



RESEARCH ARTICLE

SALT CONSUMPTION AND UTILIZATION PATTERN AT HOUSEHOLD LEVEL OF GONDA AND BARABANKI DISTRICTS OF EASTERN U.P.

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ABSTRACT

A study was conducted in Gonda and Barabanki districts of eastern U.P. regarding salt consumption and utilization pattern of selected households. Hundred households were selected from each block and surveyed through questionnaire method about their general information such as name, age, educational status, occupation, income and specific information regarding household practices of consumption, purchasing, usage and storage of salt. Result revealed that 40% respondent from both district were in the age group 31-40 yrs and 31.5% respondent were illiterate, where as only 2.5% respondent were graduate. 40.5% respondent of both districts were doing farming in their own land, while only 13.5% respondents were doing service. 51.5% respondents in both districts belonged to low income group where as 18% respondent belonged to high income group. Result concluded that 88.5% respondent in both district were consuming crystalline salt and only 11.5% respondent were using powder salt. 7.5% respondents in both district were used branded salt and 92.5% respondent were using uncommon brand salts. The prevalence of goiter in Gonda and Barabanki districts was found to be no more. The population were consuming iodized salt but a part of iodine was lost from salt due to improper handling, storage and improper uses practice of salt.

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INTRODUCTION

Iodine is one of the essential micronutrients required for normal growth and development of human brain and body. This trace mineral is present in a minute amount, accounting for approximately 0.00004% of body weight. The body contains a total of 15 to 23 mg of iodine. Over 75% of this is present in thyroid gland. The rest is distributed in salivary, mammary and gastric glands and the kidneys. Iodine plays an important role in the synthesis of triiodothyronine (T₃) and thyroxine (T₄). The thyroid hormones play a major role in regulating growth and development. About 90% of daily requirement of iodine is met by well balanced diet and 10% from drinking water. Iodine cannot be stored in the body. It needs to be taken in small quantities everyday to prevent iodine deficiency disorder. Iodine is rapidly absorbed from the food and water in gastrointestinal tract and gets accumulated in thyroid gland located in the wind pipe and working with pituitary gland to regulate body metabolism and temperature. The human body required about 150 µg of the iodine everyday,

which work out to be a teaspoon (5 gm) over a life span of 70 years (Satapathy *et al.*, 2004). The use of iodized salt has been evolved as major strategy to combat Iodine Deficiency Disorder (IDD), IDD is preventable by supplementing the diet regularly with iodine. Iodine concentration to be added in salt is specified as the number of parts of iodine per million parts of salt or ppm. Salt should contain atleast 15 ppm iodine to provide the normal requirement to 150 micro grams per day to the consumers. Careful monitoring and control of iodine level at the production, storage, sale and consumption stages, preventing of uniodated or substandard iodized salt, are vital component of universal salt iodization programme. Its consumption pattern at households level and monitoring the quality of iodized salt is essential for preventing of IDD.

MATERIALS AND METHODS

1. **Selection of district:** Two district namely Gonda and Barabanki of eastern U.P. were purposively selected for the study.
2. **Selection of Blocks:** There are total 14 development blocks in each Gonda and Barabanki district of eastern U.P. out of these Nawabganj blocks of Gonda district

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and Dariyabad block of Barabanki district were randomly selected for collection of sample.

3. **Selection of Villages:** There are total 62 and 69 villages in the Nawabganj and Dariyabad blocks, respectively. Out of these village 5 namely Chikya, Turkauli, Maheshput, Dullapur, Lolpur were selected randomly from Nawabganj block and Aliyabad, Rampur, Raishab, Bilhari, Gazipur and Kusfer from Dariyabad block of Barabanki district. Total twenty respondent were randomly served from each village.
4. **Sample Size:** Total 200 households were selected. 100 households from each block were randomly selected for the study.
5. **Survey and Data Collection:** A self structured interview schedule was used as a tool for collection of general information such as name, age, educational status, occupation, monthly income etc. and specific information regarding household practices of consumption, purchase, usage, storage and brand of salt used etc. through interview from respondent.
6. **Clinical examination for goiter:** Each member of the family was assessed by the investigator for goiter through standard 'Palpation Method'. Grading of goiter was done according to the criteria recommended by the joint WHO/UNICEF/ICCIDD (1992).
7. **Collection of salt sample:** Respondent were asked to provide two table spoons (20 gm) of the salt from their kitchen. Salt sample were collected in self sealing polythene bags. Coding of samples was done and spot test and quantitative iodine estimation was done in laboratory of the Department of Food Science and Nutrition, N.D.U.A.T., Faizabad.
8. **Statistical Analysis:** The data was analysed in terms of percentage, mean, chi-square and ANOVA (single factor).

RESULTS AND DISCUSSION

Table-1 shows that maximum 40% respondent from both district were in the age group 31-40 yrs and 31.5% respondent were illiterate, where as only 2.5% of respondent were graduate. The main occupation of 40.5% respondent of both district was farming in their own land, while only 13.5% of respondent in both district were in service. 51.5% of total population in both district belonged to low income group where as 18% population belonged to high income group. 51.5% of respondents in both districts had 5-10 members in their families.

Table-2 shows that 88.5% of the respondents were consuming crystalline salt and only 11.5% of populations were using powder salt in both districts. 7.5% of respondents in both districts were used branded salt and 92.5% respondents were used uncommon branded salt. 31.5% respondent of both district were used small glass container for storage of salt. 31% respondent of both district did not have definite place for storage of salt. In both district 60% respondents were adding salt in the beginning of cooking and only 3% towards in the end of cooking.

Table-3 shows that educational status of respondents significantly affected the iodine content of salt samples. The

iodine content in salt sample was highest i.e. 27 ppm in sample collected from respondents who were intermediate. It was followed by primary (24.23 ppm), high school (23.99 ppm), graduation (20.54 ppm) and illiterate (21.23 ppm). There were only five respondents who were graduate among sample of 200. The economic condition has significant impact on iodine content of salt used. The mean iodine content of salts sample was found to be maximum in (26.13 ppm) in families having monthly income between Rs. 8001-16000, followed by families having Rs. 16000 and above (25.54 ppm).

Table 1. General profile of selected households from selected district of eastern U.P.

Particulars	Total (%)	χ^2 value	
Age of respondent (yrs)	20-30	14	
	31-40	40	
	41-50	32	9.17
	51-60	14	
Educational status	Illiterate	31.5	
	Primary	28	9.48
	High School	20	
	Intermediate	13	
Occupation	Graduate	2.5	
	Service	13.5	
	Business	22.5	
	Agriculture	40.5	7.59
Family income (Rs.)	Any other	23.5	
	>8000	51.5	
	8001-16000	30.5	17.09
Family member (No.)	16000 and above	18	
	1-5	38	*
	5-10	51.5	
	10-15	10.5	

Table 2. Salt consumption and utilization pattern of respondents from selected district of eastern U.P.

Particulars	Total (%)	χ^2 value	
Types of salt used	Crystalline	88.5	
	Powder	11.5	
	Sendha	-	*
	Black	-	
Brand of salt used	Tata	7.5	
	Shaktibhog	-	
	Annapurna	-	*
Storage container	Any other	92.5	
	Metal	29.5	
	Air tight plastic container	17	14.54
	Original packet	6	
	Gunny bag	3	
Place of storage	Earthen pot	8	
	Polythene bag	5	
	Small glass container	31.5	
	In kitchen near flame	33	15.16
Addition of salt	Away from flame	14.5	
	Any other room	15.5	
	No definite place	31	
	In the beginning of cooking	37	
	In between cooking	60	*
	Towards the end of cooking	3	

Least iodine value was observed in families having income below Rs. 8000 per month. The exposure of respondents from high income group might have affected their salt purchase, storage and handling practice.

Table 3. Effect of educational status and income on salt consumption pattern of selected households from selected district of eastern U.P.

Particulars		Total No. of respondent	Mean of Iodine content of salt ppm	Value
Educational status of respondents	Illiterate	73	21.82	8.80
	Primary	56	24.23	
	High School	40	23.99	
	Intermediate	26	27.00	
Monthly family income (Rs.)	Graduate	5	20.54	52.22
	>8000	103	19.28	
	8001-16000	61	26.13	
	16001 to above	36	25.54	

Table 4. Iodine content in salt samples of selected household from selected district of eastern U.P.

Iodine content (ppm)	Districts				Total	
	Barabanki		Gonda		N	%
	N	%	N	%		
10-15	2	2	7	7	9	4.5
15-20	14	14	3	3	17	8.5
20-25	23	23	29	29	52	26
25-30	31	31	23	23	54	27
<30	19	19	15	15	34	17
Nil	11	11	23	23	34	17
Total	100	100.00	100	100.0	200	100.0

Table-4 shows that the cumulative data of both districts showed that 4.5 percent samples contained iodine but it was less than the recommended level i.e. 15 ppm at households levels.

Whereas 8.5 percent salt samples in both the districts had iodine upto the mark i.e. between 15-20 ppm and 53% samples in the both districts had 20-30 ppm iodine.

Conclusion

The result of this study concluded that population were consuming iodized salt but a part of iodine was lost from salt due to improper handling, faulty storage and improper usages practice of salt. The prevalence of goiter in Gonda and Barabanki district was found to be no more. Thus there is a need to educate people for proper methods of salt consumption, storage and usages.

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