

sleep deprivation on health is deep and extensive. Daytime sleepiness in adults can lead to reduced productivity. Sleep deprived people are less effective in making quality decisions and are more likely to experience distress,⁶ develop obesity and are more likely to get coronary heart disease.⁷

Drowsy drivers can cause fatal accidents.⁸ Insufficient sleep in schoolchildren hampers their mood significantly,⁹ and causes daytime behavioural impairments.¹⁰ Even a small amount of sleep loss produces measurable outcomes. For example, if only 5 hours of sleep is provided for 4 consecutive nights, it impairs task performance to the same degree as a blood alcohol level of 0.6%.¹¹ First, awareness about sleep disorders is abysmally low in the country, which affects treatment-seeking behaviour. Second, any intervention in this area will lead to a large impact. We recommend a national sleep policy to address the following aspects.

1. Increase in awareness of the general public regarding importance of sleep in health and disease by creation of a comprehensive plan for dissemination of information using mass communication and through public lectures. The adverse effect of electronic devices on sleep, including the harmful effect of blue light on circadian rhythm must be highlighted.
2. Establishment of a regulatory body to determine adequate work hours.¹² Strict guidelines to be created, especially for shift workers in surface transport and aviation industries, hospitals, armed forces, law enforcement and every sector that needs shift work. There should be a provision for deterrence.
3. The perils of drowsy driving must be elucidated for the public. A module on drowsy driving may be made mandatory before a driving licence is issued. The continuous driving time should be subjected to regulation as well as maximum time on wheels in a defined period of time should be fixed.
4. Training of healthcare personnel must be ensured, particularly in primary health centres, to ensure early identification of sleep-related disorders and referral to higher centres for management. Subsidized professional and technical education on sleep should be provided in government institutions.
5. The priming of medical students towards importance of sleep must begin early, i.e. during training years. This calls for inclusion of sleep medicine-related curricula in undergraduate and postgraduate medical courses.
6. The availability of good quality equipment related to diagnosis and treatment of sleep disorders must be ensured. To meet this end, higher depreciation in equipment related to sleep medicine, and tax incentives for import of equipment should be provided.¹² Establishment of sleep centres must be facilitated, which may include initiatives such as provision of tax rebate. Insurance companies must provide coverage for diagnosis and treatment of sleep disorders.
7. An expert body should be established to identify key areas for sleep research for India. Setting 5 and 20 years' goals in public health is important. Increase in government-sponsored research funding in sleep in both public and private sectors is required.

Conflicts of interest. Professor Hrudananda Mallick is President of the Indian Society for Sleep Research and President of Asian Society of Sleep Research.

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Salt-restriction and adequate iodine consumption: Dual burden or twin-opportunity?

Iodine deficiency disorders (IDD) have been identified as one of the top micronutrient deficiencies. India's National Iodine Deficiency Disorder (IDD) Control Programme has been successful in achieving the optimal median urinary iodine concentration (mUIC) in the population at the national and zonal levels.¹

The epidemiological transition ratio ranges from 0.16 to 0.74, across the states of India,² which signifies the shift in pattern from communicable to non-communicable diseases (NCDs). With the launch of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), a comprehensive initiative to control NCDs has been taken by India. India is at a turning point where the iodine adequacy must be interpreted in the background of the global target of 30% relative reduction in mean population intake of salt/sodium by 2025,³ the major vehicle of iodine in India.

Paradox or two sides of the same coin?

High salt intake has been associated with increased risk of cardiovascular diseases (CVDs).^{3,4} At the same time, salt has been universally accepted and promoted as a vehicle for iodine delivery to the masses in many countries including India.^{5,6} The iodization level of 20–40 mg/kg in salt at production, the standards prescribed worldwide, is based on an average salt intake of 10 g/day at the population level, which may have changed. The Food Safety and Standards Authority of India (FSSAI) mandates an iodine concentration of >15 ppm in salt at the distribution level. The mUIC

of the Indian population was found to be optimal in the range of 128.6–204.0 µg/L, with an average salt intake of 11.9 g/day.¹ However, when we work towards honouring our commitments in the global targets for the prevention and control of NCDs, which will be a major boost for tackling the emerging burden of NCDs in India,² 30% reduction of salt consumption will reduce salt intake to 8.3 g/day, by 2025. The above shift will cause a decrease in the iodine intake through salt, and iodine deficiency.⁷ Hence, we face two paradoxical problems—salt-restriction and iodine-adequacy that might have contradictory solutions. However, they need not necessarily be contradicting. The objectives of iodine adequacy and salt restrictions are compatible and can coexist.⁶

The twain shall meet: Paradigm shift

At the national level, close collaboration between the salt-iodization and salt-reduction programmes is required so that their aims are congruent and not contradictory.⁸ Integration at all possible levels and pooling in resources from various programmes involved in IDD control, NCD prevention and maternal health, can be worked out.⁶ Iodine concentration in salt during fortification can be titrated according to the levels of salt intake and mUIC of the population.⁶

Policy-making

Achieving the goal of salt reduction and IDD elimination will require bringing together a multidisciplinary team of experts in health and other fields including public health (treatment and prevention), law, advertising, behavioural psychology, economics, behavioural economics, commerce and trade and political science.⁶ Policies on food industries must include the mandatory use of adequately iodized and a reduced, uniform quantity of salt in processed food across the country.^{5,6}

Communication and advocacy

Potentially conflicting messages from the health sector, for example, 'eat salt to ensure you get adequate intake of iodine'; 'reduce salt to prevent CVDs', must be avoided. Better, apt, common and crisp messages, imbibing both salt restriction and iodine adequacy, such as 'Low but iodized salt', 'Little salt, but all iodized' in multiple languages must be created and disseminated at the consumer level.⁶ Under 'The Eat Right' Movement, the Food Safety and Standards Authority of India (FSSAI) has asked food manufacturers to voluntarily reduce the content of salt in products and implement mandatory labelling of contents on food packets.⁹

Monitoring and surveillance

The data available from the current monitoring and assessment surveys of IDs and its programme are neither representative nor in line with the guidelines of WHO.¹⁰ Community level iodine surveys can be incorporated as a part of surveys such as the National Family Health Survey, to be nationally representative and economically viable. Pregnant women's mUIC and urine sodium levels can be evaluated by utilizing the ANC clinics at the primary health centres (PHCs) and tertiary care hospitals.

The proportion of iodine in the diet contributed by various sources other than salt, becomes relevant as the mUIC has been found to be adequate even among households consuming non-iodized salt.¹ Hence, monitoring of iodine intake from sources other than salt must be done.¹¹ The association between reduced salt intake, adequately iodized salt and mUIC must be researched further, as studies and surveys have shown that even with restricted levels of salt intake, i.e. <5 g/day, and inadequately iodized salt consumption, subjects were iodine sufficient.^{1,7,11}

Alternative vehicles for iodine fortification and special groups

It is important to recognize specific population groups (e.g. pregnant women and lactating women) require higher iodine intake than others

and hence may need to be targeted in other ways for the adequate consumption of iodine such as potassium iodide tablets and iodized oil. In addition to strengthening the salt iodization programme, it is essential to look for additional vehicles and modalities to deliver iodine.

Conclusion

Salt-restriction is feasible and can be effective in combination with salt-iodization. The initiatives on control of NCDs, which will occupy the centre-stage in India in the coming days, should tag along the compatible and vital public health campaign of IDD control. The integration of the strategies must be prioritized to reap the twin benefits in IDD and NCD control.

Conflicts of interest. None declared

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Appropriate terminology

I read with interest the editorial on 'Falls research is coming of age' by Ashish Goel.¹ It is a thoughtful, thought-provoking and elegant exposition of the importance of research on falls in India. However, I must take issue with one aspect of the article. Goel's use of the term 'inmates' to describe older persons living in long-term residential facilities is wrong and de-humanizes the very group he seeks to