Rising Trends of Overweight and Obesity among Women in India

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Introduction:

Overweight and obesity have reached epidemic proportions globally, with a world- wide prevalence of around 39%. [1,2] It is the fifth leading cause of death, resulting in about 2.8 million deaths of adults globally every year. Diabetes (44%), Ischemic heart disease (23%) and certain cancer(7-14%) burdens are attributable to overweight or obesity.[1] The problem is not only restricted to developed countries but poses a new challenge for developing countries, calling for immediate attention.[3] In developed countries, food patterns like energy-dense food consumption and sedentary lifestyles may contribute to this increasing burden of obesity. While in developing countries like India, there is a transition from traditional food patterns to more westernized food which includes highly-saturated fats, sugar, and refined food. Apart from this, reduced levels of physical activity, better transport facilities, better healthcare, and increased stress, particularly in the rapidly-growing urban populations, are all critical factors leading to an increased burden of obesity in India.[4-6] According to the National Nutritional Monitoring Bureau (NNMB) report (2012), the prevalence of overweight/obesity was significantly higher in those with high consumption levels of milk and milk products, fats and oils, sugar, and salt.[7] India has more than 30 million obese people, which is increasing alarmingly.[8-10] The problem is more acute among women than men. In India, the proportion of overweight or obese women is 24%, one percent higher than that of men (23%). [11]

National Family Health Survey (NFHS) data shows a doubling in the prevalence of obesity among women from 10.6% to 24% in two decades. Figure 1 illustrates rising trends of overweight and obesity among Indian women, as evidenced by NFHS data. Earlier, it was found to be maximum in the age group of 30-39 years (increase from 7.3% in 1998-99 to 27.7% in 2015-16), whereas, in NFHS 5, the maximum overweight and obese women were in the 40-49 years age group with a prevalence of 36.9%.[8-11] The prevalence was more among widowed and married than never-married women. The overweight or obesity among women increases with an increase in wealth. The proportion of overweight or obese is 10% in the lowest wealth quintile while 39% in the highest wealth quintile.[11] There are 16 states where ≥30% of women have a Body Mass Index (BMI) ≥25 kg/m^2. Puducherry (46%), Chandigarh (44%), Delhi, Tamil Nadu, and Punjab (41% each), and Kerala and Andaman & Nicobar Islands (38% each) have the highest proportion of overweight or obese women in India.[11] The proportion of overweight or obese women is more in urban areas (33%) than in rural areas (20%). The highest proportion of thin women is in Jharkhand and Bihar (26% each), followed by Gujarat, Dadra & Nagar Haveli, and Daman & Diu (25% each).[11] Mean BMI for women has increased from 20.3 kg/m^2 to 22.4 kg/m^2 from 1998-99 to 2019-21.[8-11] More than half of the women (57%) have a high waist-to-hip ratio (WHR ≤ 0.85) that can put them at increased risk of type 2 diabetes mellitus, myocardial infarction, stroke, and premature death.[11]

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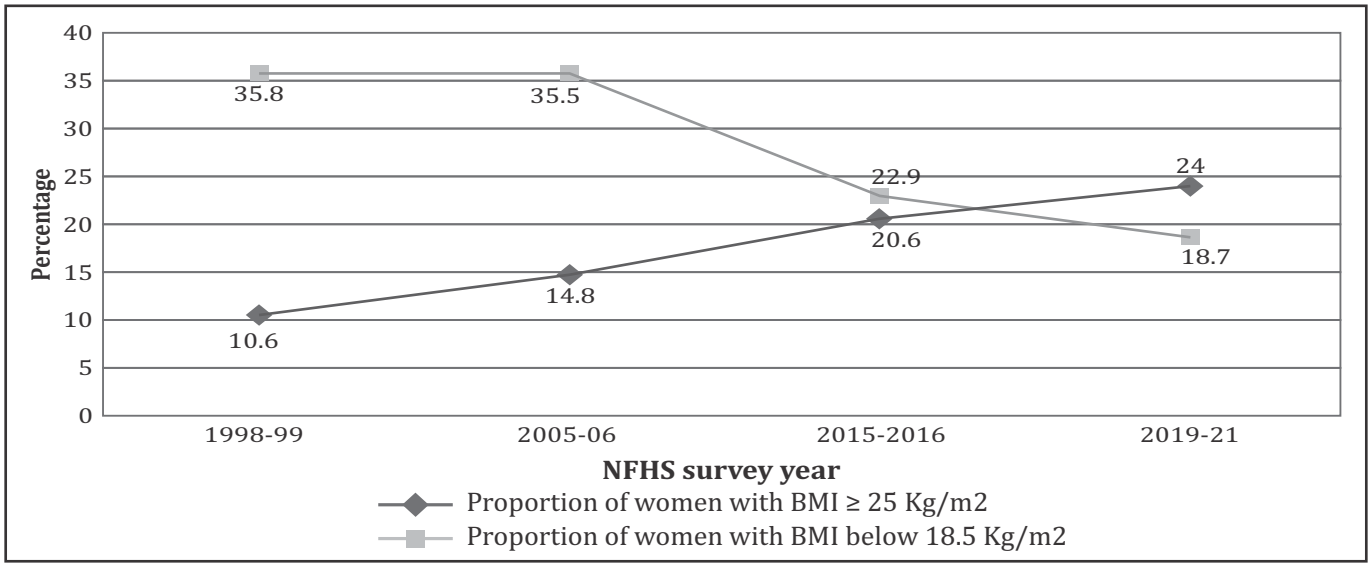
Situation analysis as per NFHS (National Family Health Survey) data [8-11]

Figure 1: Proportion of overweight and thin women in India (15-49 years)



Risk factors for overweight and obesity among Indian women

- **Dietary factors:**

The nutrition theory by Popkin(1993) explains changing food patterns and reduced physical activity as major factors leading to an increase in obesity globally.[12] Nutritional and anthropometric status of Indian women is affected by vast cultural differences in food patterns, food fads, and habits mainly decided by socioeconomic status, regional differences, and food cooking practices. A study in Gujarat explored the influence of dietary factors on the weight status of adults and reported that the total calorie intake and habit of snacking had a positive association with weight gain.[13] The average Indian households get almost half (47%) of their total calories from whole grains. The share of calories from protein sources is only 6–8%. Which ideally should be double this, around 15%. Even the wealthiest households in India do not consume adequate amounts of fruits, vegetables, and non-cereal proteins in their diets. The average Indian families get almost half (47%) of their total calories from whole grains.[14] As per NFHS 5, 7% of women consume fried foods daily and 36 percent weekly. Aerated drinks which comprises of high level of dissolved sugar are consumed daily by 3 percent of women and weekly by 13 percent of women in India.[11] A study reported that Indians consume unhealthier saturated fats like palm oil. Urban households in the highest income group consume almost 30% of their daily calories from processed food. The consumption of Vanaspati is known to have risen by 51% between 1993 and 94 and 2011–12 and it is widely used for cooking at home, in restaurants, by street vendors, and in the preparation of processed foods.[14] In metro cities, the consumption of visible fat is 33g/day, which is higher than the recommended levels of ICMR (20g/person/day). The average consumption of visible fat was marginally higher among men (34.1g) than women (31.1g).[15]

- **Physical activity:**

As per an ICMR study, the estimated number of inactive individuals in India is 392 million. The prevalence of physical inactivity was significantly greater in urban areas compared to rural areas (65.0% vs. 50.0%) and among females compared to males (63.0% vs. 45.7%). The percentage of individuals with no recreational activity increased with age.[17] In many cultures in India, especially in rural India, women are not allowed to engage in fitness activities, run, or even walk, as their true purpose is to serve as a housewife and perform only indoor household chores. Socialization is essential to individual holistic health, and many Indian women are still victims of this social exclusion governed by their family members. All these

factors make obesity the core of women's lives as it may affect their lives on a personal, professional, emotional, mental, and physical level.[16]

- **Environmental factors:**

A term-built environment refers to the infrastructure of a geographic area that influences proximity to and types of resources, transportation methods, and neighbourhood quality. As NFHS 5 data shows, every fifth woman in the rural area is obese.[11] One of the reasons could be that the residential areas are farther from the market, health care, and recreational opportunities, which may restrict them from practising healthy behavioural patterns to prevent obesity.[18] Also, the type of food available through food vendors in the community and its frequency could be an essential factor contributing to obesity.[18] Along with this, socioeconomic statuses (SES) variables, such as income, education, or occupation, have a significant impact on following healthy lifestyle practices and the development of overweight and obesity. [18]

In the last two decades, there has been a major shift in the marketing strategy of food items, and there is now a propensity for "Ready to Eat"/ ready in 2-minutes items available around the corners. Every cinema house/multiplex/shopping mall gives you a tempting range of dishes you can order at any time; besides that, many food items are presented with a deal of "Buy one get one free," which results in higher food consumption. During the COVID-19 pandemic concept of "home delivery" has reached from urban areas to rural areas as well, and one can get any food of their choice with just a phone call. So this easy access and lucrative marketing strategies lead to higher calorie consumption. This situation is not only affecting women but equally affecting boys as well, leading to overweight and obesity.

- **Stress:**

Stress is a double-edged sword in both causes and consequences of obesity. Stress can affect behaviour by inducing overeating and consuming foods high in calories, fat, or sugar; decreasing physical activity; and disturbing sleep. It also triggers physiological changes in the hypothalamic-pituitary-adrenal axis, reward processing in the brain, and possibly the gut microbiome.[19] Obesity can be stressful due to weight stigma, in society, including in media, employment, healthcare, and interpersonal and educational settings.[19, 20] Studies have shown that greater sleep variability is associated with obesity in both children and adults. High sleep variability has been associated with higher daily energy intake and sugar-sweetened beverage consumption.Sleeping may influence obesity by shifting the timing of eating patterns. Compared to those with earlier sleep times, those with later sleep times are more likely to engage in breakfast skipping and after-dinner snacking.[21] Studies reported that parents provide less financial support for their higher BMI than their lower-BMI daughters[22], and heavier women are less likely to go to or graduate from college.[23] All these leading a vicious cycle of stress from obesity to stigma to stress. [19]

COVID-19 pandemic has further aggravated this situation, as many lost their jobs, lost financial support, lost guardians, etc. So it is expected that there could be an exponential rise in obesity soon if we do not take corrective actions promptly.

- **Sedentary habits:**

Pooled analysis of 22 low- and lower-middle-income countries (LLMICs) reported the odds of a women being overweight or obese were 1.20, 1.40, and 1.18 times higher among those who watched television less than once a week, at least once a week, and almost every day, respectively, compared with those who did not watch television. Women who own mobile are 1.72 times more likely to experience overweight or obesity.[24] In India screen time has increased during and after the COVID period as due to lockdown people were working from home and sources of entertainment were limited to television and phones.

Consequences of overweight and obesity:

Being overweight and obese results in various physical, mental, and social problems. Obesity is associated with the development of diabetes, hypertension, cardiovascular diseases, ischemic heart disease, osteoarthritis, meningioma, multiple myeloma, adenocarcinoma of the esophagus, and

cancers of the thyroid, postmenopausal breast, gallbladder, stomach, liver, pancreas, kidney, ovaries, uterus, colon and rectum (colorectal). Around 23% of ischemic heart disease cases are attributed to obesity.[25-27] Many women experience breathlessness as the most important consequence of obesity which interferes with their daily routine work. Difficulty in sitting, standing, walking, joint pain, and fatigue are also some of the problems experienced by women.[16] Being in proper shape (good figure) makes women feel more socially acceptable. Most obese women consider themselves 'ugly' and less attractive, which leads to low confidence, demotivation, and low self-esteem when appearing in a job interview, selecting a life partner, or part of a social group. Women may face trouble while choosing a career, a hobby, or clothing choices and may also be rejected in a marriage proposal if they are obese. Obese women, especially young girls, are more prone to bullying and humiliation, the fear of which even makes them stay indoors and exercise less. All these factors increase stress levels among women[28] which also serves as an independent risk factor for obesity.

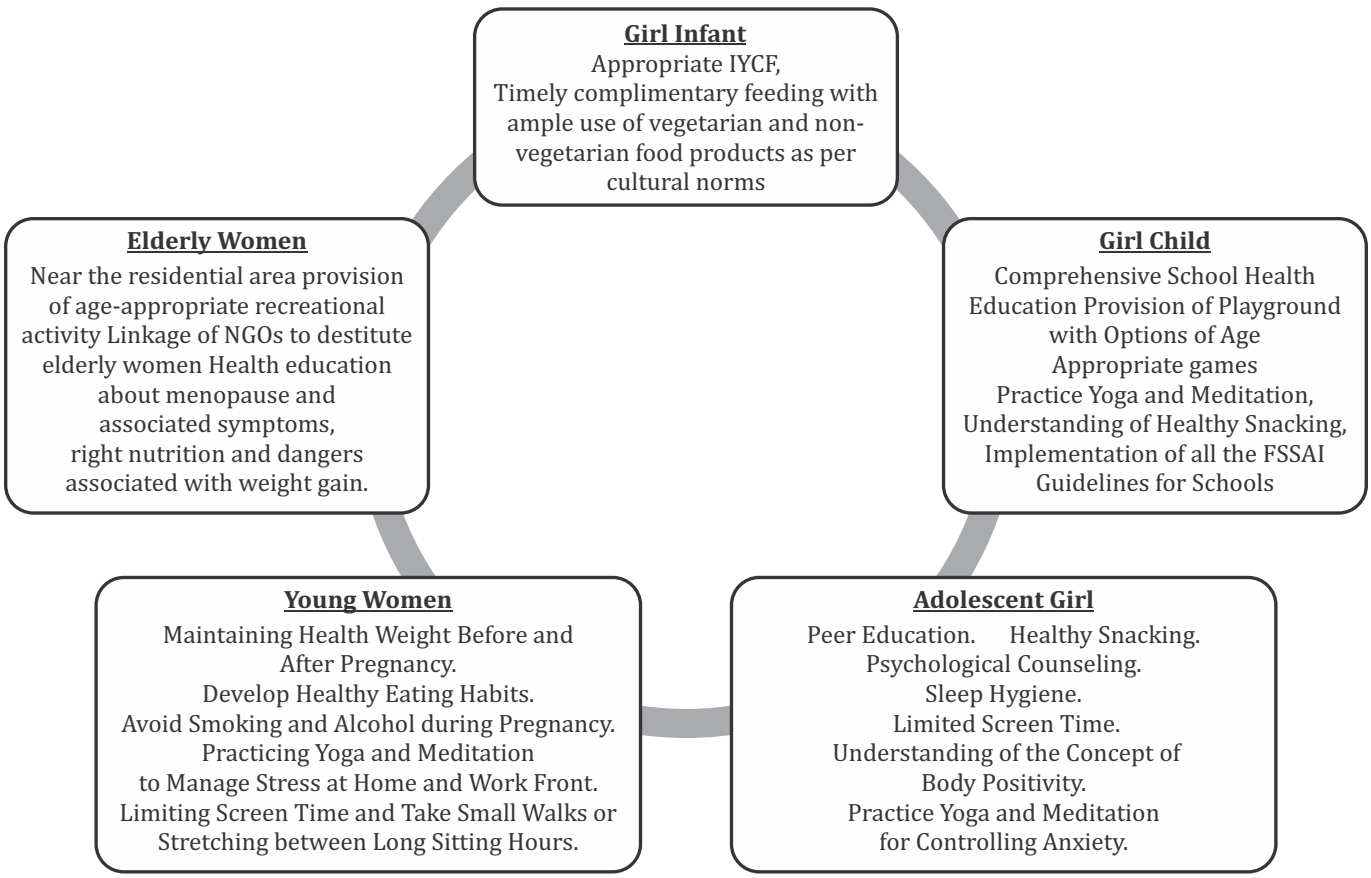
Preventive strategies for overweight and obesity:

Given the rising burden and all the health consequences of obesity, both physical and psychosocial aspects, prevention of this public health problem is of major concern. A comprehensive strategy is needed, including preventive, promotive, and curative elements. Life cycle approach can be used for controlling the epidemic of overweight and obesity. Figure 2 illustrate various preventive measures to be implemented at each level of the life cycle.

Following obesity prevention strategies should be implemented at the family and community levels.

- Centre staging prevention of overweight and obesity in different national schemes and programs-

Figure 2: Preventive Measures to be Implemented at each level of the Life Cycle



- Urban development – Setting up of societies where ample space is provided for playgrounds, parks, and gymnasiums with female trainers, accessible and separate areas for the elderly for various recreation activities like yoga, walking, and socializing.
- The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) program was launched with an aim to prevent and control chronic Non-Communicable diseases through health promotion and opportunistic diseases. Integration with AYUSH was also suggested for health promotion regarding a balanced diet, exercise, yoga, etc. As Health and wellness centers are now launched yoga sessions should be conducted every day with at least two sessions a day so that the females can find a convenient time to participate.
- The National Nutrition Mission has various objectives targeting malnutrition and anemia. As India is transitioning towards a double burden of malnutrition it does not address the issue of over-nutrition among children and females.
- Food Safety and Standards Authority of India (FSSAI) has launched Eat Right Movement with the goal of improving public health and combating negative nutritional trends to fight lifestyle diseases. They also released a Trans Fat-free logo to encourage food establishments to use healthier fat/oil options. They have also asked the school authorities to display a board at the main entrance with a sign school "Do not sell the food products high in saturated fat or trans-fat or added sugar or sodium within school premises or campus" in English or one Indian language as applicable. Posters around the canteen should be displayed containing information about the highly processed food and their effect on health so that students can make an informed decision.
- National Health policy (2017) aims to SwasthyaNagrik Abhiyan which is a social movement emphasizing balanced, healthy diets, regular exercise, and reduced stress at the workplace for which health policy level intervention is required with the active involvement of significant stakeholders.

- A comprehensive school health education curriculum for children and adolescent need to be implemented in school, focusing on nutrition, physical activity, limitation of sedentary behavior, and tobacco use.
- Posters and banners focusing on causes, consequences, and preventive aspects of obesity should be presented in communities, hospitals, shopping complexes, eateries, and all public places.
- The food consumption pattern plays a vital role in the control of obesity and associated diseases. Policy-makers can play an important role by imposing higher taxes and appropriate labelling on food items containing high fat, salt, or sugar.
- In urban areas, youngsters mostly rely on fast food as the availability of healthier alternatives are few and expensive. Every school, college, and shopping complex must have food joints with healthier food choices.
- Locally grown and cooked food can be made available at an affordable price with appropriate branding so that people can make an informed decision regarding their food habits.
- Females should be encouraged to participate in sports in schools and colleges. Women's sports day should be organized regularly in offices and various organizations so that staff members are encouraged and motivated to participate in physical activities.
- Health care workers play a crucial role in educating people on their health. Accredited Social Health Activist (ASHA), Anganwadi Workers (ANW), and Health Workers (HW), who serve as the first level of a contact person in the community, should be trained to impart this education in the community.
- Public health strategies such as the availability of dietitians and nutritionists in hospitals providing professional and organizational support can further help to address this situation. [29]

Conclusion :

There is an exponential rise in the waist to hip ratio among women which is concerning as it is a risk factor for all the metabolic syndromes which eventually lead to premature death or a debilitating life. Hence it is the need of the hour to formulate a focussed approach at a national policy level addressing women's heath as a priority.

Declaration:

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