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Research Article

Assessment of the magnitude of goiter in the age group of 6-12 years children in district Kargil region (Jammu & Kashmir)

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Abstract: The effect of Iodine deficiency disorders includes goitre and brain damage . Goiter is prevalent worldwide and in India; it is also widely prevalent. According to the World Health Organisation, a total goiter rate of more than 5% in school children (6-12) should signal the presence of public health problem. As such no study estimating IDD prevalence at all India level is available , So,the present study was undertaken & is a Cross- Sectional Study conducted in department of Community Medicine, SKIMS Medical College, Srinagar between June 2011 to July 2012. The study was conducted to find out the magnitude of goiter in the age group of 6-12 years in district Kargil & to propose recommendations for the said problem. In the presented study 2700 subjects were screened. Two-stage cluster sampling was used to select the study sample. In the first stage, thirty clusters were selected based on probability proportionate to the size of the target population in different zones. A sample of 90 children (45 boys & 45 Girls) of age group of 6-12 years from the school and out of school/household of selected village/ward was selected. The number of children per cluster was based on the estimated prevalence of 30% with 95% confidence interval. Results showed that 30% children had G1 goiter and 1.9% children had G2 goiter. Prevalence varied with sex and age. The prevalence of G1 in boys was higher (34.9%) than girls (25.1%) & prevalence of G2 goiter was 1.8% in boys and 2% in girls. Total goiter rate calculated by summing prevalence of G1 and G2 was 36.7%, in males which is more as compared to females (27.1%). The results of the present study have indicated that iodine deficiency continues to be a health problem..So, monitoring of iodine content of salt for at distributor level & at consumer should be done.
Keywords: Goiter, mental retardation, iodine, low birth weight.

INTRODUCTION

Goiter is the name given to the enlargement of the thyroid gland. One of the most important and well known global nutritional problems is iodine deficiency (ID). An estimated population of 1000 million is at risk because they live in an environment where the soil is depleted of iodine [1]. Worldwide about 600 million people have goiter and 230 million have some degree of brain damage (6 million have cretinism) caused by the effects of iodine deficiency in pregnancy [2]. According to the world health organization (WHO), a total goiter rate of more than 5% in school children (6-12) should signal the presence of public health problem [3].

The most important single cause of iodine deficiency is inadequate iodine intake. Goiter is prevalent worldwide and in India; it is also widely prevalent with different states giving different rates of prevalence. As such no study estimating IDD prevalence at all India level is available on children although a few region wise studies are available. As per ICMR report on Micronutrient Profile in India (2004) the prevalence is 9.98% [4]. These figures are from ICMR project running from 1997 to 1999.[5] In J&K the figures also vary from one place to another. The data available for J&K shows that 14 out of 15 districts are endemic for IDD. The prevalence in Srinagar district was to the extent of 4.46% in the same age group. A study by Zargar *et al*. [5] in Budgam area in the age group of 5-15 years found the prevalence to be 44% in males and 33.8% in females in school going children. The previous study (2003-2004) by Department of Community Medicine, Govt Medical College Srinagar in Srinagar district in the age group of 6-12 years found the total goiter prevalence was to the extent of 15.27 %(17% in girls & 13.67% in boys [6]. Because of the widely prevalent situation in J& K state the present study was contemplated.

Ladakh is a part of northern Jammu & Kashmir State of India consisting of two districts Leh and Kargil. It is a mountainous desert. This region is separated from the rest of the State by high mountains which are crossed through passes at various points. The lowest pass to Ladakh is Zojila which is at 11,500'. It has an area of 4036 Sq. Km. It is situated between 30 to 35 degree North latitude and 75 to 77 degree East West longitude.

Kargil is surrounded by Baramullah, Srinagar and Doda Districts in the South-West, Leh District in the East, Himachal Pradesh in the South and Pakistan in the North-West. The District is divided into four high level natural Valleys namely the Suru Valley, the Drass Valley, the Indus Valley and the Upper Sindh Valley of Kanji Nallah Valley.

Zojila and Fotulla passes situated at the height of 3567 and 4192 meters above the sea level are called gateways for Kashmir Valley and Leh District for entry in Kargil District. High peaks of Namikala and Penzila are called the sky pillars of the District.

The whole District is of high rocky mountains, desert arid, snow bound and devoid of natural vegetation. It occupies unique position because of its high altitude area in the country which ranges from 8000 to 23000 ft. above the sea level.

The topography of the region is mountainous with little or no vegetation. The mountains are of sedimentary rocks and are in process of disintegration due to weathering. The terrain being hilly, available land for agriculture is meager. The summer being short, only one crop of local grim or wheat is grown.

The District Headquarter is situated at a distance of 205 Kms from Srinagar and 230 Kms from Leh. Kargil district comprises of Kargil town and 127 inhabited villages and 2 un-inhabited villages.

The normal concept of a village as a contiguous and compact habitation does not apply in Kargil district. Here a number of households have settled down here and there depending upon land availability and irrigation facility. These clusters are spread on large distant and in view of good number of Rivers, etc.. The area of the district is mountainous with difficult terrain.

The district has a population of 1,19,307 (as per Census 2001). The density of population is only 8 persons per sq. km. The decennial growth rate (1991-2001) works out to 31.39%. The Tehsil wise population as per Census 2001 is:

Table 1: Tehsil wise population as per Census 2001

Sl. No.	Tehsil	Population as per 2001 Census
1	Kargil	1,07,138
2	Zanskar	12,169
Total		1,19,307

The objective of the study was

- To assess the magnitude of goiter in the age group of 6-12 years in district Kargil.
- To propose recommendations for the said problem.

MATERIALS & METHODS

The study was a cross-sectional study done in district Kargil conducted over a period of one month from 10th June to 10th July 2012. A team of doctors was deputed for the study. The team comprised both experienced and young doctors. To standardize the various procedures and maintain uniformity in the procedures one day training was provided to all the investigators.

2700 subjects were screened. The subjects were aged from 6-12 years. Two-stage cluster sampling was used to select the study sample. In the first stage, thirty clusters were selected based on probability proportionate to the size of the target population in different zones. Thirty clusters were selected to ensure a valid estimate of the prevalence of the problem [7]. A sample of 90 children (45 boys & 45 Girls) of age group of 6-12 years from the school and out of school/ household of selected village/ward was selected. The number of children per cluster was based on the estimated prevalence of 30% with 95% confidence interval.

Data was collected using a specially designed questionnaire, including information about name, zone, school, exact age of the child and sex. Clinical examination of the thyroid gland of each child was done through inspection and palpation. Classification of goiter grading was based on the criteria endorsed by the WHO/United Nations Children. Fund/ International Council for Control of Iodine Disorders, which is as follows:

0 = no palpable or visible goiter

1 = a mass visible in the neck that is consistent with an enlarged Thyroid that is palpable or visible with neck in extended position but not in neutral position. It also moves up in the neck or swallowing.

2 = a swelling in the neck that is visible in a neutral position and is consistent with an enlarged thyroid when the neck is palpated.

The sum of grades 1& 2 is taken as total goiter rate. Data entry and analysis was done in SPSS-16 by specially trained doctor from the Department.

RESULTS

The total children surveyed were 2700 in the 30 cluster (schools) of district Kargil with 90 children in each cluster. These accounted for about1356 Boys and 1344 Girls. The full details are depicted in the following table1.

DISCUSSION

The total children surveyed were 2700 in the 30 clusters of district Kargil with 90 children in each cluster. These accounted for about 1356 Boys and 1344 Girls (Table 1). Goiter is still a big public health problem in various districts of Kashmir valley as well as Ladakh division.

In this study we found that 30% children had G1 goiter and 1.9% children had G2 grade of goiter (Table 2). Prevalence varied with sex and age. The prevalence of G1 in boys was higher (34.9%) than girls (25.1%) & prevalence of G2 goiter was 1.8% in boys and 2% in girls (Table 3).

The highest and lowest prevalence of G1 was found at the age of 11 (33.9%) & 7 (21.6%) but G2 prevalence was highest at the age of 12 years (3.1%) (Table 4).

Total goiter rate calculated by summing prevalence of G1 and G2 was 36.7%, in males which is more as compared to females (27.1%). The highest prevalence was observed at the age of 11 years (23.1%). (Table 5, 6, 7).

Zargar AH *et al*. found the TGR to be 52.08% with G1 in 41.95% and G2 of 10.1% in Baramullah district of Kashmir valley. The prevalence was more in males to the extent of 52.08% & in girls it was 49.23% [8]. In 1995 in their study in school children aged 5-15 years in Kashmir valley found a TGR of 45.2%. 43.9% in boys and 46.23 in girls. 37.74% of children had grade 1stgoiter while as 7.44% had grade 2nd goiter [8]. Their study in 1996 found the rate to be 44% in males in age group of 5-15 and 33.8% in females in Budgam area [5]. Our figures are lower possibly because of better awareness and sustained IEC activities by the government about the use of iodized salt and possibly because the age group included was lower.

Kapil U *et al*. [9] In their study in school children aged 6-12 years which they did in Bharatpur district of Rajasthan found the rate to be 7.2%. Grade 1st goiter was seen in 7% and Grade 2nd goiter in 0.2% of children. As for as sex is concerned the rates of G1 goiter was 5.7% and 7.9% in girls and boys respectively.

Chandra AK *et al*. 10] in their study in children aged 6-15 years found the TGR to be 21.6% with G1 in 20.2% and G2 to be 1.4%

Brahmbhatt S [11] in their study in Dang and Baroda districts of Gujarat found the TGR to be 29.6% with G1 in 29.2% and G2 in 0.4%. Our figures correlate well with their findings.

Results of our study are different from that of Bhardwaj AK *et al*. [12] who found the TGR to be 20.5% with G1 in 17.8 and G2 in 2.7% of children aged 6-12 years. The rate was found to be 39.3% in boys and 18% in girls while as in our study total goiter rate was 31.9%. Boys had higher total goiter rate (36.7%) as compared to girls (27.1%).

From the study it can be summarized that

- Total children (6-12 years) surveyed - 2700
- Prevalence of G1 goiter – 30%.
- Prevalence of G2 goiter- 1.9%
- Prevalence varies with both age and sex.
- Prevalence was higher in boys (34.9%) than girls (25.1%).
- Prevalence of G2 is equal is 1.8% in boys and 2% in girls.
- The highest prevalence of G1 was found at the age of 11 (33.9%).
- Total goiter rate (TGR) which is the sum of grade. 1st and grade 2nd was found to the extent of 31.9%,
- In males TGR prevalence was (36.7%) more as compared to females (27.1%).
- Maximum TGR (Total Goiter Rate) was found in the age group of 11 years (23.1%).

Table 1: AGE and sex distribution

Age		Sex		Total
		Male	Female	
6	Count	209	255	464
	% within AGE	45.0%	55.0%	100.0%
	% within SEX	15.4%	19.0%	17.2%
	% of Total	7.7%	9.4%	17.2%
7	Count	136	151	287
	% within AGE	47.4%	52.6%	100.0%
	% within SEX	10.0%	11.2%	10.6%
	% of Total	5.0%	5.6%	10.6%
8	Count	162	156	318
	% within AGE	50.9%	49.1%	100.0%
	% within SEX	11.9%	11.6%	11.8%

	% of Total	6.0%	5.8%	11.8%
9	Count	172	191	363
	% within AGE	47.4%	52.6%	100.0%
	% within SEX	12.7%	14.2%	13.4%
	% of Total	6.4%	7.1%	13.4%
10	Count	214	189	403
	% within AGE	53.1%	46.9%	100.0%
	% within SEX	15.8%	14.1%	14.9%
	% of Total	7.9%	7.0%	14.9%
11	Count	173	110	283
	% within AGE	61.1%	38.9%	100.0%
	% within SEX	12.8%	8.2%	10.5%
	% of Total	6.4%	4.1%	10.5%
12	Count	290	292	582
	% within AGE	49.8%	50.2%	100.0%
	% within SEX	21.4%	21.7%	21.6%
	% of Total	10.7%	10.8%	21.6%
Total	Count	1356	1344	2700
	% within AGE	50.2%	49.8%	100.0%
	% within SEX	100.0%	100.0%	100.0%
	% of Total	50.2%	49.8%	100.0%

Table 2: Age and grade of goiter

Age		**Grade**			**Total**
		Grade 0	**Grade 1**	**Grade 2**	
6	Count	321	141	2	464
	% within AGE	69.2%	30.4%	.4%	100.0%
	% within GRADE	17.5%	17.4%	3.8%	17.2%
	% of Total	11.9%	5.2%	.1%	17.2%
7	Count	221	62	4	287
	% within AGE	77.0%	21.6%	1.4%	100.0%
	% within GRADE	12.0%	7.7%	7.7%	10.6%
	% of Total	8.2%	2.3%	.1%	10.6%
8	Count	231	80	7	318
	% within AGE	72.6%	25.2%	2.2%	100.0%
	% within GRADE	12.6%	9.9%	13.5%	11.8%
	% of Total	8.6%	3.0%	.3%	11.8%
9	Count	243	112	8	363
	% within AGE	66.9%	30.9%	2.2%	100.0%
	% within GRADE	13.2%	13.8%	15.4%	13.4%
	% of Total	9.0%	4.1%	.3%	13.4%
10	Count	266	126	11	403
	% within AGE	66.0%	31.3%	2.7%	100.0%
	% within GRADE	14.5%	15.6%	21.2%	14.9%
	% of Total	9.9%	4.7%	.4%	14.9%
	Count	185	96	2	283

11	% within AGE	65.4%	33.9%	.7%	100.0%
	% within GRADE	10.1%	11.9%	3.8%	10.5%
	% of Total	6.9%	3.6%	.1%	10.5%
12	Count	371	193	18	582
	% within AGE	63.7%	33.2%	3.1%	100.0%
	% within GRADE	20.2%	23.8%	34.6%	21.6%
	% of Total	13.7%	7.1%	.7%	21.6%
Total	Total	1838	810	52	2700
	% within AGE	68.1%	30.0%	1.9%	100.0%
	% within GRADE	100.0%	100.0%	100.0%	100.0%
	% of Total	68.1%	30.0%	1.9%	100.0%

Prevalence varies with age. The highest and lowest prevalence of G1 was found at the age of 11 (33.9%) & 7 (21.6%) but G2 prevalence was highest at the age of 12 years (3.1%).

Table 3: Sex and grade of goiter

Sex		**Grade**			**Total**
		Grade 0	**Grade 1**	**Grade 2**	
Male	Count	858	473	25	1356
	% within SEX	63.3%	34.9%	1.8%	100.0%
	% within GRADE	46.7%	58.4%	48.1%	50.2%
	% of Total	31.8%	17.5%	.9%	50.2%
Female	Count	980	337	27	1344
	% within SEX	72.9%	25.1%	2.0%	100.0%
	% within GRADE	53.3%	41.6%	51.9%	49.8%
	% of Total	36.3%	12.5%	1.0%	49.8%
Total	Count	1838	810	52	2700
	% within SEX	68.1%	30.0%	1.9%	100.0%
	% within GRADE	100.0%	100.0%	100.0%	100.0%
	% of Total	68.1%	30.0%	1.9%	100.0%

The prevalence of G1 in boys is higher (34.9%) than girls (25.1%) & prevalence of G2 goiter is 1.8% in boys and 2% in girls.

Table 4: Age and Sex distribution of Goiter

Age		**Sex**						**Total**		
		Male			**Female**					
		Grade			**Grade**			**Grade**		
		Grade 0	Grade 1	Grade 2	Grade 0	Grade 1	Grade 2	Grade 0	Grade 1	Grade 2
6	Count	129	79	1	192	62	1	321	141	2
	% within AGE	40.2%	56.0%	50.0%	59.8%	44.0%	50.0%	100.0%	100.0%	100.0%
	% within SEX	15.0%	16.7%	4.0%	19.6%	18.4%	3.7%	17.5%	17.4%	3.8%
	% of Total	7.0%	9.8%	1.9%	10.4%	7.7%	1.9%	17.5%	17.4%	3.8%
7	Count	96	39	1	125	23	3	221	62	4
	% within AGE	43.4%	62.9%	25.0%	56.6%	37.1%	75.0%	100.0%	100.0%	100.0%
	% within SEX	11.2%	8.2%	4.0%	12.8%	6.8%	11.1%	12.0%	7.7%	7.7%
	% of Total	5.2%	4.8%	1.9%	6.8%	2.8%	5.8%	12.0%	7.7%	7.7%

8	Count	106	56	0	125	24	7	231	80	7
	% within AGE	45.9%	70.0%	.0%	54.1%	30.0%	1.0E2%	100.0%	100.0%	100.0%
	% within SEX	12.4%	11.8%	.0%	12.8%	7.1%	25.9%	12.6%	9.9%	13.5%
	% of Total	5.8%	6.9%	.0%	6.8%	3.0%	13.5%	12.6%	9.9%	13.5%
9	Count	107	60	5	136	52	3	243	112	8
	% within AGE	44.0%	53.6%	62.5%	56.0%	46.4%	37.5%	100.0%	100.0%	100.0%
	% within SEX	12.5%	12.7%	20.0%	13.9%	15.4%	11.1%	13.2%	13.8%	15.4%
	% of Total	5.8%	7.4%	9.6%	7.4%	6.4%	5.8%	13.2%	13.8%	15.4%
10	Count	140	70	4	126	56	7	266	126	11
	% within AGE	52.6%	55.6%	36.4%	47.4%	44.4%	63.6%	100.0%	100.0%	100.0%
	% within SEX	16.3%	14.8%	16.0%	12.9%	16.6%	25.9%	14.5%	15.6%	21.2%
	% of Total	7.6%	8.6%	7.7%	6.9%	6.9%	13.5%	14.5%	15.6%	21.2%
11	Count	109	63	1	76	33	1	185	96	2
	% within AGE	58.9%	65.6%	50.0%	41.1%	34.4%	50.0%	100.0%	100.0%	100.0%
	% within SEX	12.7%	13.3%	4.0%	7.8%	9.8%	3.7%	10.1%	11.9%	3.8%
	% of Total	5.9%	7.8%	1.9%	4.1%	4.1%	1.9%	10.1%	11.9%	3.8%
12	Count	171	106	13	200	87	5	371	193	18
	% within AGE	46.1%	54.9%	72.2%	53.9%	45.1%	27.8%	100.0%	100.0%	100.0%
	% within SEX	19.9%	22.4%	52.0%	20.4%	25.8%	18.5%	20.2%	23.8%	34.6%
	% of Total	9.3%	13.1%	25.0%	10.9%	10.7%	9.6%	20.2%	23.8%	34.6%
Total	Count	858	473	25	980	337	27	1838	810	52
	% within AGE	46.7%	58.4%	48.1%	53.3%	41.6%	51.9%	100.0%	100.0%	100.0%
	% within SEX	100.0%	100.0%	100.0%	100.0%	100.0%	1.0E2%	100.0%	100.0%	100.0%
	% of Total	46.7%	58.4%	48.1%	53.3%	41.6%	51.9%	100.0%	100.0%	100.0%

Table 5: Age and TGR

Age		**TGR**		
		Grade 0	**TGR**	**Total**
6	Count	321	143	464
	% within AGE	69.2%	30.8%	100.0%
	% within TGR	17.5%	16.6%	17.2%
	% of Total	11.9%	5.3%	17.2%
7	Count	221	66	287
	% within AGE	77.0%	23.0%	100.0%
	% within TGR	12.0%	7.7%	10.6%
	% of Total	8.2%	2.4%	10.6%
8	Count	231	87	318
	% within AGE	72.6%	27.4%	100.0%
	% within TGR	12.6%	10.1%	11.8%
	% of Total	8.6%	3.2%	11.8%

9	Count	243	120	363
	% within AGE	66.9%	33.1%	100.0%
	% within TGR	13.2%	13.9%	13.4%
	% of Total	9.0%	4.4%	13.4%
10	Count	266	137	403
	% within AGE	66.0%	34.0%	100.0%
	% within TGR	14.5%	15.9%	14.9%
	% of Total	9.9%	5.1%	14.9%
11	Count	185	98	283
	% within AGE	65.4%	34.6%	100.0%
	% within TGR	10.1%	11.4%	10.5%
	% of Total	6.9%	3.6%	10.5%
12	Count	371	211	582
	% within AGE	63.7%	36.3%	100.0%
	% within TGR	20.2%	24.5%	21.6%
	% of Total	13.7%	7.8%	21.6%
Total	Count	1838	862	2700
	% within AGE	68.1%	31.9%	100.0%
	% within TGR	100.0%	100.0%	100.0%
	% of Total	68.1%	31.9%	100.0%

Table 6: Sex and TGR

Sex		**TGR**		
		Grade 0	**TGR**	**Total**
Male	Count	858	498	1356
	% within SEX	63.3%	36.7%	100.0%
	% within TGR	46.7%	57.8%	50.2%
	% of Total	31.8%	18.4%	50.2%
Female	Count	980	364	1344
	% within SEX	72.9%	27.1%	100.0%
	% within TGR	53.3%	42.2%	49.8%
	% of Total	36.3%	13.5%	49.8%
Total	Count	1838	862	2700
	% within SEX	68.1%	31.9%	100.0%
	% within TGR	100.0%	100.0%	100.0%
	% of Total	68.1%	31.9%	100.0%

Table 7: Age and sex distribution of TGR

Age		SEX				Total	
		Male		Female			
		TGR		TGR		TGR	
		Grade 0	TGR	Grade 0	TGR	Grade 0	TGR
6	Count	129	80	192	63	321	143
	% within AGE	40.2%	55.9%	59.8%	44.1%	100.0%	100.0%
	% within SEX	15.0%	16.1%	19.6%	17.3%	17.5%	16.6%
	% of Total	7.0%	9.3%	10.4%	7.3%	17.5%	16.6%
7	Count	96	40	125	26	221	66
	% within AGE	43.4%	60.6%	56.6%	39.4%	100.0%	100.0%
	% within SEX	11.2%	8.0%	12.8%	7.1%	12.0%	7.7%
	% of Total	5.2%	4.6%	6.8%	3.0%	12.0%	7.7%
8	Count	106	56	125	31	231	87
	% within AGE	45.9%	64.4%	54.1%	35.6%	100.0%	100.0%
	% within SEX	12.4%	11.2%	12.8%	8.5%	12.6%	10.1%
	% of Total	5.8%	6.5%	6.8%	3.6%	12.6%	10.1%
9	Count	107	65	136	55	243	120
	% within AGE	44.0%	54.2%	56.0%	45.8%	100.0%	100.0%
	% within SEX	12.5%	13.1%	13.9%	15.1%	13.2%	13.9%
	% of Total	5.8%	7.5%	7.4%	6.4%	13.2%	13.9%
10	Count	140	74	126	63	266	137
	% within AGE	52.6%	54.0%	47.4%	46.0%	100.0%	100.0%
	% within SEX	16.3%	14.9%	12.9%	17.3%	14.5%	15.9%
	% of Total	7.6%	8.6%	6.9%	7.3%	14.5%	15.9%
11	Count	109	64	76	34	185	98
	% within AGE	58.9%	65.3%	41.1%	34.7%	100.0%	100.0%
	% within SEX	12.7%	12.9%	7.8%	9.3%	10.1%	11.4%
	% of Total	5.9%	7.4%	4.1%	3.9%	10.1%	11.4%
12	Count	171	119	200	92	371	211
	% within AGE	46.1%	56.4%	53.9%	43.6%	100.0%	100.0%
	% within SEX	19.9%	23.9%	20.4%	25.3%	20.2%	24.5%
	% of Total	9.3%	13.8%	10.9%	10.7%	20.2%	24.5%
Total	Count	858	498	980	364	1838	862
	% within AGE	46.7%	57.8%	53.3%	42.2%	100.0%	100.0%
	% within SEX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	46.7%	57.8%	53.3%	42.2%	100.0%	100.0%

CONCLUSION AND RECOMMENDATIONS

Goiter is still a major public health problem in J & K although notable decrease in the magnitude of the problem has occurred in few years. In this connection we would like to suggest the following measures.

- A Goiter cell needs to be established and strengthening of the same with expertise from community medicine department to monitor the situation of Iodine Deficiency Disorders in the State
- Current iodine deficiency is depicted by urinary iodine levels. In this connection proper lab facilities for urinary iodine excretion as

well as for checking the iodine content of salt needs to be set up.

- It is also essential to set up one district level IDD monitoring laboratory for iodine content of salt and Urinary iodine excretion for monitoring proper implementation of the IDD control programme.
- Salt production units to be made available at state level so that the consumers have the access to fresh salt and the environmental loss of iodine is checked and kept at the minimum.
- Food and drug control organization should make it sure that the salt available in the market is iodised and the salt packets are not older than five to six months.
- Sustained IEC (information, education and communication) involvement should be ensured so that people are made aware about the consumption of iodized salt. Help of field publicity wing of the information Department of J & K and Health Education Bureau also needs to be taken. To intensify the IEC activities a communication package by way of video films, posters/danglers and radio/TV spots need to be finalized.

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