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## Rising Obesity and its Relationship with Increasing Snack Foods Consumption in India

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## **Abstract**

India's recent National Family Health Survey (NFHS) shows that one-third of all Indians in the 15–49 years age group are overweight (BMI>23). Now, the number of overweight adults exceeds the number of underweight adults in the country. This is a public health crisis. Our analysis shows that after controlling for age, gender, wealth levels and place of residence, adults who are overweight are 5.5% more likely to have high blood sugar and 8.7% more likely to have high blood pressure. The number of overweight adults nearly doubled between 2005–06 and 2015–16 even when the average per capita calorie consumption declined from the levels already below the recommended daily allowance (RDA). The intake of most other nutrients, except fats, has also declined over the years resulting in the double burden of malnutrition. Nearly one-fourth of all Indian women who are overweight, also have iron deficiency.

Apart from declining levels of physical activity, rising consumption of calorie dense, but nutritionally poor snacks, could also be a reason for rising BMIs in India. We match the health data from NFHS with the consumption expenditure data from a large nationally representative survey of more than 0.1 million households that collected information on household intake of packaged and home-cooked snacks to map both snacking habits and high BMIs and explore correlations between them. While there is no tight link between incomes and calorie consumption, we find a strong correlation between household income and their expenditure on snacks. Like the incidence of high BMI, the share of snacks in the total food expenditure is higher in urban areas  $(15\,\%$  vs.  $9\,\%$ ) and it rises with the rising wealth levels. At the highest income levels (the top  $5\,\%$ ), expenditure on snacks is almost equal to the expenditure on cereals and cereal substitutes. Snacks can often replace healthy foods, but in Indian households, snacking is positively and significantly correlated with the expenditure on fresh fruits and vegetables.

**Keywords:** Double-burden of malnutrition, high BMI, India, non-communicable diseases, obesity, snacking, unhealthy foods

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