

**Iodine Content of Salt Consumed
and Iodine Status of School
Children in Delhi**

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Iodine deficiency is a public health problem in the National Capital Territory of Delhi(1). Since 1989, the State Government has banned the sale of non-iodized salt for edible purposes. The present study was conducted to assess the iodine content of salt consumed and the iodine status amongst school children in urban, rural and urban slum areas of Delhi.

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Subjects and Methods

One school each from urban, rural and urban slum areas of the National Capital Territory of Delhi was selected by purposive sampling, keeping in view the operational feasibility. In the urban area, a public school and from the rural and urban slum areas one government school each was selected. School children between 8-10 years of age were enrolled. The children were briefed about the study objectives and asked to bring about 20g of salt which was being routinely consumed by their families in autoseal polythene pouches. Casual urine samples were collected in screw capped plastic bottles for the assessment of urinary iodine excretion (UIE) levels. These samples were refrigerated till analysis. The iodine content of the salt samples was estimated by the standard iodometric titration method(2). The standard alkaline ashing method was used to estimate the UIE levels(2,3).

Results

A total of 1607 salt samples were collected from an equal number of the school children's families. Of these, 763 (47.48%) belonged to urban families, 546 (34%) to rural and 298 (18.5%) to urban slum families.

All the urban families consumed powdered salt. Nearly 17% of them consumed salt with an iodine content of less than 15 ppm. Further 91.2% and 8.8% of rural families consumed powdered and

crystalline salt, respectively. Forty one per cent and ninety four per cent of the powdered and crystalline salt samples had an iodine content of less than 15 ppm, respectively.

In the urban slums, out of 226 families using powdered salt, nearly 65% consumed salt with an iodine content of less than 15 ppm. Of the families consuming crystalline salt, 96% consumed salt with an iodine content of less than 15 ppm.

The distribution of school children according to urinary iodine levels revealed that 95, 69.8 and 64.4% of the children from urban, rural and urban slum areas, respectively had UIE levels of more than 10 mcg/ dl. It was found that 3 and 13.5% of children in the rural and urban slums, respectively had moderate degree of iodine deficiency as indicated by the urinary iodine excretion levels between 2.0 to 4.9 mcg/dl. The median urinary iodine excretion levels in children from urban, rural and urban slums were 25.0, 14.0 and 14.0 mcg/dl, respectively.

Discussion

The present study revealed that nearly 34% of the families in urban, rural and urban slum areas consumed salt with less than 15 ppm of iodine. Evaluation studies conducted earlier also revealed the need of strengthening the system of monitoring the quality of salt(4). The findings of this study highlight a need for strict enforcement of the ban on the sale of

salt with less than 15 ppm of iodine which is the stipulated level of iodine in salt at the consumer level.

It was also found that a higher percentage of crystalline salt samples had an iodine content of less than 15 ppm indicating the possibility of inadequate iodization of this variety of salt or losses of iodine from it during storage and transportation at different points of procurement and distribution.

The study also revealed that the iodine status was poor amongst urban slum and rural children as compared to urban well-to-do. This was possibly due to the fact that a higher percentage of families from the urban slum and rural areas were consuming salt with inadequate iodine content.

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