

Dietary Salt Intake Must be Restricted for Indians Irrespective of their Salt Preference and Sensitivity

G. K. Pal^{1,*}, Nivedita Nanda²

Excess dietary sodium (Na) or salt is associated with 17–30% of hypertension globally. Hypertension is one of the top ten risk factors for mortality and cardiovascular disease (CVD) worldwide. In India, hypertension contributes to about 10% mortalities and is responsible for 37% and 24% of stroke and CHD deaths, respectively.^[1] Reports suggest that one in four in urban India and one in five in rural India among the adults have hypertension.^[2] Excess dietary salt intake is an important modifiable risk factor for hypertension. Compared with those consuming ≥ 2 g Na/d, adults consuming < 2 g Na/d had a 3.5 mmHg lower mean systolic blood pressure (SBP) and 1.8 mmHg lower mean diastolic blood pressure (DBP).^[3] Nevertheless, salt intake around the world ranges from 6.0 to 11.8 g/d, which is far in excess of the recommended levels. The WHO recommends a daily Na intake of < 2 g, or < 5 g salt/d, for adults.^[4] The current salt intake among Indian adults is far higher than the recommended level.^[5]

Indians have been taking much more salt as against the 5 gm per day limit recommended by WHO, as reported by the Public Health Foundation of India (PHFI). The studies have reported that salt intake in Delhi and Haryana was 9.5 gms per day and 10.4 gms per day in Andhra Pradesh. Although it is permissible to have high salty foods occasionally while attending parties, it should not be a regular dietary habit. If high intakes of salt are a regular feature in the diet, that could be harmful to human health. The diet plays a significant role in managing the individual's blood pressure and cardiovascular health. Diet for a high blood pressure patient should be low on sodium, and a good mix of fibre-rich fruits, whole grains and veggies. Indians should be aware of the fact that the dangers of excessive salt intake are modifying their diets unlike other international communities like Australians who are sticking to high-salt foods though they are aware of its effects. Indians consume 9% more salt than the global average of 10.06 gm.

Claire Johnson, a research fellow with The George Institute for Global Health, Australia, led an India-centric study on salt, which included a cross-section of 1,395 respondents across India. The global average salt intake is estimated to be 10.8 grams per day, more than double the WHO recommendation of less than 5 grams of salt per day (one teaspoon).

Eating too much salt makes it the top risk factor for diet and nutrition-related deaths. The long-term effects of eating too much salt raise the chances of cardiomegaly (enlarged heart muscle), chronic headaches, heart failure, high blood pressure, kidney disease, kidney stones, osteoporosis, stomach cancer, and stroke.

Based on the large body of evidence demonstrating the adverse health effects of excess sodium intake, numerous public health organizations and authoritative scientific bodies recommend dietary sodium reduction.^[6] In 2013, the Institute of Medicine convened an expert panel “to examine the designs, methodologies, and conclusions of emerging” scientific evidence on sodium and health outcomes.^[7] The report of the committee indicated a positive relation between higher sodium intake and risk of cardiovascular disease (CVD) outcomes (including stroke, CVD mortality, and all-cause mortality).

The World Health Organization recommends salt reduction as a cost-effective intervention to prevent non-communicable diseases. Salt-reduction interventions are best tailored to the local context, taking into consideration the varying baseline salt-intake levels, population's knowledge, attitude, and behaviours. Fundamental to reduction programs is the source of dietary salt-intake. In South Asian countries, there is a paucity of such baseline evidence around factors that contribute to community salt intake. Information on the current salt reduction strategies in eight South Asian countries were summarized, namely Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.^[8] The primary result revealed that mean salt intake of South Asian countries was approximately twice (10 g/day) compared to WHO recommended intake (< 5 g/day). The significant proportion of salt intake is derived from salt additions during cooking and/or discretionary use at table. While salt reduction initiatives have been proposed in South Asian countries, they are yet to be fully implemented and evaluated. Proven salt reduction strategies in high-income countries could possibly be replicated in South Asian countries; however, further community-health promotion studies are necessary to test the effectiveness and scalability of those strategies in the local context.

G. K. Pal^{1,*}, Nivedita Nanda²

¹Editor-in-Chief, IJCEP, and Executive Director, AIIMS Patna, Bihar, INDIA.

²Editor (Metabolic and Endocrine Physiology Section), IJCEP, and Additional Professor of Biochemistry, JIPMER, Puducherry, INDIA.

*Correspondence

Dr. G. K. Pal

Editor-in-Chief, IJCEP, and Executive Director, AIIMS Patna, Bihar – 801507, INDIA.

Email: drgkpal@gmail.com

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CVD and hypertension pose significant challenges in Indian subcontinent due primarily to four factors. 1) CVD has emerged as the primary cause of morbidity and mortality in India. In last 25 years, CVD mortality rate adjusted for age has risen by 31% and hypertension has been identified as leading risk factor for CVD-associated mortality. 2) In younger population, hypertension is more prevalent in males compared to females, and hypertension is more common in southern states and Punjab and Uttarakhand in north. 3) Prehypertension, which remains usually undetected for a longer period is associated with CVD morbidities and mortalities, and reports suggest 38.5% women and 49.2% men have prehypertension, in Indian population. 4) The 2020 Health Survey report indicates 32.1% of deaths are linked to cardiovascular problems. One of the major modifiable known risk factors for CVD including hypertension is more salt intake. South Asians, especially Indians have the habit of eating more salts. Daily average salt intake is about 11 grams, which is more than the double the amount of prescribed salt intake for Indians.

Salt has been known to cause water retention and increase in body fluid volume, which consequently increases the blood volume and blood pressure. Increased salt intake causes myopathy and muscle wasting. Excess salt intake is known to be an established factor for increased blood pressure and cardiomyopathies. It has been recently reported that Indians have not only more preference for salt but also, they are more sensitive to salt. Salt sensitivity is the more proneness of the body to salt-induced dysfunction even at lesser levels of salt intake. Especially, salt sensitivity is a major cause of increased sympathetic tone, which is a primary pathophysiological mechanism for vasoconstriction that increases blood pressure.^[9] It has also been reported that preference for salt causes sympathovagal imbalance that results in prehypertension, and cardiovascular problems in prehypertension is comparable to that of hypertension.^[10,11] Though it is difficult to identify salt sensitivity of an individual, in general Indians are more sensitive to salt irrespective of their salt preference. Therefore, it is imperative to reduce salt intake in the general Indian population regardless of their preference and sensitivity to salt.

Key elements of successful dietary salt reduction strategies include public education, people-friendly food labelling, reformulation of processed foods and taxation.^[12] For example, Finland has witnessed a one-third decrease in the average salt intake in the past three decades after implementing strategies such as warning labels on high-salt foods, public education, food procurement policies with Na standards and voluntary guidelines for limiting Na in foods. These efforts along with other risk reduction measures have led to a more than 10 mmHg fall in mean population SBP and DBP, as well as a 75–80 % decrease in both stroke and CHD mortality. Further, salt reduction interventions are low-cost measures.

As the science of dietary sodium reduction evolves, monitoring and evaluating salt intake and its related health issues can increase our understanding of the reported health benefits and risks and drive directions for future research. Nevertheless, doctors, nurses and healthcare workers should be oriented to motivate patients at risk of hypertension and CVD to cut down their salt intake. Also, public awareness programs should be conducted to ensure the reduction of salt intake in Indian population. Prevention is always better than treatment and cure.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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