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A study on the awareness of adolescent girls and old age women on the use of iodized salt in cooked food for human consumption

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ABSTRACT

The present study has been carried out on 200 adolescent girls and old age women above 50 years of Muzaffarpur and East Champaran district of Bihar to study the use of iodized salt in cooked food prepared for human consumption. Even now, 10.50 percent respondents cook food for long time at low temperature without having the understanding that cooking even at low temperature for long time will result into loss of many vital nutrients especially some of vitamins and volatile compounds. Though only iodized salt is available in the market, 64 per cent respondents were not having any idea whether the salt is iodized or not. The situation was little better among girl respondents due to advertisement on TV and knowledge receiving in school. The case of using salt during cooking and reheating of food before consumption was high. It is recommended to have mass awareness campaign for the best practices of cooking methods and iodized salt.

1. Introduction

Iodine has been considered as an essential nutrient throughout different span of life especially developmental stages (Bleochradt and Born, 1994). If a pregnant woman is starved of iodine, the fetus cannot produce enough thyroxine with consequent retardation of physical and mental growth. Hypothyroid fetuses often perish in the womb and many affected infants die within a week of birth. Hypothyroid children are intellectually subnormal and may also suffer physical impairment. Studies have documented that in areas with an incidence of mild to moderate disorder due to iodine deficiency, IQs of school children are, on an average, 13 points below those of children living in areas where there is no iodine deficiency. On the other hand, iodine deficiency has been considered as the most common preventable cause of mental deficiency in the world including India where Iodine Deficiency Disorders constitute a major public health problem. Out of 457 districts in the country, 275 districts have been surveyed for IDD and out of those, 235 districts have been found to be endemic. These districts cover all the states and Union Territories of India (WHO 1997). Following the successful trial of iodized salt in the Kangra valley of Himachal Pradesh, a National Goiter Control Program was launched by the Government of India in 1962 with the objectives (i) to survey the problem of iodine deficiency in the country; (ii) produce and supply iodized salt; and then (iii) resurvey the area after five years to assess the impact of the iodized salt program. The objective of universal iodization of salt for human and animal consumption was added to the national program in 1983 (Sunderasen 1998).

The "inexpensive technology, a time honored and time tested one for control of goiter had been “the iodization of common salt" (Gopalan 1998). Research had been carried out showing some loss during boiling, baking and canning of foods containing iodised salt (Chavasit et al. 2002). The awareness and knowledge of people is very much required regarding the best practices of use of iodized salt during cooking and methods of cooking. The present investigation had been carried out to study the use of iodized salt in cooked food prepared for human consumption.

2. Materials and methods

The study was carried out in Muzaffarpur and East Champaran districts located in North Bihar. A total of fifty (50) adolescent girls of age between 12 to 19 years and 50 old age women were selected from each of both districts. Thus, the total number of respondents under the study was 200 (two hundred). The primary data had been collected through survey method with the help of schedule developed for the purpose. The respondents were interacted for their understanding how to fulfill their daily requirement, how to use iodized salt and implication on health if not properly consumed.

3. Results and discussion

The method of cooking decides the value of iodine and other volatile compounds in food. The knowledge upon duration and temperature for cooking food has been assessed and presented in Table 1.

It is revealed from Table 1 that out of total respondents, 89.50 percent respondents have knowledge about the adequate duration for cooking food. But, 10.50 percent respondents cook food for long time at low temperature. They have the understanding that under high temperature, test of food will be lost. There may be the chances of getting the food burnt. They did not have the understanding that cooking even at low temperature for long time will result into loss of many vital nutrients especially some of vitamins and volatile compounds.

In East Champaran district, almost all (100.00%) girl respondents were aware on cooking of food at adequate temperature. The percentage of respondents having idea on cooking of food at adequate temperature was 94.00 per cent among women respondents. A total of 6.00 per cent women respondents were having inception that cooking at low temperature even for long time will give good taste. In Muzaffarpur district, 80.00 per cent girl respondents were

aware on cooking of food at adequate temperature. The percentage of respondents having idea on cooking of food at adequate temperature was 84.00 per cent among women respondents. A total of 16.00 per cent women respondents and 20.00 per cent girl respondents were having inception that cooking at low temperature even for long time will give good taste.

Further the method of cooking in vessels whether covered or uncovered decides the loss of iodine content and other volatile compounds in food. The data on the awareness of respondents on the method of cooking in vessels whether covered or uncovered has been collected and presented in Table 2 and illustrated in Fig 1. Out of total respondents, 89.50 percent respondents informed that they cook food in covered vessel. But, 9.00 percent respondents cook food in uncovered vessel. As well, 1.50 per cent respondents reported that they never cared for that. Sometimes, they cook in covered vessel and sometimes in uncovered vessel.

In East Champaran district, almost all (100.00%) girl respondents were aware on cooking of food in covered vessel. The percentage of respondents having idea on cooking of food in covered vessel was 94.00 per cent among women respondents. A total of 6.00 per cent women respondents could not answer properly and reported that they didn't care for this. In Muzaffarpur district, 80.00 per cent girl respondents were aware on cooking of food in covered vessel. The percentage of girl respondents reporting on cooking of food in uncovered vessel was 20.00 per cent among girl respondents and 16.00 per cent women respondents.

The respondents were assessed for use of iodized salt in food. The data were collected and presented here in Table 3 and illustrated in Fig 2. Out of total 200 respondents, only 36 percent answered that they were using iodized salt food. A total of 64 percent respondents were not having any idea whether the salt being used is iodized or not. This percentage was highest (88.00%) among women respondents of East Champaran district followed by 84.00 percent women respondents in Muzaffarpur district. Comparatively, girl respondents were having more idea about the use of iodised salt in food. A total of 52 per cent girls respondents expressed the use of iodised salt in food in their family in Muzaffarpur district, whereas, this percentage was even higher (64.00%) among girls respondents of east Champaran district. The awareness and knowledge upon the use of iodised salt in food among girl respondent may be due to advertisement on TV of awareness in schools.

The method of use of salt in cooked food is also one of the criteria deciding the availability of iodine in food. Generally people add salt in food in the beginning phase of the cooking. The respondents were asked to put their idea, when the salt is being used in food in their home and presented in Table 4 and illustrated in Fig 3.

It is revealed from Table 4 that out of total respondents, 92.50 percent opined that salt is being added while cooking. A total of 7.50 percent respondents expressed that salt is being used before cooking especially in non-vegetarian food and other fried products like pakoda, puri etc. No body had any idea regarding the use of salt after cooking. The percentage of respondents using salt in food while cooking was 92.50. The percentage of girl respondents using salt in food or having idea upon the use of salt in food while cooking was 96.00 in Muzaffarpur district and 82.00 in East Champaran. As far as the knowledge of women respondents is concerned, the percentage of women using salt while cooking is 98.00 in Muzaffarpur and 94.00 in East Champaran.

The re-heating of food is the common phenomena in society. The continuous re-heating not only results into the loss of iodine, but the loss of other vital nutrient also. The knowledge of respondents on reheating of food before use has been presented in Table 5 and illustrated in Fig 4. It has been observed that a total of 84.00 percent respondents responded the use of food after re-heating. This percentage was highest (70.00%) among girl respondents of Muzaffarpur district followed by 44.00 percent women in the same district.

In East Champaran district, 64.00 per cent girl respondent and 38.0 percent women agreed the use of food after re-heating while in Muzaffarpur district, 70.00 per cent girl respondent and 44.0 percent women agreed the use of food after re-heating.

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Table 1. Duration and temperature for cooking food.

Study area	Respondents	Low temp. for long time	High temp. for short time	Adequate	Total
Muzaffarpur	Girls (n = 50)	10 (20.00)	-	40.00 (80.00)	50 (100.00)
	Women (n = 50)	08 (16.00)	-	42.00 (84.00)	50 (100.00)
East Champaran	Girls (n = 50)	0 (0.00)	-	50 (100.00)	50 (100.00)
	Women (n = 50)	03 (6.00)	-	47.00 (94.00)	50 (100.00)
	Total (N= 200)	21 (10.50)	0.00 (0.00)	179.00 (89.50)	200 (100.00)

Figures in parentheses indicate the percentage.

Table 2.	Methods of cooking food in vessels				
Study area	Respondents	Uncovered vessel	Covered vessel	Didn't care	Total
Muzaffarpur	Girls (n = 50)	10 (20.00)	40 (80.00)	0 (0.00)	50 (100.00)
	Women (n = 50)	08 (16.00)	42 (84.00)	0 (0.00)	50 (100.00)
East Champaran	Girls (n = 50)	0 (0.00)	50 (100.00)	0 (0.00)	50 (100.00)
	Women (n = 50)	0 (0.00)	47 (94.00)	3 (6.00)	50 (100.00)
	Total (N= 200)	18 (9.00)	179 (89.50)	3 (1.50)	200 (100.00)

Figures in parentheses indicate the percentage

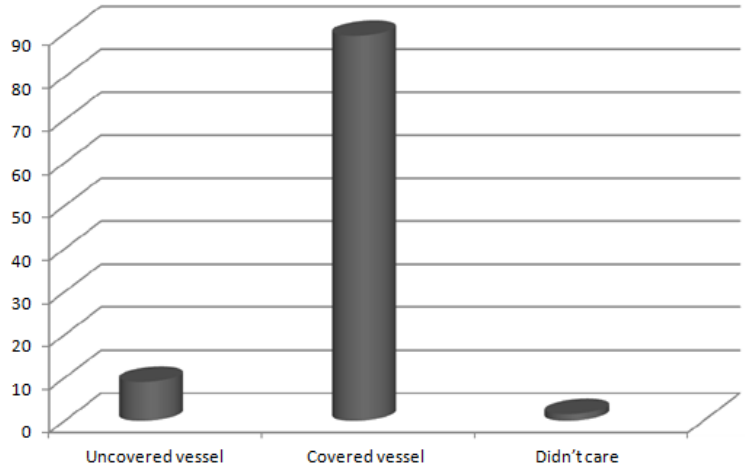

Fig 1. Opinion about cooking food in vessels (N=200)

Table 3. Use of iodised salt in food.

Study area	Respondents	Yes	No	Sometimes	Not known	Total
Muzaffarpur	Girls	26	–	–	24	50
		(52.00)			(48.00)	(100.00)
	(n = 50)					
	Women	8	–	–	42	50
		(16.00)			(84.00)	(100.00)
	(n = 50)					
East	Girls	32	–	–	18	50
Champaran	(n = 50)	(64.00)			(36.00)	(100.00)
	Women	6	–	–	44	50
		(12.00)			(88.00)	(100.00)
	(n = 50)					
	Total	72	–	–	128	200
	(N= 200)	(36.00)			(64.00)	(100.00)

Figures in parentheses indicate the percentage

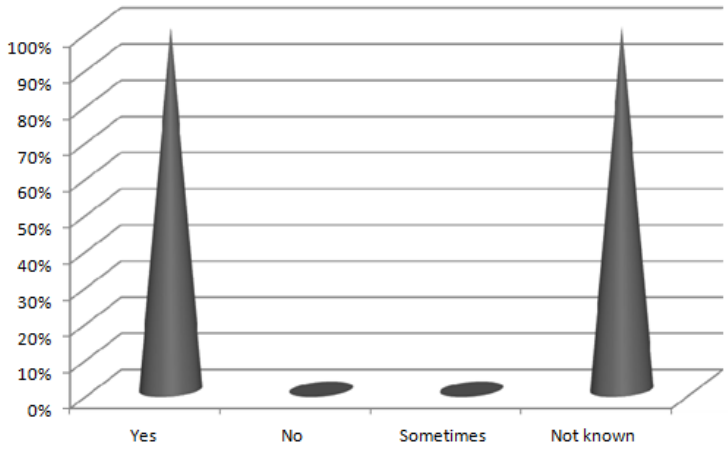

Fig 2. Opinion of respondents (N=200) about use of iodised salt

Table 4. Use of salt in cooked food.

Study area	Respondents	While cooking	After cooking	Before cooking	Total
Muzaffarpur	Girls (n = 50)	48 (96.00)	–	2 (4.00)	50 (100.00)
	Women (n = 50)	49 (98.00)	–	1 (2.00)	50 (100.00)
East Champaran	Girls (n = 50)	41 (82.00)	–	9 (18.00)	50 (100.00)
	Women (n = 50)	47 (94.00)	–	3 (6.00)	50 (100.00)
	Total (N= 200)	185 (92.50)	–	15 (7.50)	200 (100.00)

Figures in parentheses indicate the percentage

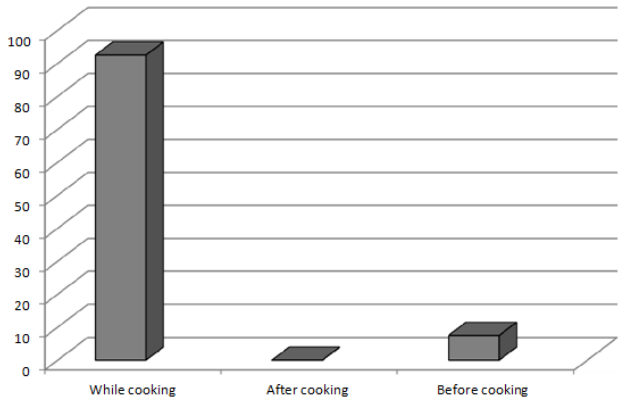

Fig 3.Opinion of respondents (N=200) on use of salt in food

Table 5.Reheating of food before use.

Study area	Respondents	Yes	No	Total
Muzaffarpur	Girls (n = 50)	35 (70.00)	15 (30.00)	50 (100.00)
	Women (n = 50)	22 (44.00)	28 (56.00)	50 (100.00)
East Champaran	Girls (n = 50)	32 (64.00)	18 (36.00)	50 (100.00)
	Women (n = 50)	19 (38.00)	31 (62.00)	50 (100.00)
	Total (N= 200)	108 (54.00)	92 (46.00)	200 (100.00)

Figures in parentheses indicate the percentage.

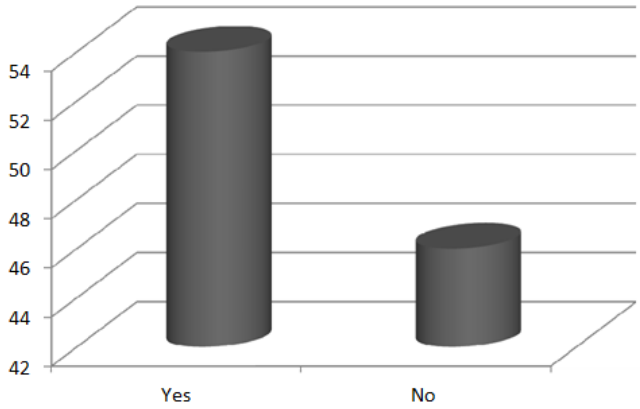

Fig 4.State of using food by the respondents after reheating (N=200)

