

# Appraisal of the Knowledge & Practices about Iodized Salt amongst Housewives in Toba Tek Singh City and the Impact of Socio Economic Factors on Such Knowledge and Practices

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## ABSTRACT

**Objective:** To appraise the knowledge and practices about iodized salt amongst the housewives of city Toba Tek Singh and the impact of socio economic factors on such knowledge and practices –and- to determine the most appropriate method of mass campaign for iodized salt utilization.

**Study Design:** It was descriptive community based study, which was conducted by employing systematic random sampling technique.

**Place and duration of study:** The study was carried out in Union Council No.56 of Toba Tek Singh city during the month of May, 2008.

**Subjects and methods:** The study population was all the house wives of city Toba Tek Singh who prepare food for their families. 96 households were selected by systematic random sampling technique out of a list of 2264 households in Union Council No.56. The latter Union Council was selected out of three Union Councils constituting Toba Tek Singh City by simple random sampling technique. Chi square test was employed to test the significance of results. P value < 0.05 was considered significant.

**Results:** Out of 96, 91% housewives knew about iodized salt & 09% were ignorant about the same. 36% housewives used iodized salt and 64% did not use it. Out of non users, 79% did not use it due to high cost, 11% due to change of taste and 06% due to the fear that it interferes with reproduction & its relation with diseases. 76% illiterate housewives and almost 100% educated ones knew about iodized salt. Only 10% of illiterate and 44% of educated ones were using iodized salt, whereas 36% of them were promoting its use. 27% respondents falling within family income group <Rs.5000/-, 42% within that Rs.5000-10000 and 64% with that Rs. >10000 were using iodized salt. 85% housewives learnt about iodized salt through TV, 08% through healthcare providers, 06% through studies and 01% through newspaper.

**Conclusion:** Majority of housewives of Toba Tek Singh city knew about iodized salt and its deficiency disorders. Its utilization was only 36%. This can be increased by enhancing socioeconomic conditions and improving information, education and communication methodologies, because these variables have positive impact on the knowledge about iodized salt and its utilization.

**Key words:** Educational level, household, income, iodized salt, knowledge, practices,.

## INTRODUCTION

Iodine is an essential micronutrient. It is required for synthesis of thyroid hormones which are essential for normal growth and development of body especially of brain and control all metabolic processes. Adult body contains 50mg iodine and blood level is 8-12 ug/dl<sup>1</sup>. Iodine deficiency is the greatest single preventable cause of brain damage and mental retardation worldwide and is estimated to effect more than 700 million people, most of them located in less well developed countries<sup>2</sup>. Daily requirement of iodine for adults is about 150Mg / day. Experience has shown that iodization of edible salt is the most efficient, economical, convenient and effective method of providing this micronutrient. This strategy has been adopted by most of the countries where iodine

deficiency is a public health problem. In Pakistan, this programme was launched in 1994<sup>3</sup>. There is a great deal of variability of IDD in different regions of country<sup>4</sup>. In Iran, salt iodization programme was implemented in 1989 and it had managed to become IDD free country in 1998 by showing household utilization rate of more than 95%<sup>5</sup>. WHO recommended goal is more than 90% of iodized salt utilization at household level. Areas in which goitre rate in school children is more than 5% should be declared as endemic<sup>6</sup>. Sustained efforts must be undertaken to ensure 100% universal salt iodization at country level with frequent monitoring for iodine level<sup>7</sup>. International organizations like WHO, UNICEF and MI are collaborating with Government of Pakistan for virtual elimination of IDD. In addition,

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some local NGOs like Punjab Lok Sujag a Civic Society NGO with interest in public health are working for iodine deficiency alleviation in Depalpur through innovation and effective communication strategies using theatre and puppet shows. Similarly Jahanabad Society for Community Development Punjab is also working on elimination of IDD in district Chakwal<sup>8</sup>.

A survey done in 1996 involving 1244 families showed 19% iodized salt utilization, while 10% use occasionally and 70% never. Causes of non utilization were misconceptions like failure of reproduction (44%), high cost (26%) and 30% thought that it was of no use<sup>9</sup>. The actual availability of iodine from iodized salt at the consumer level can vary widely due to a number of factors including the variability in the amount of iodine added during production etc. The control of moisture in iodized salt throughout manufacture and distribution can be achieved by improved processing, better packaging and storage which is critical to stability of iodine<sup>10</sup>. Arhya proposes alternative programmes such as capsules of iodized oil, supplying iodine in animal feed for iodine rich meat or processing sea weed to produce fertilizers for agriculture<sup>11</sup>.

## METHODOLOGY

It was a community based descriptive study, conducted through cross sectional approach. All the housewives of Toba Tek Singh City, who prepare food for their families were the study universe –and- a housewife who prepares food for her family was the sampling unit. Sample size of 96 was calculated by using the formula  $SD^2 / SE^2 \times q/p$  ( $SD = 1.96$ ,  $SE = 0.2$ ,  $p=0.5$ ,  $q =0.5$ ). Toba Tek Singh City comprises three Union Councils and has a population of 77,000. Union Council No.56, containing **2264** households, was selected out of three Union Councils by simple random sampling technique. Out of **2264** households, **96** were selected in toto from the list. First household was selected from household No.1 to 23 ( $2264/96=23$ ) and so on by employing systematic random sampling technique. Data was collected on a preformed and pretested questionnaire containing ten questions on iodized salt. Consent of respondents was obtained before data collection and confidentiality was ensured. Data collected was analysed using Epi-info and Microsoft excel programme. Chi-Square test was applied between three qualitative variables: educational level and knowledge about iodized salt, educational level and iodized salt utilization rate and monthly family income and iodized salt utilization rate. P Value <0.05 was considered significant.

## RESULTS

Out of sample size of 96 housewives interviewed, 50 (52%) were in age bracket of 16-30 years, 34 [35%] in 31-45 years and 11(12%) in 46-60 years (Table-1). Only 02 were working women. As regards the knowledge of housewives about iodized salt, 87 (91%) knew about it and 09(9%) were ignorant (Table 2). 21(22%) respondents were illiterate, 52 (54%) had received education from primary to matric, whereas 23(24%) had college level education to their credit. 16(76%) illiterate housewives, 48(92%) with school level education and 23(100%) with college level education knew about iodized salt. Relationship between knowledge and educational level was found statistically significant ( $P=0.022$ ). 02(10%) illiterate, 19(37%) with school level education and 14(61%) with college level education were using iodized salt. This difference of knowledge due to educational level –and- relation between educational level and iodized salt utilization rate was found statistically significant ( $P=0.002$ ) (Table 3). 52(54%) respondents were in income group <Rs.5000/-, 33 (34%) in income group Rs.5000-10,000 and only 11(12%) belonged to income group >Rs.10,000. 27% with income <Rs.5000, 42% with income between Rs.5000-10000 and 64% with income >Rs.10000 were utilizing iodized salt. Impact of income on iodized salt utilization rate was found statistically significant ( $P=0.043$ ) (Table 4). 35(36%) housewives used iodized salt and 61 (64%) did not use it [Table-5]. Out of 61 non users, 48 (79%) did not use it due to high cost, 7(11%) due to change of taste and 04 (06%) due to the fear that it interferes with reproduction & its relation with diseases (Table 6). 35(36%) were promoting its use (Table 7). Out of 87 respondents having knowledge about iodized salt, 74(85%) learnt it through TV, 7(8%) through healthcare providers, 5(6%) through studies and 01(1%) through newspaper (Table-8).

Table-1: Frequency distribution of respondents according to age

Age Group	Frequency	% age
16-30 years	50	52
31-45 years	34	35
46-60 years	11	12
Total	96	100

Table-2: Frequency distribution of respondents according to knowledge about iodized salt

Knowledge About Iodized Salt	Frequency	% age
Yes	87	91
No	09	09
Total	96	100

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Table-3: Frequency distributions of respondents according to educational level and the impact of educational level on the knowledge about iodized salt & its utilization.

Educational Level	Frequency	Knowledge about iodized salt		Utilization of Iodized Salt	
		Yes	No	Yes	No
Illiterate	21(22%)	16(76%)	05(24%)	02(10%)	19(90%)
Primary to Matric	52(54%)	48(92%)	04(08%)	19(37%)	33(63%)
College Level	23(24%)	23(100%)	00	14(61%)	09(39%)
Total	96(100%)	87(91%)	09(09%)	35(36%)	61(64%)

Table-4: Frequency distributions of respondents according to monthly family income and the impact of income on utilization of iodized salt.

Monthly Family Income (Rs)	Frequency	Utilization of Iodized Salt	
		Yes	No
< 5000	52(54%)	14(27%)	38 (73%)
5000-10000	33(34%)	14(42%)	19 (58%)
> 10000	11(12%)	07(64%)	04 (36%)
Total	96(100%)	35(36%)	61 (64%)

Table-5: Frequency distributions of respondents according to the utilization / non-utilization of iodized salt

Utilization/Non-Utilization	Frequency	% age
Utilization	35	36
Non-utilization	61	64
Total:	96	100

Table 6: Reasons for non-utilization of iodized salt

Reasons for non-utilization	Frequency	%age
Non availability of iodized salt	02	03
Cost	48	79
Change of taste	07	11
Interferes with system	02	03
Fear of worsening existing disease	02	03
Total	61	100

Table 7: Frequency distributions of respondents on the basis of their role in promotion of iodized salt

Promotion/Non Promotion	Frequency	%age
Promotion	35	36
Non-promotion	61	

Table 8: Frequency distributions of respondents according to sources of information about iodized salt

Mode of Information	Frequency	%age
Television	74	85
Radio	00	00
Newspaper	01	01
During Study (Curriculum)	05	06
By Healthcare Provider	07	08
Total	87	100

**DISCUSSION**

Knowledge about iodized salt: 91% of respondent housewives knew about iodized salt and its significance. This might be due to the fact that education increases awareness about iodized salt and its benefits. This knowledge was found directly

proportional to the educational status and statistically significant (P=0.022). As per findings of National Nutritional Survey–2011, overall 64% housewives were aware of iodized salt, whereas knowledge of iodized salt was higher (83%) in urban areas than in rural areas (55%). Respondents from AJK (82%), Gilgit (79%) and Punjab (71.4%) had excellent awareness, but those in FATA (29.8%) and Balochistan (29.2%) were comparatively least aware about iodized salt<sup>12</sup>. It means the knowledge of masses in Pakistan is increasing day by day. As such, the knowledge of respondents (91%) about iodized salt was comparatively higher than overall knowledge at national level (64% housewives) and Punjab level (71% housewives).

Practices about iodized salt: In this study, only 36% housewives were using iodized salt. This iodized salt utilization rate is far low from WHO’s recommendations that more than 90% of households should utilize iodized salt to eliminate IDD<sup>6</sup>. Overall literacy/education rate in Pakistan is low, so utilization at household level is also low. However, the relationship between educational level and utilization of iodized salt in this study was found statistically significant (P=0.002). This statistical significance may be due to the fact that educated people have more awareness about iodized salt and its importance, and in our study sample 78% respondents had school and college level education to their credit. According to the findings of this study, utilization of iodized salt increased with increase in income. The relationship between income and iodized salt utilization was found statistically significant (P=0.043). This may be due to the fact that chunk of the respondents belonged to lower and lower middle class (88% with family income <Rs.10000). Overall iodized salt utilization rate in Toba Tek Singh city (36%) was higher than national utilization level of iodized salt, which is only 17% as given in Economic Survey of Pakistan 2005-06<sup>13</sup>. The findings of MICS (Multiple Indicators Cluster Survey)–1996 reveal that iodized salt utilization was 19% [8]. According to this survey, the utilization of iodized salt was 27% in urban areas and 11% in rural areas.<sup>14</sup> National Nutritional Survey of Pakistan–2011 portrays iodized salt utilization in Pakistan as 39.8% with considerable provincial / regional variation as Gilgit

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(95%), AJK (77%), FATA (14%) and Punjab (36%). The reported use of iodized salt was higher (46.5%) in urban than in rural area (35.2%)<sup>12</sup>. Only 36% of housewives were found promoting its use in this study.

**CONCLUSION**

The level of knowledge about iodized salt amongst the housewives in Toba Tek Singh City was high vis-a-vis low level of its utilization. This comparative low level of utilization may be attributed to price, non-availability, misconceptions and adverse propaganda about iodized salt. The demand creating campaigns which make extensive use of mass media such as Television can play a role in enhancing utilization rate of iodized salt at household level. Campaign like the hand and pot logo, a positive image showing salt being dropped into a cooking pot by a woman's hand emphasising healthy family, rather than the negative aspect of iodine deficiency disorders, has created a good impact in families. Besides, a range of other communication channels can be used to reach target audience, salt retailers, doctors, teachers and volunteers in remote villages. It is also recommended to improve awareness and knowledge about iodide, its deficiency disorders and acceptance and use of iodized salt at household level and to debate the strategies at national level. Additional chapter on major public health problems including IDD must be introduced in school syllabus. It should also contain the remedial measures like iodized salt utilization and prevention of IDD.

**REFERENCES**

1. Park K. Preventive and Social Medicine. Nutrition and Health. M/S Banarsidas Bhanot, Jabalpur (India) 2009;18: pp450-451.
2. WHO Technical Report Series 916: Diet, Nutrition and Prevention of Chronic Diseases. Geneva 2003.
3. Iodine Deficiency! A National Problem. Medical Spectrum, 16, 21-22, November 1995. p39.
4. IDD Prevalence and Control Data, Professional Medical Publication: 2002. pp12-14:
5. Devrage. Salt Debate; Taken With a Pinch of Iodine, Asia Time. 2008. p30
6. Rezeive R, Sadghipour HR, Sherafat KR, Sendi H, Dersksham M. Assessment of Urine Iodine in School Children From Urban and Rural Areas of Tehran 2001. Pak Journal of Medical Sciences, 2004; 20: pp131-136.
7. Akhtar T. Ullah Z. Piracha PI, Lutfullah G. Impact Assessment of Salt Iodization on the Prevalence of Goiter in District Swat. Pak Journal of Medical Sciences, 2004: pp12-14
8. Pakistan Coordinator, DFID Higher Education Link (Food and Nutrition), 2005: pp16-25.
9. IDD Newsletter, Vol 12, No.2, May 1996: p33
10. Diosady, LL, Mannar V. Stability of Iodine in Iodized Salt Used for Correction of Iodine Deficiency. Food and Nutrition Bulletin, 1997; 18: pp388-96
11. Arhya IN. Effects of Storage and Commonly Used Spices on Stability of Iodized Salt in Indonesia. Deptt of Biochemistry, Udayana University School of Medicine, Bali, Indonesia, 2004. p35.
12. National Nutrition Survey of Pakistan, 2011. Agha Khan University, Pakistan. PMRC, Nutrition Wing, Cabinet Division, Government of Pakistan, Islamabad. pp33-34.
13. Pakistan Economic Survey, 2005-06. Health and Nutrition: p185.
14. Khan AU, Ahmad M. Iodine Deficiency Disorders; Prevalence and Baseline KAP Survey Lahore: Institute of Public Health, 2002. p16.