

Outreach of Iodised Salt in Rural Households of Assam

S.K. Sharma, P.K. Chelleng, R.K. Phukan and D. Hazarika

Regional Medical Research Centre, N.E. Region (ICMR), Dibrugarh 786 001, Assam, India

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ABSTRACT The outreach of iodised salt in rural households of Geleky PHC, Assam was evaluated. Analysis of 320 salt samples obtained from 10 settlements, selected randomly on the basis of proportional representation of the population, indicate poor outreach of iodised salt. Adequate outreach of the iodised salt was found to be only 23.8%. Results indicate the need for midcourse correction in order to prevent the problem of Iodine Deficiency Disorder (IDD) in the state.

INTRODUCTION

Iodine Deficiency Disorders (IDD) are recognised as a major public health problem caused primarily by the environmental deficiency of iodine in soil (Hatzle, 1987). About 150 µg of iodine is the Required Daily Allowance (RDA) for a normal individual. Considering the low bioavailability of the iodine in environmental iodine deficient belts, Central Council of Health in 1984 recommended for universal iodisation of salt in India and salt iodisation programme commenced from 1986 in a phased manner. Fortification of the common salt with 15 ppm of iodine, at consumer level, ensures supplementation of the Required Daily Allowances (RDA).

High prevalence of goitre was reported from the North-Eastern state of Assam and Dibrugarh district was reported to have 65.8% goitre prevalence (Agarwal et al., 1983; ICMR, 1989). The state government of Assam has banned the entry of the non-iodised salt to the state under the provision of the PFA act of 1954. In order to evaluate the outreach of iodised salt, at consumer level, a study was conducted in rural households of Geleky PHC, a riverine and foothill zone of Assam.

MATERIALS AND METHODS

The sampling units for this study were the rural households of the Geleky PHC of

Sibsagarh district, Assam, a foothill and riverine zone of river Dikhow. The 193 settlements of the PHC was stratified in four strata according to the population size *i.e.*, <500, 500–1000, 1000–2000 and >2000. Ten settlements, covering a population of about 9600, were selected randomly according to the proportional representation of the population. The selected units from each strata had about 4–5% of the total population of the stratum and the ten selected settlements represent 4.2% of the total 2.25 lakh population of the Geleky PHC.

About 75–100 g of salt samples were collected preferably from every 4th household of the study area in order to represent the entire Geleky PHC. A total of 320 salt samples were obtained from these 10 randomly selected settlements. The iodine content of the salt samples were estimated by standard volumetric method (Karmarkar et al., 1989). The iodine present in the salt samples was liberated by the addition of Sulfuric acid. The liberated iodine is trapped and finally titrated against 0.005 N Sodium thiosulphate. Starch was used as an external indicator and the values were worked out in ppm.

The iodine contents of the salt samples were arranged in 5 ppm class intervals resulting into seven broad levels of iodine status. The percentage and cumulative percentage frequencies were calculated. Salt samples

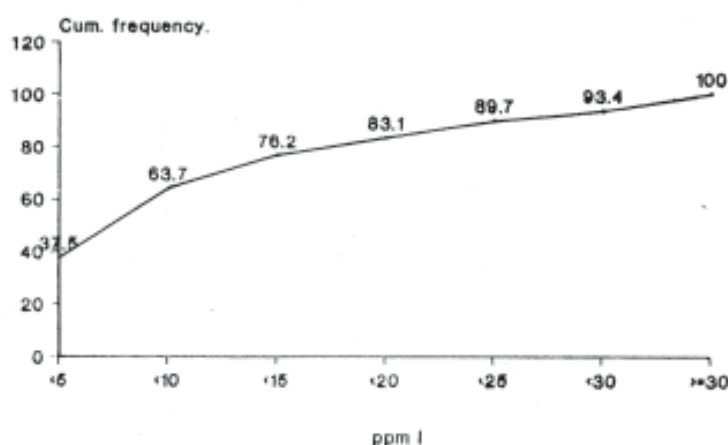


Fig. 1. Iodine content of the salt sample of Geleky PHC, Assam

possessing less than 15 ppm iodine were considered as inadequate supplementation.

In order to obtain an idea about the consumption of the salt types, *i.e.* packed or loose, in the rural households, the response of the housewives regarding the preference of the salt types were also recorded. A total of 332 households of 10 randomly selected settlements were interviewed for this purpose.

Table 1 : Iodine content of the salt samples obtained from rural households of Geleky PHC area, Assam

Iodine levels ppm	N	%	Cumulative % frequency
0-4.99	120	37.5	21.1
5-9.99	84	26.2	63.7
10-14.99	40	12.5	76.2
15-19.99	22	6.9	83.1
20-24.99	21	6.6	89.7
25-29.99	12	3.7	93.4
>=30.00	21	6.6	100.0
Total	320	100.0	

Table 2 : Preference of salt types by the rural household of Geleky PHC, Assam

	Salt Types			Total
	Packed	Loose	Both	
N	93	141	98	332
%	28.0	42.5	29.5	100.0

RESULTS AND DISCUSSION

The results of the iodine content of the salt samples obtained from the rural households of Geleky PHC area indicate wide variation in their iodine content (Table 1 and Fig. 1). The mean iodine level of the 320 salt samples was found to be 10.78 ± 0.58 (SE). As much as two-thirds (63.7%) of the salt samples analysed were found to possess <10 ppm of iodine. The presence of <15 ppm of iodine was recorded in 76.2% of the salt samples. Only 23.8% of the salt samples analysed had adequate iodine to prevent IDD.

Table 2 represents the responses of the housewives of the study areas regarding the consumption of different salt types. It was observed that 28% of the households prefers the packed variety of salt. While the majority of the population (42.5%) preferred loose salt. Depending upon availability, the remaining 29.5% of the population opt for both the varieties of salt.

The preference of loose varieties of salt by the majority of the population of the rural households of Geleky was due to (i) the cost factor, (ii) and the fact that loose salt can be used both for the human as well as for cattle and (iii) the housewives find the use of loose salt in proper proportions convenient.

The entry of non-iodised salt is banned in the state of Assam, under the provision of the PFA act 1954, due to the high prevalence of goitre and also due to the geographic location of the state in an environmental iodine deficient zone, i.e. the Sub-Himalayan region, since 1989.

The goitre control programme was successful in Brazil by distributing regularly monitored iodised salt, where more than 90% of the salt samples were between 10 to 30 ppm level of iodine (Medeiros-Neto, 1988). However, in the rural households of Geleky it was observed that only 36.3% of the salt samples possess more than 10 ppm level of iodine. The presence of only 23.8% salt samples with adequate iodine indicates poor outreach of iodised salt. The adequacy status of the salt samples of Geleky was found to be lower in comparison to the salt samples obtained from semi-urban and urban settlements of Assam (Sharma et al., 1992). In the said study, 4% of the loose and about 58.21% of the packed samples were found to possess adequate iodine content, with an overall adequacy of 35.04%.

Poor supplementation of iodine in the salt samples in the present study may be correlated with the environmental factors. The state experiences high humidity, heavy rainfall, and the problems encountered during transportation and storage, etc. may be the major denominator for iodine drain out from the iodised salt. The leaching of iodine from iodised salt on storage and transportation was reported earlier (Ranganathan et al., 1986). Therefore, the need for the distribution of regularly monitored iodised salt is felt neces-

ary in order to prevent the problem of IDD in the state.

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