, sweets, sugars and sweetened beverages. The traditional pattern consisted of rice, beans, pulses, legumes, chicken, milk, fruits and vegetables and mixed was characterized by roots, tubers meat, fish, eggs and poultry. 13 Similar trend was observed by Song et al (2010) in a study on dietary patterns among Korean adolescents aged 10-19 years.1

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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