

HYPERTENSION: A TICKING TIME BOMB IN INDIAN ADOLESCENTS

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“Indian adolescents aged between 10-12 years have hypertension prevalence of 35%, while in those above 13 years, the prevalence is 25%,” a study has found. | Photo Credit: Reuters

High blood pressure is already a problem of great magnitude in India. The Indian National Health Portal reports that 30% of adult Indians have elevated blood pressure — a little higher in urban (34%) compared with rural (28%) areas. High blood pressure is relatively silent, with grave consequences, as it is a major cause of cardiovascular diseases, including stroke. The best way forward is prevention, especially starting in childhood.

Our paper (with Anil Vasudevan as the first author) published recently in *JAMA Network Open* reports that Indian adolescents aged between 10-12 years have hypertension prevalence of 35%, while in those above 13 years, the prevalence is 25%. This is roughly the same in urban and rural areas; for younger children, the prevalence is even higher than in adults.

Effectively, high blood pressure is occurring in one in three or four children, and this is much higher than earlier estimates of about 7%. Even factoring for the somewhat higher estimates derived from a single survey, there is enough signal that hypertension in adolescents is much more widely prevalent than previously thought and bodes ill for the next generation of adults.

The figures are robust and believable, coming as they do from a national survey called the Comprehensive National Nutrition Survey (CNNS), which used a statistically appropriate method to sample adolescents without illnesses, aged 10-19 years, across all States and Union Territories.

Blood pressure was measured rigorously, and high blood pressure was defined based on the mean of second and third readings as per the 2017 American Academy of Pediatrics cut-offs, as height-adjusted blood pressure above the 95th percentile below 13 years and greater than 130/80 mm Hg in older adolescents.

Hypertension is often clustered with other cardio-metabolic risk factors including overweight and obesity. Adolescents with high fasting blood glucose, hemoglobin A1c, serum triglyceride and LDL cholesterol levels also have a greater risk of high blood pressure.

But there is also a deeply unsettling and counter-intuitive pattern of the occurrence of

hypertension in Indian children. The notion that this is associated with affluence, which will not occur in undernourished children stands firmly dispelled. In fact, elevated blood pressure is more prevalent in poorer than the richest category and occurs with similar frequency in rural and urban areas. Its prevalence in younger stunted adolescents is as high as 40% compared with 34% in those not stunted.

The prevalence in thin/underweight adolescents is also high (32% in younger and 22% in older adolescents). We now need to come to terms with the combined presence of diseases of overnutrition in undernourished adolescents, or the intra-individual of double burden of malnutrition.

So, why is this happening in Indian children, and why is this happening across the board, even in undernourished adolescents, in rural areas, and among the poor? Higher prevalence of high blood pressure in rural areas may be attributable to rapid urbanisation, resulting in altered dietary habits, more screen time and a lower level of habitual physical activity. One causative factor that is relevant in India today is the explosion of ready-to-eat (ultra) processed foods and snacks, which depend on a high salt and sugar content to mask off-flavors that occur during the processing, and to increase shelf life and induce hyper-palatability.

These have penetrated rural areas and schools deeply. Chhattisgarh, Odisha, Telangana, Andhra Pradesh, Manipur, Mizoram, Tripura, and Nagaland have higher hypertension prevalence (over 35%) compared with the rest of India. Data from the NSSO survey of 2011-12 show that the highest salt-consuming regions are these States, with a per-capita intake of over 9 grams/day, while the median intake for India is about 8 grams/day.

There is a need now to think ahead: a need to screen and identify adolescents with hypertension; preventive interventions to control the burden of hypertension and its consequences in India; and a need to assess high blood pressure at even younger ages. This is important as many people with hypertension, particularly in India, are not aware of their disease and the detection, treatment, and control of it should be an urgent health priority.

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