Original Research Article
A review on association of eating patterns and body image perception among young adult females and its effect on their Body Mass Index in India
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ABSTRACT
Background: Eating patterns differ vastly among young adult females due to their body image concern and this consequently affects their BMI status. In most cases the subjects choose to skip meals, change their eating pattern, switch on to exercise so as to lose weight to gain appreciable body image. But it is also seen that in the way to have perfect body image, these subjects tend to have unhealthy food habits that affect their BMI, i.e., either they become underweight or overweight, and it results in malnourishment. The present paper reviews association of eating patterns and body image perception among young adult females and the effect of this association on their BMI. Methodology: In depth literature review was carried out using available search engines such as PubMed, Cochrane Library, Science Direct etc, for published original articles, government reports with specific reference to young adult females were collected. Results: A total of 10 original articles and 3 systematic review articles were included regarding this paper. All the 10 original articles had study subjects belonging to urban background and majority included medical students. A high prevalence of malnourishment was seen among subjects and majority of them were dissatisfied with their body image. Conclusion: This review article focused on the young adult female groups which may be useful for future studies because the body image perception and changing eating patterns are the major issues in the young adult females. Through this review article, various aspects have been revealed that would lead to significant step towards the improvement in the eating patterns of young adult females.

Key words: Young adult females, Eating patterns, BMI, Review, Body image perception.

Introduction
Young people form precious human resources in every country. However, there is considerable ambiguity in the definition of young people and terms like young, adolescents, adults, young adults are often used interchangeably. World Health Organization (WHO) defines ‘adolescence’ as age spanning 10 to 19 yr, “youth” as those in 15-24 yr age group and these two overlapping age groups as “young people” covering the age group of 10-24 yrs1.

Adults include broader age range and all those in 20 to 64 yrs2. Individuals in the age group of 20 - 24 year are also referred to as young adults3. The National Youth Policy of India (2003) defines the youth population as those in the age group of 15-35 yrs4. Like childhood and adolescence, young adulthood is a developmentally distinct period of the life that can sensibly be viewed as a critical window of development with a strong effect on long-term trajectories.

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It is a time when individuals face significant challenges and are expected to assume new responsibilities and obligations. Success or failure in navigating these paths can set young adults on a course that will strongly affect the future trajectories of their adult lives. Developmentally, young adulthood is a time of both opportunity and risk. Thus, young adults continue to be strongly responsive to education and training and to incentives to create and contribute. Mistakes and failures can be reversed, and timely preventive interventions can reduce risks and ameliorate the consequences of injuries or disorders. Young adulthood is a critical period for protecting health, not just during the transitional years but over the entire life course. Despite some positives, however, the dominant pattern among young adults today is declining health, seen most clearly in health behaviors and related health statuses such as the following:

- As adolescents and mid-20s, they are less likely to take breakfast, do exercise, and get regular physical and dental checkups. More likely they eat fast foods, contract sexually transmitted diseases, smoke cigarettes, use marijuana and hard drugs, and binge drink.
- In many areas of risky behavior, young adults show a worse health profile than both adolescents and older adults. Thus, young adulthood is when many risky behaviors peak, but it is also the time when involvement in risky behaviors begins to decline. Across this time period there are many opportunities for prevention and early intervention for behaviour rectification.
- Early adulthood is a time of heightened psychological vulnerability and onset of serious mental health disorders, a problem compounded by failure to recognize illness or to seek treatment.
- The current generation of young adults appears to be at the forefront of the obesity epidemic and is more vulnerable than previous generations to obesity-related health consequences in later years.
- The higher levels of poor health in young adulthood have important consequences for future health, educational attainment, and economic well-being.
- Rapid technological and economic challenges and a prolonged transition to adulthood appear to be contributing to the health problems of young adults by increasing their stress and sedentary habits while making them less likely to participate in work and family roles that serve as strong social controls on risk taking. Therefore, these worrisome trends in young adult health can be expected to continue or worsen.

Biologically and psychologically, young adulthood is fundamentally a period of maturation and change, although the degree of change may be less striking than the changes that occurred during childhood and adolescence. For one example, the physical changes during the transition from childhood into adolescence are transformative, with bodies growing in dramatic bursts and taking on secondary sex characteristics as puberty unfolds. As young people move from adolescence into adulthood, physical changes continue to occur, but they are more gradual. Individuals begin the steady weight gain that will characterize adulthood, but these changes are not as discontinuous as they are at the beginning of adolescence. The health of young adults varies by race, ethnicity, sex, sexual identity, age, disability, education, socioeconomic position, and geographic location. Certain populations of young adults have higher rates of risky behaviors such as unhealthy eating, lack of physical activity, unprotected sexual activity, substance use and unsafe driving.

In case of young adult females, the eating patterns vary drastically. Many become image conscious, while some of them tend to pursue unhealthy lifestyle resulting in weight gain.
young adult females, body image perception means a lot to them in context to their social life. Body image is an important element of the intricate mechanism of one’s own identity. Gardner defines it as “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”. The subjective component of body image refers to one’s satisfaction with their own body size or specific body parts. 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 society7. Young girls’ eating pattern 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 patterns and macro-environmental factors like easy availability of junk foods, influence of mass media, marketing and advertising have also been linked with the eating patterns of young girls8. 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 girls8-14. These factors have been found to result in disordered eating patterns, affecting the nutritional status and may also result in psychiatric illnesses like anxiety and depression2,10,14. Body image consciousness and attempts to change weight are being witnessed more among adolescents in urban India than in rural India14. It has been observed that Indian female adolescents are more conscious to control their weight by restricting diet rather than doing physical exercise14. The available literature on body image issues in India has been mainly related to eating disorders like anorexia nervosa and bulimia2. Very few studies have explored the body image perception, body image satisfaction and weight changing patterns among young girls in less urbanized cities of India2,10,12. The body mass index (BMI), or Quetelet index [body weight (kg)/height (m)²], is the most common measure used in population-based studies for primarily categorizing nutritional status15.

Likewise, research assessing body image self-perception has used BMI as an indicator of nutritional status associated with determinants of body weight-related behaviors,16

Methodology

Search strategy: An in-depth literature search was carried out using the Google Scholar, PubMed, Medline, Science Direct, Springer, Wiley Online Library, ScopeMed and Cochrane Library. All the published articles, government reports and policy documents with specific reference to young adult females were gathered. Various search terms and keywords were used including young adult females, body mass index, body image perception, body image satisfaction, eating behavior, eating patterns, dietary patterns, food intake patterns etc.

From a methodological perspective, majority of the studies were cross-sectional in nature, on varying sample size. Certain restriction criteria were used in the electronic search-

- Only original research articles and systematic review papers published in a peer-reviewed journal, with full text in English language were considered for this review paper.
Studies published between 2001 and 2017 were included to focus on the issue discussed in this paper.

The study participants were young adult females (18-30 years) mostly college going, without any chronic disease and illness, non-pregnant and non-lactating.

Results and Discussion

Based on the inclusion criteria, 10 original articles and 3 systematic reviews from all over India until 2017 are included in this paper. Majority of the published literatures are cross-sectional studies conducted among young adult females focusing on their eating behaviors and body image perception. An association with BMI has also been discussed regarding the health status of these study subjects. Assessment of BMI and its association with eating patterns and body image perception among young adult females has been discussed differently in different studies.

In a study done in Jalandhar, majority of the girls i.e., 52% were dissatisfied with their body appearance. The striking finding was that 97% of the study subjects, who were dissatisfied belonged to the urban area, whereas, 44% of the girls who were satisfied with their body image belonged to rural area and this difference was statistically significant (p<0.001). Majority of the girls (68%) had normal BMI, 15% were overweight and 7% were pre-obese. In this study, a statistically significant association (p=0.003) between eating pattern and BMI was revealed. Nearly half (49%) of the respondents and 39.2% of the respondents who followed healthy and mixed dietary pattern, respectively had normal BMI, whereas, the 72.7% respondents who were overweight and 60% pre-obese adhered on western eating pattern.

In another study, 17% were undernourished, while, 75.5% well normally nourished. Regarding image satisfaction, 98 (66.7%) of the respondents were satisfied with their image and out of 49, 20.4% were dissatisfied with their body image and wanted to reduce weight. Skipping meals was practiced by 42 (28.6%) study subjects.

The study from Nagpur was carried among 50 hostel dwellers as well as 50 local medical students. This study revealed that majority of the hostilities had high prevalence of malnutrition (underweight and overweight both). The daily consumption of junk food (16%) and visit to hotels (12%) was more in hostilities, whereas, the local study subjects had more consumption of fibre rich food (46%), than hostilities (6%). On comparison of nutritional status, malnutrition (underweight: 40%, overweight: 6%) was found to be common amongst the hostel respondents. The reason for hostilities falling prey to malnutrition was mainly as a result of unhealthy eating pattern, consumption of low fibre diet, frequent visits to hotels and high consumption of junk foods.

A cross-sectional study conducted in urban areas from a major city in South India included 650 healthy unmarried study subjects (15-25 years). The mean age of the participants was 20.11±2.2 years. Majority of the selected population were in the normal weight category (59%), whereas 30.2% were underweight and 10.7% were overweight and obese. Out of 650 participants, 408 were young adult females and from this population, around 65.2% (266) skipped meals as a
weight control behavior. One – third of the overweight or obese subjects and less than one- fifth of the normal weight had low body image satisfaction.

It was seen in a study in Karnataka\textsuperscript{21} that 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, mother’s educational status and also with relatives’ and peer group opinion about their body weight. Unhealthy weight changing patterns like skipping meals (13\%), increasing quantity and frequency of meals (17\%) were reported among study participants.

Another study in Chennai city\textsuperscript{22} revealed that only half of the female college students (54.8\%) had normal weight, while quite a few students aged 17 – 21 years were either overweight (13.2\%) or obese (5.2\%). More than a quarter of female college students were also underweight (26.9\%). The high prevalence of underweight observed in this study revealed the fact that India’s higher economic growth has not translated into an improved nutritional status. Further, in the present study, it was found that a lower BMI was associated with a lower SES. Mean energy intake of the students was 1828 Kcal, lower than the ICMR recommended values. The average intake of fruits, green leafy vegetables and other vegetables were also found to be low.

In a study\textsuperscript{23} done in Haryana, out of 96 study samples, 16.66\%, 51.04\%, and 32.29\% female students perceived their body image as fair, good and excellent, respectively. Overall 13.54\% were dissatisfied with their body image. The body image satisfaction had significant relationship with image perception (p<0.001). Students with BMI <18.5kg/m\textsuperscript{2} had a significantly higher (85.71\%) prevalence of body image satisfaction while overweight study subjects i.e., BMI ≤23kg/m\textsuperscript{2} had a significantly higher (54.54\%) prevalence of dissatisfaction (p<0.001). Nearly 75\% girls were found to be anaemic but it was not statistically associated with body image in study subjects (p=0.86).

Conclusion

Eating pattern among young adult females is a critical issue in the sense that their concern for body image can lead to many health problems, as seen through this paper. Findings from most of the papers reveal that the body image perception and eating patterns are significantly associated with each other, and consequently it shows the increased level of malnourishment either be underweight, overweight or obese. Therefore there is an urgent need for awareness relation among young adult females regarding their health and nutritional status. There is a need to fill the gap of malnourishment among them. Several health programs that are working in India need to serve this critical age group so that the high prevalence of underweight, high consumption of unhealthy foods could be minimized.

Reference


6. Hudson et al., 2013; Mulve et al., 2009.


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