Nutrition Sustainable Development Goals in India: The Concern of Rising Obesity

**Abstract**

India is facing growing challenges in achieving its nutrition goals under Sustainable Development Goal 2. The country bears a dual burden with persistent undernutrition alongside a rapidly rising prevalence of overweight and obesity. NFHS-5 (2019–21) data shows that 24% of women, 23% of men and 3.4% of children under five are overweight or obese. Inter-state variations are significant particularly those undergoing rapid urbanisation and lifestyle transitions report adult obesity rates well above the national average. Projections suggest that by 2050, India could be among the countries with the largest number of people living with obesity, increasing the risk of chronic non-communicable diseases. Although obesity has traditionally been more common in high-income countries, India’s rate of increase now reflects global patterns. Globally, overweight and obesity contribute significantly to illness, disability and premature death, accounting for a substantial portion of the overall disease burden. This paper examines the key drivers of this trend, including urbanisation, dietary changes, physical inactivity and the rising influence of digital platforms like food delivery apps that promote frequent access to high-calorie foods. Despite initiatives such as POSHAN Abhiyaan, Fit India, Eat Right India, overnutrition remains poorly addressed. The paper recommends a multi-sectoral strategy that includes stronger regulations, sugar taxes, food labelling, improved urban planning and public awareness. Promoting traditional food systems and engaging citizens as informed consumers are critical to protecting India’s demographic dividend and long-term sustainable development.

Keywords: Obesity, overnutrition, nutrition transition, double burden, SDG 2, urbanisation, digital food platforms, ultra-processed foods, public health policy.

**1. Introduction**

A decade after the adoption of the 2030 Agenda of Sustainable Development Goals (SDGs), and past the halfway point to 2030, it is evident that India is clearly not on track to meet the nutrition goals of SDG 2 including zero hunger, food and nutrition security (NITI Aayog, 2024; United Nations, 2019;) India contributes nearly one -third of the global burden of malnutrition, and while undernutrition and micronutrient deficiencies continue to pose a major public health concern, new and complex challenges are also emerging. India is experiencing a worrying rise in obesity and overweight in urban and transitioning communities making malnutrition a multifaceted issue (PIB, 2025; Abarca-Gómez et al., 2017; Wang et al., 2009). Recent Lancet Studies have projected, “By 2050, the global number of individuals who are overweight and live with obesity is projected to reach 3.8 billion, India with 450 million will remain one of the three countries with the largest numbers of people with overweight and obesity” (Kerr et al. ,2025; Ng et al. , 2025; Sørensen, 2025).

Even though marginal improvements have been observed in stunting and wasting but it is insufficient and uneven. Alarmingly, trends in anaemia and obesity indicators are either stagnating or worsening (IIPS & ICF,2021;2017; Sharma, 2020). This dual trend underscores a nutritional paradox where a large section of the population struggles with undernutrition and micronutrient deficiencies while another growing section is affected by overnutrition and lifestyle-related health risks. This nutrition transition is not merely a dietary concern but a reflection of deeper structural changes in the economy and society. As the share of agriculture in GDP and employment declines and urbanisation expands, sedentary lifestyle becomes more dominant. It also brings changes in family structure, employment patterns, physical activity, food environment which collectively reinforce unhealthy dietary practices and increase the risk of non-communicable diseases (NCDs) such as diabetes, cardio-vascular diseases. The nutrition transition, thus, is a consequence of integration of underlying economic, social and demographic changes (Popkin & Ng, 2022, Gosh, 2006).

Despite these risks and serious public health implications, India’s nutrition planning and research framework have largely focused on undernutrition with limited attention given to rising challenges associated with obesity/overweight. There is urgent need for more integrated approach that addresses the full spectrum of malnutrition, especially focussing on obesity. This paper seeks to bridge this gap by reviewing literature and policy experiences in the context of obesity from national and global perspective. Specifically, the study aims to understand the drivers and consequences of rising obesity in India. Further, to examine the structural and behavioural drivers of obesity through multisectoral approach. Finally, evaluate policy, highlight gaps and suggest potential strategies for integrated approach to nutrition.

**2. Obesity: A Multidimensional Challenge**

There are debates and discussions going around the world on whether obesity should be classified as a disease or not. While some countries like the USA have recognised it as a disease, others like the UK are still divided on the issue (Luli et al., 2023; Fryhoyer, 2013).  But what is certain is - it is a significant public health hazard beyond concern of appearance. The adverse health impacts of obesity not only reduce quality of life but also increase the risk factor for chronic non-communicable diseases such as diabetes, blood pressure, heart strokes, etc. It is a complex condition that has serious direct and indirect consequences for individuals, households and society at large.  Evidence suggests both degree and duration of overweight/obesity increases the risk of morbidity and mortality under NCDs (Martin-Rodriguez et al. 2015; Barry et al. 2014; Pandey et al., 2013). The increased risk of these diseases puts enormous pressure on the healthcare system. It leads to increased hospitalisation and medication and need for long- term care. Further, it has indirect cost in terms of loss of productivity, absenteeism. This creates additional burden on the resource constrained developing countries like India (Menon et al., 2022; Dinsa et al, 2012).

Estimates from global studies highlight the scale of burden of obesity/overweight on the economy. The Global Burden of Disease Study (GBD) estimated that overweight/obesity contribute around 120 million disability-adjusted life years (DALYs) around 5 percent of all DALYs (IHME, 2018). According to World Obesity Federation (2022), the economic impact of obesity in India in 2019 was equivalent to 1.02% of its GDP. By 2060, it is estimated to increase to 2.5% of GDP (Okunogbe et al. 2022).  In China, the estimated costs of obesity amounted to 2.46% of China’s healthcare expenditure (Qin & Pan, 2016). In Brazil, overweight/obesity related health care costs are expected to double between 2010 and 2050 (Rtveladze et al. 2013). Research shows that addressing obesity effectively would lead to substantial savings of resources and better use of public funds (Tremmel et al. , 2017)

Besides the health and economic costs, obesity is associated with social costs. Childhood obesity, in particular, has serious physical and psychological consequences such as low self-esteem, social stigma, increased risk of bullying, mental depression (Wójcik, et al. 2023; Shephard, 2018; Sahoo et al. 2015;). These factors can hinder performance, reduce future opportunities and can contribute to life-long inequalities of affected individuals.

In this context, obesity is not merely a health concern but a significant barrier to inclusive and sustainable development. Its complex interconnections with economic productivity, healthcare expenditure, educational outcomes and social cohesion requires thoughtful multisectoral approach involving policymakers as well as affected individuals. Tackling obesity effectively is critical if India is to meet its nutrition and development commitments in line with the Sustainable Development Goals.

**3. The Epidemiology of Obesity in India**

Obesity in India has turned into a public health concern – signifying the ongoing nutrition shift.  Recent NFHS 5 estimates (2019-21) indicate 24 percent of women (15-49 years), 23 percent of men (15-49 years) and 1percent of children under age 5 are obese/overweight   marking an increase from 21 percent, 19 percent and 0.5 percent in 2015-16 respectively (IIPS &ICP, 2021;2017). Obesity prevalence in India is significantly influenced by age, household wealth and location. Data from NFHS-5 (2019-21) highlights clear patterns across these dimensions[[[[1]](#footnote-1)]](#_ftn1).

Age positively affects incidence of obesity. The proportion of obese/overweight women increases steadily from 5 percent in age group 15-49 to 37 percent in the age 40-49. For men, the corresponding rate increases from 7 percent in age group 15-19 to 32 percent in age 40-49. For children under five, the age-linked overweight prevalence is highest in infants under six months (8.2 percent) and gradually reduces to 2.5 percent for 46-59 months indicating early-life risks related to overnutrition. This pattern reflects age-related metabolic changes, lifestyle factors and cumulative dietary risks (Loukrakpam et al., 2020; Pengpid et al. 2019).

Wealth levels positively affect the incidence of obesity. An increase in household wealth is accompanied by a steady increase in the proportion of obesity in women from 10 percent in the lowest wealth quintile to 39 percent in highest wealth quintile and correspondingly from 10 percent to 37 percent in case of men. A similar pattern is observed among children under age five, the highest wealth quintile has greater incidence of obesity with 4.8 percent compared to 2.7 percent in the lowest quintile. This suggests that higher affordability often brings dietary changes in favour of processed and calorie-dense foods and reduced physical activity which contribute to weight gain (Siddiqui & Donato, 2020; Luhar et al. 2018,)

Location is another determinant of obesity in India, with the urban areas registering a greater incidence as these areas typically reflect easier access to ultra-processed foods (UPFs) and sedentary lifestyle. The proportion of overweight being 33 percent for women in urban areas as compared to 20 percent in rural areas. Correspondingly, 30 percent of urban men were found to be overweight in comparison to 19 percent in the rural areas. Among children under five, urban areas report 4.2 percent overweight prevalence, higher than rural areas with 3.1 percent. It indicates the broader influence of the urban food environment and lifestyle even in early childhood (Westbury et al., 2021; Khan, & Mohanty,2018; Gopalan,1998).

The state-wise analysis among women reveals the highest prevalence of obesity/overweight in states of Delhi, Tamil Nadu, Punjab and Kerala, with rates ranging between 38% and 41%. For men, the top three states are Delhi, Tamil Nadu, Kerala which report the highest rates of overweight or obesity in the range of 32-34 percent. In contrast, Bihar, Jharkhand, and Chhattisgarh report the lowest prevalence in men and women with only 3.3 percent of women in Bihar and 1.7 percent of men being obese. Among children above years 5, incidence of overweight is highest rates in Goa (5.8 percent), Kerala (5.4 percent), and Meghalaya (5.2 percent), much above the national average of 3.4 percent.

These nutritional patterns reflect a clear nutrition divide, where more urbanised and economically advanced states show a higher obesity burden in comparison to poorer states (Siddiqui & Donato , 2020; Sengupta, et al., 2015). This variation underscores the intersection of socio-economic development, urban exposure and lifestyle changes driving the nutrition transition across India. It calls for targeted strategies to address nutritional challenges and its long-term health implications.

**4. Key Drivers of Obesity in India: An Analysis**

The risk of being overweight or obese depends on food energy balance, including energy intake and energy use. Obesity is a consequence of sustained positive energy balance over time. Factors governing the energy balance can be broadly classified as:  biological and genetic and (the host), the vector (food and drink) the environment (external factors that people are exposed to), and behavioural (how people respond to environment) (Romieu et al., 2017). These factors interact in a complex manner to influence the dietary patterns as well as activity behaviour.

The biological and genetic, characteristics of individuals affect energy intake and expenditure. In the Indian context, age, gender, and socioeconomic status are significant host-level determinants. Obesity prevalence tends to increase with age and is generally higher among urban, and economically better-off populations as discussed above. Several studies have shown that genetics is also important factor in influencing the weight of an individual, accounting for about 25% to 70% of the predisposition to be overweight (Bodurtha et al., 1990; Stunkard et al., 1986). For a given a genetic disposition, individuals are likely to be overweight or obese if they have unhealthy food environment and sedentary lifestyle choices. Although obesity is expressed at the individual level, it is important to recognize that these host-level factors often operate within and are shaped by broader environmental and policy contexts at local, national or international levels; as highlighted by World Cancer Research Fund/American Institute for Cancer Research Report (2009).

Among the vector-related factors refer to the what people eat and drink as part of their daily food intake. A changing composition of diet towards food that are high in fats, sugar and salt increase the risk of obesity. An examination of expenditure pattern of households gives useful insight. Data from Household Consumption Expenditure Survey of 2023-24 (MoSPI, 2024) indicate beverages and processed food- the key vector-related factors -are now the major contributors in total consumption expenditure of food items surpassing the staples like milk & milk products and vegetables for Indian consumers. This has been a consistent trend over the years. The percentage share of beverages and processed food in total MPCE increased from 6.53% in 1999-2000 to 8.98 % in 2011-12 to 10.53 percent in 2023-24 for urban India. A similar trend is observed in rural India- the share increasing from 4.19% in 1999-20 00 to 7.40% in 2009-10 to 9.41% in 2022-23. The household expenditure on these major types of food categories derived from household expenditures surveys clearly provide evidence for possible implication for obesity. It is based on the premise that it is the overall food intake pattern that determines energy intake and affects body mass.

Increasing consumption of processed food is a result of increasing influence of obesogenic environment (Pitt et al., 2017; Romieu et al., 2017). These food environments have become particularly challenging due to widespread availability and affordability of UPFs, supported by aggressive digital marketing, rapid delivery systems, and relatively weaker regulatory institutions (Burgoine et al., 2018; Widener et al., 2017).  In essence, environment plays a critical role in influencing the availability, accessibility, affordability, convenience and desirability of dietary patterns among consumers (FAO, 2016).

An examination of the food environment in India reveals that significant changes over the years. Studies on urban dietary patterns show increasing preference for animal-based products, processed snacks, sugar-sweetened beverages (de Morais Sato et al., 2020; Law et al., 2019).  Evidence from a study in Telangana district shows that rural households increasingly prefer carbohydrate-rich food group either sourced through their own production or public distribution system as against protein- and micronutrient-rich foods due to issues of affordability and taste preferences. Also, there is a growing demand for packaged and sugary foods with longer shelf lives than fresh fruits and vegetables in rural diets (Kumar et al., 2023).

Numerous Studies indicate that as rural or remote regions have increasing access to global foods such as instant noodles and pizza, the demand for processed non-local food items are becoming a regular part of their diets, reflecting the deep penetration of global food systems into traditionally local food environments (Cunningham et al., 2021; Shaikh et al., 2016).

In all, there is a clearly evident trend towards the increased consumption of UPFs across both rural and urban India. This shift contributes to rising concerns around obesity and related NCDs, signalling public health challenge.

This trend is not unique to India rather it is evident across all low-income countries outpacing the high-income countries (Popkin & Larr, 2025; Monteiro et al., 2024; 2019; Baker et al., 2020;). The nutrition transition in developing countries has accelerated in recent years largely due to the rapid transformation of the food retail and processing sectors, increasingly dominated by large supermarket chains and transnational food corporations. A study, examining trends in food retail environments, found that South Asia experienced the most rapid transformation. India was a key driver of this shift. This trend was found to be closely linked to the rising prevalence of obesity (Scapin et al., 2025).

Food retail environment in India has seen rapid transformation. India now has the third-largest food retail market in the world accounting for approximately 10% of the country’s GDP in retail volume. Between 2011 and 2021, the highest retail share within the sector consistently belonged to beverages, while sales of ready-made convenience foods have seen a steep rise in recent years (Gómez, 2023; WHO, 2023). The growth of the food processing industry has facilitated the widespread availability of processed food products throughout the country. A notable example is the increasing consumption of processed food is sweet biscuits, which constituted a major share of retail food sales by volume in 2021. These are often consumed as impulse snacks, heavily marketed, affordably priced and sold in small packs, making them accessible even to low-income consumers. However, most people remain unaware of their health risks including their contribution to excessive sugar and fat intake.

With more people working from home and seeking time-saving meal options, there has been a surge in demand for readymade and convenience foods. This trend is not only reshaping dietary habits but also intensifying the challenges related to unhealthy weight gain and non-communicable diseases in India (Fortune Business Insights, 2025; Escoto et al., 2012). At the same time, increased dependence on motorised transport combined with screen-based occupation has led to reduced physical activity. The rise of the digital environment including social media, online gaming, streaming platforms and smart gadgets such as smartphones further promotes sedentary lifestyle. Together, these environmental transformations are contributing to a sustained positive energy balance, thereby increasing the risk of obesity in the population.

**5. Policy Landscape and Current Interventions**

Globally, countries have adopted many policy interventions to promote healthy diets or reduce the consumption of unhealthy food. The policy space in India can be broadly categorised as (i) fiscal measures (ii) regulations on marketing/advertising and labelling guidelines (iii) public awareness programs.

Recognising the global burden of obesity, WHO (2024b) has recommended countries to adopt higher taxes on HFSS and provide subsidies to healthy food such as fruits, vegetables and whole grain as a part of fiscal measure. Several countries have imposed these recommendations with measurable success. In Portugal, tax on sugar-sweetened beverages (SSB) led to a 7% decrease in consumption. Sri Lanka also witnessed reduction in sales of carbonated drinks India, however, has not yet implemented a fiscal policy aligned with WHO’s recommendations. The processed and sugary foods are taxed under the Goods and Services Tax (GST) framework but the structure is not nutrition/health-sensitive. For example, a flat 28% GST along with a compensation cess of 12% is levied on all aerated drinks, regardless of their sugar content (Central Board of Indirect Taxes and Customs, n.d.).  Also, there is no difference in tax rates between juices with varying amounts of sugar content, providing no incentive for reformulation or innovation. Furthermore, uniform high taxes may also have adverse welfare effects, especially for lower-income households that may not have access to affordable healthy substitutes. Evidence suggests that low-income group consumers continue to consume HFSS products, unlike the high-income consumers who shift consumption to healthier options, bearing the majority of the tax burden and continue being exposed to unhealthy food choices (Mukherjee et al., 2024).

Even though India has one of the largest Public Distribution System in the world but it needs to be redesigned with more focus on dietary quality rather than just calorie sufficiency helping address both undernutrition and the growing burden of overnutrition (George & Mckay et al., 2019). In all, there are no subsidies that specifically target the issue of obesity, nor does the system incentivize consumption of a diverse, balanced diet for Indian consumers. A differentiated nutrition-sensitive tax structure along with subsidies for healthy foods such as fresh produce, legumes, or traditional cereals like millets from a public health perspective is the urgent need of implementation to influence both supply and demand.

Alongside fiscal tools, regulatory policies guide food and beverage producers to align with public health goals and thus, help in shaping healthier food systems. It includes mandatory front-of-pack nutritional labelling, limits on trans fats, advertising restrictions for unhealthy food and reformulation standards helping consumers to make more informed choices. Some foundational steps have been taken by the Government of India. In 2006, Food Safety and Standards Authority of India (FSSAI) was established to set science-based standards and regulate the manufacture, distribution, sale and import of food to ensure safety and wholesomeness (MoHFW, n.d.). In 2020, food safety and standards (Labelling and Display Regulations) were introduced to ensure clear, front of pack labelling along with general and nutritional labelling.

Despite these measures, critical gaps remain in implementation. For example, some high-sodium foods like buttermilk may not require for front-of-pack labelling which raises questions about how health risks are being judged. On the other hand, many traditional and locally popular snacks made from lentils or pulses which are actually healthy might get red warning labels just because they have more salt or fat. This could wrongly make people avoid these nutritious foods (Pande et al., 2020). Additionally, studies show that even literate consumers seldom use nutritional information while making food purchases mainly because the information is not legible and difficult to interpret (Vemula et al., 2014). It highlights the need for simplified, culturally relevant communication tools.

The government also lays restrictions beyond pricing and packagin, including restrictions on advertising and marketing of UPFs and beverages (Dubois et al., 2018; Mallarino et al., 2013). In terms of marketing restrictions, The Gazette Notification for 2020 prohibits the sale and advertising of HFSS foods in and around school premises including hostels and kitchens within a 50-meter radius. It also mandates that advertisements should not undermine healthy lifestyles (FSSAI, 2020). Despite their progressive intent, these restrictions encounter enforcement difficulties and haven't shown any significant changes in behaviour at the population level.

Recognizing the need for behavioural change, the Government of India has launched several public awareness campaigns such as the Eat Right India movement Poshan Abhiyaan, the Fit India Movement, Khelo India. These public awareness programmes play a vital role in preventing obesity and promoting healthier lifestyles by educating people about nutrition, physical activity and the associated risks of poor diet but their reach, consistency and long-term effects on behaviour still remain a challenge. According to WHO (2024a), mass media campaigns are one of the most effective tools to prevent and control non-communicable diseases (NCDs). However, for these programmes to be successful, they must be sustained, culturally relevant, easy to understand and accessible to people across different regions and literacy levels (Bassi et al., 2024). In conclusion, obesity in India is the result of an interaction between host vulnerabilities (such as genetics, lifestyle); an obesogenic environment (characterised by urbanization, poor regulation); and vectors (including unhealthy, high-calorie foods and drinks). Effective intervention requires multi-level action targeting individual behaviour, systemic changes in the environment and regulation of food vectors.

**6. Conclusion and Way Forward**

India’s nutritional landscape is undergoing a transition marked by the coexistence of undernutrition, micronutrient deficiencies and a rapidly growing burden of overweight and obesity. This emerging pattern places the country far from achieving Sustainable Development Goal 2. Obesity and overweight in India have emerged as a major public health challenge expanding rapidly across all age groups and socio-economic segments. NFHS-5 (2019–21) data clearly signals this rising trend as 24% of women, 23% of men and 3.4% of children under five are classified as overweight or obese. States such as Tamil Nadu, Punjab and Kerala now report obesity rates exceeding 38% among women pointing to a deeper structural issue across India's demography. Further, the economic cost of obesity is estimated to be substantial- around 1% of India’s GDP in 2019 and projected to rise to 2.5% by 2060, driven by increased healthcare expenditures and lost productivity.

Rising incidence of obesity in India is the result of a complex interplay of socio-economic, lifestyle and environmental factors. Rapid urbanisation, rising incomes and changing work patterns have led to reduced physical activity and increased reliance on sedentary occupations. At the same time, dietary habits have shifted away from traditional, nutrient-rich foods toward highly processed, calorie-dense products that are easily accessible and aggressively marketed, especially in urban areas. The widespread use of smartphones and growth of food delivery platforms have further intensified exposure to unhealthy food choices, particularly among the youth. Limited awareness of nutrition, shrinking open spaces for physical activity and weak regulatory controls over food advertising and labelling have also contributed to the obesogenic environment. Together, these factors have driven a lifestyle and food system transition that places large segments of India’s population across all age and income groups at greater risk of obesity and related non-communicable diseases.

While initiatives like Eat Right India movement, Poshan Abhiyaan, the Fit India Movement, Khelo India have laid important foundation, but overnutrition still remains peripheral, under-resourced and fragmented in implementation. Given India’s limited public health financing, the obesity challenge demands a far more urgent, integrated and context-sensitive response than ever before.

Way Forward: Giving this background, the study recommends that it is essential to adopt multi-sectoral, multi-level approach to address India’s evolving nutritional challenges. Government efforts must expand to include front-of-pack nutrition labelling, taxes on sugar-sweetened beverages, restrictions on junk food advertising and mandatory nutrition standards in schools and public institutions. Urban planning should be reoriented to promote physical activity through walkable neighbourhoods and accessible recreational spaces. Public health campaigns need to move beyond awareness to foster long-term behavioural change and nutrition literacy. It is important to the engage citizens not only as consumers so that they make healthier choices but also as producers revive traditional food systems like millet-based agriculture. The private sector must be held accountable for responsible production, labelling, and marketing practices.

In sum, tackling obesity in India is not merely a health concern but it is a developmental necessity. The rising burden of obesity, if left unaddressed, will compromise the country’s economic potential, social equity and human capital. An integrated approach across various sectors—health, education, agriculture and urban planning— is needed to address both undernutrition and obesity effectively to ensure that India’s growth trajectory is not undermined by a preventable epidemic.

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1. Among adults, overweight and obesity are classified using Body Mass Index (BMI), with a BMI above 25 indicating overweight and above 30 indicating obesity. For children under five, overweight is defined as weight-for-height greater than +2 standard deviations (SD) from the WHO Child Growth Standards median [↑](#footnote-ref-1)