

A STUDY ON ASSOCIATION BETWEEN BODY IMAGE AND NUTRITIONAL STATUS AMONG COLLEGE-GOING LATE ADOLESCENT GIRLS

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Abstract

How individuals feel and think about their bodies is related to their body image. In contemporary culture, adolescents want to achieve a flawless body image by gaining or losing weight due to the developing perception of ideal body image. The study examined the association between body image and nutritional status among college-going adolescent girls. A cross-sectional study among 179 adolescent girls was carried out in Banaras Hindu University and Mahatma Gandhi Kashi Vidyapeeth University, Varanasi, India. The study's findings showed that 79.3% of the respondent's BMI is within normal range, and 16.7% of the sample population falls into the overweight category. 69.8% of the respondents reported being indifferent to their body shape. In comparison, 15.6% of the population is slightly concerned about their body shape, and the sample population's moderate concern with their body shape is 10%. In this study, a highly significant association was observed ($p < 0.001$) between nutritional status and the body image concern of the assessed adolescents. The study recommended that it is vital that individual understands the significance of maintaining a healthy weight and staying physically fit. It is essential to raise women's self-confidence and reduce their vulnerability to unfavourable conditions for their overall well-being.

Keywords: Body Image, Nutritional Status, BMI, Adolescents, Obesity.

Introduction

The World Health Organization (**WHO**) defines adolescence as ages 10 to 19 years. Approximately one in five people worldwide fall within this age group, and 85% reside in underdeveloped countries. The term "adolescence" finds its roots in the Latin word "adolescent," which translates to "to grow up" in English. This developmental phase brings about notable transformations impacting an individual's physical, mental, and psychosocial well-being. It involves height, weight, muscle mass changes, and significant pubertal and hormonal shifts. (**Das, S., et. al., 2021**).

Body image relates to how people think and feel about their bodies. It relates to an individual's thoughts, feelings, and perceptions about his/her body. It is often understood to include body size estimation, an assessment of the beauty of the body, and thought related to the shape and size of the body. Body image is a complex and subjective construct influenced by biological, psychological, and cultural factors, including family, peers, media, and ethnicity. It plays a crucial role in an individual's overall quality of life and can affect their emotional, cognitive, and behavioural functioning. (**Ganesan et. al., 2018**)

Body image may range between positive and negative; negative body image can contribute to several factors that lead to changes in nutritional status, including irregular eating patterns, inadequate intake of macro- and micronutrients, insufficient physical activity, exposure to misinformation on social media, ignorance of nutrition, and unsuitable peer pressure. (**Hariyanti and Haryana 2021**). Studies

have shown a link between obesity and poor body image, and it is essential to note that not all obese individuals experience this issue, and sensitivity to body image concerns can vary among different individuals. Furthermore, the term "normative discontent" describes the common phenomenon of weight dissatisfaction. This has been observed in males and individuals with an average weight. It means that even individuals who are within a healthy weight range may still experience body image concerns or dissatisfaction with their bodies. Body image issues can affect people of different body sizes and shapes, and it is essential to address these concerns and promote body positivity and self-acceptance for everyone. (Ibáñez-Zamacona, et. a., 2020)

Many adolescents, particularly adolescent females, desire an ideal figure, which leads to change in their eating habits. They believe that achieving the so-called "ideal body," characterized as small and slender, requires efforts to lose weight. However, most of the tactics used by adolescent girls, such as strict dieting without considering their nutritional needs, prove to be ineffective. When poor body image persists over an extended period, it can significantly impact the nutritional and health status of adolescent girls. This prolonged dissatisfaction increases the risk of malnutrition and eating disorders among them.

Rational of the study

Adolescence is a crucial developmental stage characterized by changes in behaviour, psychology, and physical health. Adolescents are particularly susceptible to societal pressure related to body image. Like many other nations, India is witnessing a rise in young people's concern about their body image. Adolescents now struggle with an intricate relationship between tradition and new influences due to shifting beauty ideals and body standards brought about by media exposure, globalization, and urbanization. A person's physical health and general well-being are strongly impacted by their nutritional status, whether they are malnourished, undernourished, or overnourished. Comprehending the relationship between nutrition and views about body image is essential for taking preventive health actions. Psychological health problems can arise from body dissatisfaction and concerns about one's appearance. Adolescents who are dissatisfied with their body shape could take harmful weight-controlling actions. Anxiety, sadness, and eating problems can develop from such practices. In conclusion, the purpose of this study is to clarify the complex link between nutritional status and body image of adolescent girls who are attending college.

Objective

To find the association between body image and the nutritional status among late-adolescent college-going girls.

Material and Methods

Study Design

A cross-sectional study was conducted in Banaras Hindu University and Mahatma Gandhi Kashi Vidyapeeth University, Varanasi, India.

Study Population and Sample Size

Participants were selected using a convenient sampling method. Convenient sampling met the sample size requirement within the stipulated data collection period. Thus, a convenient sample of 179 students aged between 17 and 19. After consent was obtained, the students were interviewed face to face, and then their anthropometric measurements (weight and height) were taken according to usual standards. Any participant above the age of 19, who did not give consent, did not fill out the questionnaire or did not provide total anthropometric measure; were excluded from the study.

Tools

Questionnaires cum interview schedule

The questionnaire cum interview schedule included demographic information (e.g., age, educational status, university, father's education, mother's education, father's occupation, mother's occupation, types of family and religion), anthropometric measurements and Body Shape Questionnaire (BSQ).

Anthropometric Measurements

Participants were measured with their clothing on, shoes removed, and pockets emptied. Actual BMI (kg/m^2) was calculated by dividing weight (kg) by the height in m^2 . BMI was classified based on World Health Organization (WHO) classifications for the Asian population: underweight (BMI < 18.5), average weight (BMI 18.5–22.9), overweight (BMI 23–24.9), and obese (BMI > 25).

Body shape questionnaire

The Body Shape Questionnaire measures an individual's concerns about weight, body shape, appearance and dissatisfaction. It is a self-reported 8-item questionnaire consisting of questions regarding one's opinion about her body appearance over the past four weeks scored on a Likert scale of 1 to 6. The points for the scale are less than 19-no concern, 19-25- mild concern, 25-33-moderate concern, and over 33 marked heavy concern with body shape.

Data Analysis

Data were analysed using Statistical Package for the Social Sciences (IBM SPSS) version 26.0. Data are presented as frequency and percentages. Mean, SD and Chi-square test was used to find the association between the BMI and Body Image variables.

Ethical Considerations

The ethical clearance was obtained from the Research Ethical Committee of the Institute of Science, Banaras Hindu University.

Result and discussion

The investigation involved 179 respondents in total. The respondent's average age was 18.34 (± 0.637 years). Half of the participants (54.7%) were enrolled in BHU, whereas 45.3% were enrolled in MGKVPU; among them, 39.7% belonged to the Science stream, 35.2% from Arts stream, and 25.1% from Commerce stream. Of them 26.8% respondents were in their first year, 44.1% in second year and 29.1% in third year. 39.1% respondent's fathers were in government jobs. Mothers working for the government were 12.3% of the sample population. 3.4% mothers were in the private sector. Seventy-six per cent respondent's mothers were homemakers. This can be stated that, a significant percentage of the mothers were not employed formally and were managing their homes. Fathers who have completed postgraduate education comprise 43.3% of the sample. This indicates that the fathers in this demographic group have a high degree of education. 25.1%, have fathers with graduate degrees, 7.2% respondent's fathers were Ph.D. degree holders. This can be stated that the fathers attained a notable high academic attainment in the sample. Mothers who have completed postgraduate study comprise the largest group: 40.2%. 63.1% were from nuclear family. This suggests a general inclination towards smaller families. A total of 36 per cent of them reside in joint families. Ninety-five per cent of the sample population identifies as Hindu. 2.2% of the population considers itself Muslim. 1.1% more people in the group identify as Christians. The data indicates that 105 individuals out of the total sample reported being self-conscious about their appearance. Self-consciousness often relates to heightened

awareness of how one looks and how others perceive them. Among the same sample, 88 students expressed dissatisfaction with their body image. Body image dissatisfaction refers to negative feelings or thoughts about one's body shape, size, or appearance. The percentage of individuals who reported self-consciousness about appearance (58.6%) is significantly higher than those individuals who were dissatisfied with their body image (49.1%). The socio-demographic details are given in **Table 1**.

Variables	Frequency	Percentage
Age		
17	16	8.9
18	88	48.0
19	77	43.0
Qualification		
B.A.	63	35.2
B.Sc.	71	39.7
B. Com	45	25.1
University		
BHU	98	54.7
MGKVPU	81	45.3
Year		
1 st year	48	26.8
2 nd year	79	44.1
3 rd year	52	29.1
Father Occupation		
Govt. Job	70	39.1
Private Job	31	17.3
Business	50	27.9
Daily Wages	8	4.5
Agriculture	20	11.2
Mother Occupation		
Govt. Job	22	12.3
Private Job	6	3.4
Business	10	5.6
Daily Wages	2	1.1
Agriculture	3	1.7
Home Maker	136	76.0
Father Education		
5 th	0	00
8 th	7	3.9
10 th	2	1.1
12 th	20	11.1
Graduate	45	25.1
Postgraduate	83	43.3
Ph.D.	13	7.2
Professional Course	9	5.2
Mother Education		
5 th	13	7.3

8 th	2	1.1
10 th	9	5.0
12 th	46	25.7
Graduate	37	20.7
Postgraduate	72	40.2
Family Type		
Nuclear	113	63.1
Joint	66	36.9
Religion		
Hindu	172	95.5
Muslim	4	2.2
Sikh	1	0.5
Christian	2	1.1
Self-conscious about appearance	105	58.6
Dissatisfied with their Body image	88	49.1
Total	179	100

Table 1 Distribution of respondents on the basis of Socio-demographic information. (n=179)

BMI	Frequency (n)	Percentage (%)
Underweight	7	3.9
Normal	142	79.3
Overweight	30	16.7
Total	179	100.0

Table 2 Distribution of respondents based on their Nutritional Status. (n=179)

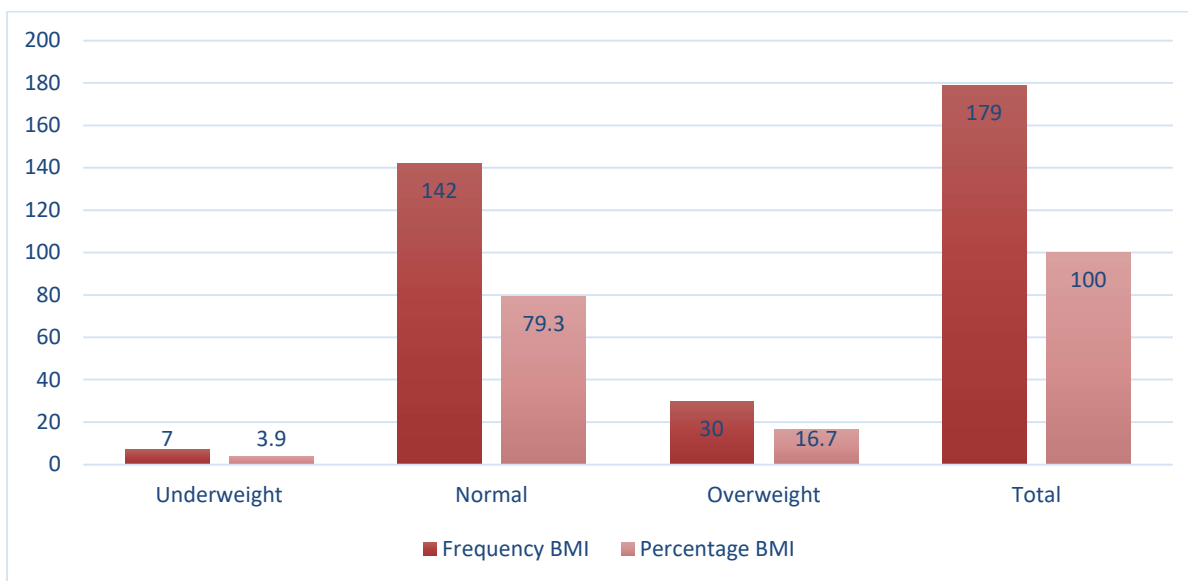


Figure No. 1 Distribution of respondents based on their Nutritional Status.

The above table and graph show that 79.3% of sample population's BMI is within the normal range.

This implies that most of the individual from the sample have a body weight appropriate for their height. 16.7% were falls into the overweight category. The underweight category includes 3.8% of the sample population, and none of the participants fall under the obese category. In another study, based on the BMI, about half (53.6%) had normal BMI, while 26.7% were undernourished, 15.7% were overweight, and 3.9% were obese. (**Ganesan, S. et. al., 2018**). In the present study, among those respondents who had normal BMI, 73 (51.40%) respondents were conscious about their appearance, and 64 (45.07%) respondents were dissatisfied with their body image. It means that even individuals who are within a healthy weight range may still experience body image concerns or dissatisfaction with their bodies.

Another study shows similar findings (**Ibáñez-Zamacona et al., 2020**). In a previous study conducted in Udipi, among females aged 16–21 who had normal BMI, 86% desired to be slim. (**Latha et. al., 2006**) BMI was significantly associated with body image perception, and the findings are consistent with a study (**Makinen et al., 2012**). In a study, students from seven European countries were divided based on gender regarding perceived weight and BMI. Specifically, female students were more likely than male students to perceive themselves as "too fat" at a normal self-reported BMI. At the same time, male students were more likely to perceive themselves as "too thin." (**Mikolajczyk et al., 2010**).

Body Image Concern	Frequency (n)	Percentage (%)
No concern	125	69.8
Mild Concern	28	15.6
Moderate Concern	18	10
Heavy concern	8	4.4
Total	179	100.0

Table 3 Distribution of respondents on the basis of their Body Image Concern. (n=179)

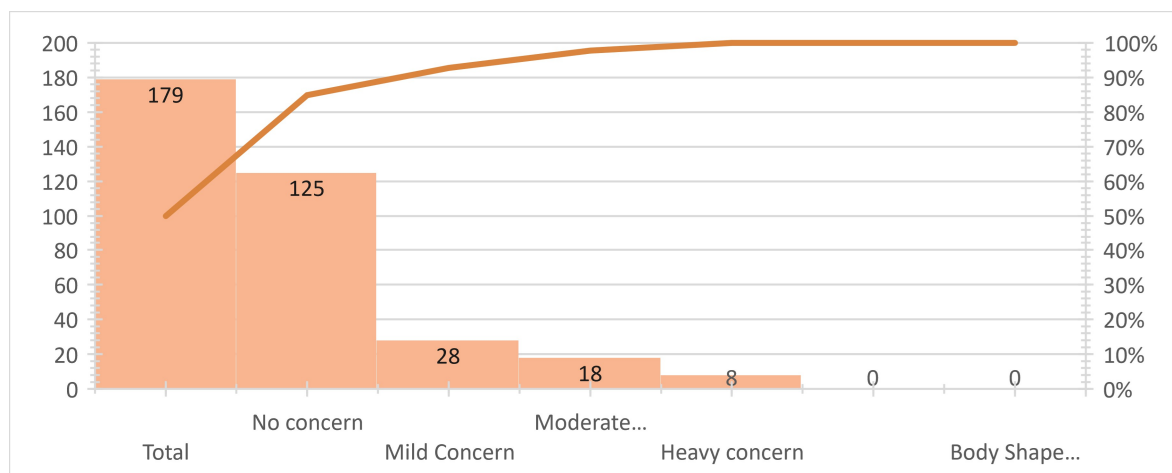


Figure No.2 Distribution of respondents on the basis of their Body Image Concern

The above table and graph show that 69.8% of the population said they are indifferent to their body shape. This suggests that most individuals are either content or unconcerned about their body shape and do not have any significant concerns about it. 15.6% of the population is slightly concerned about their body form. This implies that these people worry about their body form to some extent, but not significantly. The sample population's moderate concern with their body form is 10%. This suggests a

more pronounced degree of anxiety or dissatisfaction, which could have a mildly negative impact on their body image. 4.4% of individuals are very concerned about their physique shape. This indicates a high degree of anxiety or discontent that can hurt their well-being and mental health. In the present study, most respondents show no concern regarding their body image. In a similar study conducted in Gujarat among first-year MBBS students, 46 % of the respondents were satisfied with their body image. (Shah et al., 2012). Another study demonstrated that participants with higher weight status were more likely to express worry about their bodies. The departure from beauty standards in overweight and obese people may exacerbate their body dissatisfaction and encourage them to engage in risky weight-loss behaviours. (Hoffmann, S., & Warschburger, P. 2018). A study found that due to the numerous social, cultural, physical, and psychological changes that take place in adolescence, it is a crucial time for the formation of body image. Because of the complexity of the relationship between weight status and body image, other factors, such as internalization of body ideals, weight-related pressures and concerns, and a variety of social influences, must be taken into account when attempting to explain this association (e.g., social comparison, fat talk, and weight-related teasing and bullying). (Voelker et al., 2015).

	BMI Categories				
Body Image	Frequency (Percentage)			Total	χ^2
	Underweight	Normal	Overweight		
No Concern	6 (3.3)	114(63.6)	5 (2.7)	125(69.8)	P<0.001
Mild Concern	0 (0.0)	12 (6.7)	16 (8.9)	28 (15.6)	
Moderate Concern	1 (0.5)	14 (7.8)	3 (1.6)	18 (10.0)	
Heavy Concern	0 (0.0)	2 (1.1)	6 (3.3)	8 (4.4)	
Total	7 (3.9)	142(79.3)	30(16.7)	179 (100)	

Table 4: The association between nutritional status and body image concerns. (n=179)

In the present study, a highly significant association was observed ($p < 0.001$) between nutritional status and the body image concern of the assessed adolescents. The majority of people who are in the normal BMI range are not concerned with body image. Just a small percentage of people with normal BMIs, 6.7% mild, 7.8% moderate, and 1.1% heavy, express any concern regarding body image. Only 3.9% of girls are underweight, and most appear to be not concerned with their body image. There is only one underweight adolescent girl who is moderately concerned with her body image. Those who are overweight are equally distributed throughout various concern levels than those who are malnourished. 2.7% express no concern, 8.9% express mild anxiety, 1.6% express moderate concern and six express heavy concern regarding their body image. In a study that included adolescents from Brazilian cities, the relationship between the adolescents' nutritional status and body image was weak. These findings might be explained by the fact that, because of the various social, physical, and psychological changes that occur at this phase of life, adolescence is a crucial time for developing body image. Adolescents, irrespective of age, have expressed dissatisfaction with their body image in cities of all sizes. Adolescents who are self-conscious about any part of their looks may experience significant emotional and functional consequences as a result, making them more susceptible to mental health illnesses. In another study of the analysis of the association of body image with nutritional status, it was observed that a more significant proportion of adolescents with low weight and excess weight were dissatisfied with body image. This condition may be a reflection of the exposure of adolescents to socio-cultural and media influences, with the need to meet contemporary beauty standards characterized by an unrealistic thinness for women and a muscular body for men. Body dissatisfaction is associated with

BMI for women and men in such a way that the increase in BMI over time is associated with increased body dissatisfaction. (Pinho, L. D., et. al., 2019)

Conclusion

During the crucial developmental stage of adolescence, dietary habits solidify, and worries about body image arise. Several factors influence adolescent girls' nutritional status, including their body image. This study proves that adolescent girls' body image and nutritional status, whether adequate or inadequate, correlate. This relates to nutritional behaviour, which includes an adolescent girl's understanding of nutrition. Body image and general well-being can be improved by promoting balanced diet, spreading truthful information, educating girls about nutrition and body positivity, and encouraging peer situations. The study highlights that a healthy, well-balanced diet and a positive body image are essential for general well-being. The study recommended that it is vital that individual understand the significance of maintaining a healthy weight and staying physically fit. It is essential to raise young girls' self-confidence and reduce their vulnerability to unfavourable conditions for their overall well-being.

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