



A STUDY ON THE KNOWLEDGE AND PRACTICE OF USE OF IODIZED SALT AMONG THE SLUM DWELLERS OF GUWAHATI CITY, ASSAM.

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ABSTRACT

Background: Iodine is considered to be one of the most essential micronutrient for the normal physical and mental development of human being. Globally, India has the largest number of children born vulnerable to iodine deficiency

Aims: The present study was conducted to assess the knowledge and practices of use of iodized salt among the slum population of Guwahati City, Assam

Settings and Design: Cross sectional study was conducted among 400 households of slum area of Guwahati City, Assam. Materials and Methods: A pretested and pre designed proforma was used for collection of information.

Results: It has been seen from the survey that among the households under study, 84.25% have heard about iodized salt. It has been found that television and radio (89.6%) have been the most effective source of information regarding iodized salt. In our study, 24.5% of respondents believe that every salt contains iodine.

Conclusions: Based on the observations we would like to come in a conclusion that people must be made aware of the importance of iodine in the diet to ensure physical & mental well-being, especially for expectant mothers and young children.

KEYWORDS : Iodine, knowledge, practice, iodized salt

Introduction:

Iodine is considered to be one of the most essential micronutrient for the normal physical and mental development of human being. Iodine deficiency is an ecological phenomenon and its disorders are some of the public health problems that confront 118 countries worldwide and approximately 2 billion people are at risk of preventable Iodine Deficiency Disorders (IDDs). Nearly 266 million school going children worldwide have insufficient iodine intake. Of the 130 countries which reported data for IDD in 2006, IDD was a public health problem in 47 of them. The vulnerable groups particularly at risk include pregnant women, infants and children.¹ Various studies have shown that iodine deficiency decreases the intellectual capacity of children and causes mental retardation, psychomotor defects and hearing and speech impairment. Serious iodine deficiency during pregnancy may result in still birth, abortions and congenital anomalies such as cretinism, goiter and impaired mental function.²

The iodine requirement is 150 micrograms per day for adults³. It is primarily obtained from food (90%) and the remaining from drinking water. The level of iodine in soil determines the level of its presence in water or food. The erosion of soil and deforestation is considered to be the reasons for the decrease in the iodine level in hilly and mountainous area.¹

Globally, India has the largest number of children born vulnerable to iodine deficiency. Surveys conducted by the Central and State Health Directorates, Indian Council Of Medical Research (ICMR) and medical institutes since 1950 have clearly demonstrated that IDD is a public health problem in all the states and union territories of India. Of the 325 districts surveyed so far, 263 districts are IDD endemic, i.e., the prevalence of IDD in these districts is more than 10% in the population.¹ So the present study was conducted to assess the knowledge and practices of use of iodized salt among the slum population of Guwahati City, Assam.

Materials and methods:

The study was a community based cross sectional study. The study

period was for 6 months from April 2017 to September 2017. Considering the prevalence and allowable error to be 50% and 5% respectively and using the formula $(4pq)/l^2$, the sample size was calculated to be 400 where p is the prevalence, q is (1-p) and l is the allowable error. There are a total of 97 slums in Guwahati City. Out of 97 slums of Guwahati city, 10 slums were selected purposely. From each slum 40 households were selected randomly. All the households which gave consent to participate in the study were included. Households where no adult members were found and which was found locked during the time of interview were excluded from the study. Each household were visited door to door and one adult member from each household preferably the head of the household were interviewed using a pretested and pre designed proforma. In case the households were found locked or no adult member was found, the next adjacent households were visited and interviewed. Data collected was entered in Microsoft Excel 2007 and analysed using the same. Households were visited and interviewed. Data collected was entered in Microsoft Excel 2007 and analysed using the same.

Results:

Table 1: Distribution of households according to the socio demographic characteristic of their primary respondents

Age	No of respondents (N=400)	Percentage (%)
Below 20	15	3.75
20-29	87	21.75
30-39	130	32.5
40-49	100	25
50-59	50	12.5
60 and above	18	4.5
Sex		
Male	216	54
Female	184	46
Educational status		
Graduate or Post graduate	30	7.5

Intermediate or Post high school Diploma	34	8.5
High school certificate	117	29.25
Middle school certificate	74	18.5
Primary school certificate	75	18.75
Illiterate	70	17.5
Occupation		
Semi-skilled worker	168	42
Unemployed	20	5
Unskilled Worker	72	18
Skilled Worker	96	24
Clerical, Shop-owner	38	9.5
Professional	2	0.5
Semi professional	4	1

Table 2: Distribution of households according to type of family and socio-economic status

Type of family	No of households (N=400)	Percentage (%)
Joint	150	37.5
Nuclear	250	62.5
Socio-economic status		
I- Upper	2	0.5
II- Upper Middle	46	11.5
III- Lower Middle	104	26
IV-Upper lower	219	54.75
V- Lower	29	7.25

Table 3: Distribution of households according to the knowledge of primary respondent about iodized salt:

Questions	Responses	No. of Households	Percentage (%)
Have you heard of iodized salt	Yes	337	84.25
	No	63	15.75
Source of information	Family	2	0.6
	Neighbour	21	6.2
	Radio/TV/Newspaper	302	89.6
	Social Media	4	1.2
	Health Worker	8	2.4
Whether iodine present in every salt	Yes	98	24.5
	No	176	44
	Do not know	126	31.5
Iodized salt availability in the locality	Yes	304	76
	No	5	2.25
	Do not know	91	23.75
Knowledge about health benefits of iodized salt	Yes	237	59.25
	No	24	6
	Do not know	139	34.75
Heard about iodine deficiency disease	Yes	89	22.25
	No	311	77.75
Heard of goiter	Yes	196	49
	No	204	51
If known that iodine deficiency causes mental retardation	Yes	74	18.5
	No	326	81.5
If known that iodine deficiency causes growth retardation	Yes	87	21.75
	No	313	78.25
Way of knowing	Brand name	246	61.5
	From the shopkeeper	32	8
	Mark on packet	41	10.25
Price of salt	Not sure	81	20.25
	Low	48	12
	Moderate	299	74.75
	High	53	13.25

Willingness to pay extra amount	Yes	320	80
	No	80	20
Knowledge that iodine content reduces when salt is not stored in closed container	Yes	51	12.75
	No	349	87.25

Table 4: Distribution of households as per the practice of use of iodized salt:

Sl no	Questions	Responses	No of households	Percentage (%)
1	Use of iodized salt	Yes	348	87
		Not sure	52	13
		Total	400	100
2	Duration of using iodized salt	<5 years	2	0.5
		5-10 years	37	9.25
		>10 years	324	81
		Cannot remember	37	9.25
3	Willingness to pay extra amount	Yes	320	80
		No	80	20
4	Storage of salt	Glass jar	68	17
		Plastic container	323	80.75
		Earthen pot	6	1.5
		Others	3	0.75
5	Time of adding salt while cooking	At the beginning	79	19.75
		In the middle	291	72.75
		Towards the end	30	7.5
6	How salt is taken out from container	Spoon	344	86
		Hand	46	11.5
		Any other object	10	2.5
7	Whether closes the container after use	Yes	336	84%
		No	64	16%

Discussion:

The study was conducted in slum area of Guwahati City. Among the households 62.5% were nuclear family. Of the respondents 7.5% were graduates or post graduates, 17.5% were illiterate, and the rest had studied up to primary, middle or high school. Of the respondents, 54% were male and the rest female. 25.5% of the respondents were under 30, while 70% were between the age of 30 to 60, and the remaining was above 60. 7 % of the families belonged to Lower (V), 81% Upper Lower (IV) or Lower Middle(III), 11% to Upper Middle(II) and 1% to Upper (I) socio economic classes.

It has been seen from the survey that among the households under study, 84.25% had heard about iodized salt. Some of the ones who had heard about it were not clear what it was. This finding is somewhat similar to the study done in Rani, Kamrup⁴ where it was found to be 90%. In other study in Shendi Locality, River Nile State, Sudan¹¹, 56% of the respondents have heard of iodine and in a similar study in Malawian households⁵, 61% of the respondents have heard of iodine.

It was found that television and radio (89.6%) have been the most effective source of information regarding iodized salt, followed by information from social media (1.2%) and information from friends and neighbours (6.2%). This result is found to be similar to the results found in studies in Albania⁹ (70%) and Ulaan Baatar, Mongolia⁷ where television remains the most powerful source of information. Whereas in the study done in Rani, Kamrup⁴, friends and neighbours (41.48%) was the primary source followed by television (27.40%) it is noticed in our study that a very negligible (2.4%) of the respondents have reported that health workers were their source of information in contrast to the study in Malawian households⁵ where it is 41.7%.

In our study, 24.5% of respondents believe that every salt contains iodine. 44% do not think every salt contains iodine. And the rest (31.5%) have responded that they do not know. This is dissimilar to the finding in Shendi Locality, River Nile State, Sudan¹¹ where 72% think that not all salts contain iodine.

According to 76% respondents, iodized salt is available in their locality, while only 2.25 % think that it is not available.

We have noted that 59.25% of the respondents think that iodized salt is beneficial to health as compared to 34.75 % who don't know and 6% who think iodine is not beneficial to health. Of the people who know that iodine is beneficial to health, most have only a vague idea of its utility in the body. 31% of the responders among them have given no specific ideas like 'good for health', 'prevents disease', 'good for immunity' etc. Only a negligible percentage of people have admitted to knowing that iodine is important for thyroid function. A similar study in Rani, Kamrup⁴ states that 70.67% respondents have indicated that the intake of iodized salt enables individuals to 'remain healthy'.

In our study, on asking whether they have heard about iodine deficiency disorders, 22.25% of the respondents have responded in the affirmative, in contrast to the 77.75% who claimed to have not heard. When they were questioned about their knowledge on the results of iodine deficiency, more respondents knew about goitre than any other consequence. Growth retardation followed by mental retardation was the least well known consequence. It has been observed that many of the population have given vague and miscellaneous answers like 'weakness', 'hypertension', 'cancer' as the results of iodine deficiency. It is dissimilar to the findings of studies in the Shendi locality, River Nile State, Sudan¹¹ (56%) and that in Ulaanbaatar⁷ (96%) regarding the percentage who have heard of iodine deficiency disorders. Similar study in North West Pakistan¹⁰ showed that 70% of the respondents believed goitre to be a result of iodine deficiency while 30% could comment that iodine deficiency leads to goitre as well as physical and mental retardation.

On being asked if they have heard about goitre, 51% have replied that they have not, while the remaining 49% have heard about it. Only a meager percentage of those who have heard of goitre have been able to associate it with iodine deficiency. Rather answers like 'infection' 'tumor' 'TB' have been received. In a similar study done in Albania⁹, around 35% women in the age group of 15 to 49 years never heard about any disorder called goitre. In another study done in Rani, Kamrup⁴ 74.6% of the respondents have been able to identify goitre as an iodine deficiency disorder.

In our study only 18.5% of the respondents said that they knew that iodine deficiency can cause mental retardation in children while 81.5% said that they did not know about it. Similarly only 21.75% of the respondents knew that iodine deficiency causes growth retardation while 78.25% did not know about it. In the study done in Rani, Kamrup⁴ 63.33% of the respondents agreed that iodine deficiency can lead to growth retardation particularly in children. Also majority (68%) of the respondents in Rani indicated that iodine deficiency can lead to mental retardation.

On being asked to name a few sources of the mineral nutrient iodine, majority (98.8%) have mentioned about fruits and vegetable. In the study done in Shendi locality, River Nile State, Sudan¹¹ 47% of the respondents have knowledge of food that contains iodine whereas 26% of respondents in North West Pakistan¹⁰ know about the sources of iodine.

According to our study, 87% respondents state that they use iodised salt and 13% are not sure whether their salt is iodised or not. This finding can be compared to the study in Rani, Kamrup⁴ (90%), and study in Kanpur, India⁸ (92%) which is somewhat similar and to the study in Ulaanbaatar, Mongolia⁷ (83%) which is very similar to our finding. Our finding is different from the findings in the studies carried out in Ghana¹³ and Malawian households⁵ (41%) where the

prevalence of use of iodised salt is very low.

It is found from our study that most of the respondents know that the salt they are using is iodised by the brand name (61.5%), and some (10.25%) know it from the mark on the packet. It is surprising to see that 20.25% of the respondents are not sure about how they know that their salt is iodised. 8% are sure their salt is iodised by information from the shopkeeper. Most common salt brand is Tata Salt followed by Annapurna Salt.

On being asked about the duration of using iodised salt, 81 % respondents have stated that they have been using it for more than 10 years and 9.25% have been using it for 5 to 10 years. Our finding is dissimilar to the finding in the study in Rani, Kamrup⁴ where 59.25% claim to have been using it for less than 5 years and only 2.96 % have used it for more than 16 years.

In our study, 100% of the households use only packed salt. In several other studies in this field there is use of both packed and loose salt like in Rani⁴ (6%), Kanpur⁸ (22.2%), Ghana¹³ (26.8%).

Majority of our respondents say that the price of iodised salt is moderate, whereas only 13.25% say it is high. This is in dissimilar to the findings in studies in Jig Jiga, Ethiopia⁶, North West Pakistan¹⁰ and Ulaanbaatar, Mongolia⁷, where majority of the respondents say the price of iodised salt is high.

In our study, we found that despite most of our respondents belonging to Lower, Upper Lower and Lower Middle socioeconomic classes, 80% are willing to pay extra amount for iodized salt.

80.75% of our respondents store salts in plastic container, 17% store it in glass jars, and 1.5% in earthen pots. This finding is dissimilar to the study in Kanpur⁸ where 47% store in glass containers, 32% in steel containers and 8% in earthen pots and also dissimilar to the study in Rani, Kamrup⁴ where 12% is stored in polythene packets and the rest in plastic containers.

Of all the respondents 84% close the container after use of salt. This is almost similar to the finding in the study in Rani, Kamrup⁴ (84.67%). It was found in our study that 16% don't close the lid of container after use which is almost similar to the finding in the study in Neelambur Panchayat, Coimbatore¹² (17.3%). Our finding is dissimilar to the finding in Malawian households⁵ (45.2%), Ghana¹³ (62%) and Jig Jiga⁶ (95%).

It is found in our study that only 12.75% are aware that the iodine content reduces when salt is not stored in a closed container. This is very dissimilar to the study in Rani, Kamrup⁴ where 56.2% know that iodine content is reduced when not stored in a closed container.

Conclusion:

Based on the observations we would like to come in a conclusion that people must be made aware of the importance of iodine in the diet to ensure physical & mental well-being, especially for expectant mothers and young children. Since mass media has been playing the most active role in spreading awareness regarding iodized salt, health organizations should more frequently use such means to disseminate information regarding importance of iodized salt and its proper use. The concerned authorities should also give behavioural change communication to the households to promote better storage practices. Active role of health workers by organizing awareness campaigns regarding importance and use of iodized salt will greatly strengthen the IDD control programmes. Special emphasis should be given on educating the population that mental retardation and growth retardation of young children are two serious consequences of iodine deficiency. Also, there is a need to educate the mass how to identify the logo on the packet in order to ensure that they are buying iodized salt.

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