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Assessment of adequately iodised salt consumption in Telangana state, India

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ABSTRACT

Background: Salt used in the household is the most common way for iodine fortification to prevent the public health concerns of iodine deficiency disorders. The objective of the study was to assess household coverage with adequately iodized salt in Telangana State, India.

Methods: Secondary data published in the District Level Household and Facility Survey-4 is analyzed.

Results: Overall, 55.7 percent of the households were using cooking salt which was iodized at the recommended level of 15 ppm or more. Around 60.8 percent of households in urban areas used salt with 15 ppm or more iodine content compared with 51.9 percent of households in rural areas though the difference was not significant.

Conclusions: The coverage of adequately iodized salt in the state was below the national average. To further expand the coverage of adequately iodized salt, researchers and policy makers should take action.

Keywords: Adequately iodized salt, Households, Universal salt iodization

INTRODUCTION

Iodine deficiency is one of most important causes of preventable mental impairment around the world; inadequate thyroid hormone production of iodine also causes many other adverse effects on growth and development.1 Many of these adverse outcomes, collectively referred to as iodine deficiency disorders, result from the effects of iodine deficiency on fetal brain development during early pregnancy.² Iodine deficiency can be effectively and inexpensively prevented by iodizing all salt for human and animal consumption (known as) universal salt iodization (USI).3,4

India's national government began efforts to promote the consumption of iodized salt in the 1960s.^{5,6} Under the National iodine deficiency disorders control program (NIDDCP), there is a policy of universal salt iodization under which the entire population of the country is to receive iodized salt with a minimum of 15 ppm of iodine. However, the Government of Andhra Pradesh had implemented a partial ban on sale of non-iodized salt for edible purposes in iodine endemic districts only.⁷

Prior to the division of Andhra Pradesh according to NFHS 3, the coverage of adequately iodized salt in the state was 46.9%, inadequately iodized salt 35.7% and non-iodized salt 17.4%. To further expand the coverage of adequately iodized salt, researchers and policy makers have recommended that governments reinforce quality assurance/control systems and routinely monitor household coverage of adequately iodized salt to identify socioeconomic groups and geographic locations where salt iodization can be improved.9

With this background, an attempt was made to estimate the consumption of adequately-iodized salt at the household level in Telangana state, find out the socio demographic factors that influence the access to iodized salt at the household level.

METHODS

Secondary data published in the District Level Household and Facility Survey-4 (DLHS-4) is analyzed. ¹⁰ The data from these surveys have been useful in setting the benchmarks and examining the progress the country has made after the implementation of universal salt iodization (UIP) programme. In addition, the evidence generated by these surveys has also been useful for the monitoring and evaluation of ongoing programmes and planning of suitable strategies by the central and state governments.

The Ministry of Health and Family Welfare, Government of India, initiated the process of conducting DLHS-4 during 2012-2013 and has designated the International Institute for Population Sciences (IIPS) as the nodal agency to carry out the survey. DLHS-4 is a nationwide survey covering 640 districts from 36 States and Union Territories of India. DLHS-4 is a district level survey and a multi-stage stratified design adopted for selection of representative sample of each district in Telangana. Rural and urban areas of a district are considered as natural strata. Fieldwork in Telangana was conducted during June 2013 to February 2014, a total of 13,927 households of Telangana were tested for iodine in their salt. ¹⁰

Salt used in the household is the most common vehicle for iodine fortification to prevent the public health concerns of iodine deficiency disorders. The compound used for fortification of salt is potassium iodate (KIO3). According to the World Health Organization, a country's salt iodization program is considered to be on a good track to eliminate iodine deficiency when 90 percent of households use iodized salt. The 2012-13 DLHS-4 made an effort to assess household iodized salt consumption by testing iodine contents in the salt being used by the household.

Statistical analysis was done using Microsoft Office Excel 2007. The statistical tests used were proportions with 95% confidence interval (CI) and Chi-square test. P<0.05 was considered to be statistically significant.

RESULTS

Telangana is one of the southern states which performed badly during NFHS 4. Overall, 56 percent of the households were using cooking salt which was iodized at the recommended level of 15 ppm or more. Only 17.6 percent of the households used salt that was not iodized at all and 23.7 percent used salt that was iodized inadequately (<15 ppm) (Figure 1).

Table 1: Socio-demographic characteristics of iodine content of salt in Telangana state, India.

Variables	>15 ppm	<15 ppm	OR (CI)	P value
Age				
<30	47	50	1	
30-44	63	35	1.9 (1.08-3.40)	< 0.05
45-59	56	40	1.5 (0.84-2.63)	>0.05
60+	47	50	1	
Residence				
Rural	52	45	1	
Urban	61	36	1.5 (0.83-2.60)	>0.05
Education	•		•	
Non literate	53	44	1	
<5 yr	50	48	0.9 (0.49-1.52)	>0.05
5-9 yr	56	41	1.1 (0.64-2.00)	>0.05
<10	61	36	1.4 (0.79-2.50)	>0.05
Religion				
Hindu	55	42	1	
Muslim	63	36	1.3 (0.75-2.37)	>0.05
Christian	59	40	1.1 (0.64-1.99)	>0.05
Others	64	36	1.4 (0.77-2.41)	>0.05
Caste/tribes				
Scheduled caste	56	42	1.2 (0.65-2.03)	>0.05
Scheduled tribes	54	41	1.1 (0.64-2.01)	>0.05
Other backward classes	56	41	1.2 (0.67-2.08)	>0.05
Others	51	44	1	-

The use of adequately iodized salt was high in Adilabad, Mahbubnagar, Karimnagar, Hyderabad, Nalgonda and Rangareddy districts compared to the districts Warangal, Nizamabad, Medak, and Khammam where use of iodized salt was low as compared to the Telangana average. It ranges from a maximum in Adilabad (65%) to the minimum in Khammam (42%) (Figure 2).

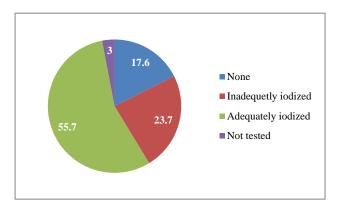


Figure 1: Iodized salt consumption at household level in Telangana state, India.

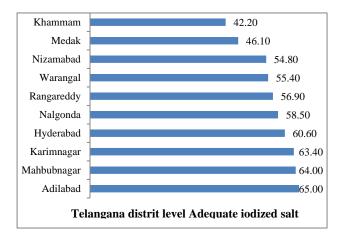


Figure 2: District level adequate iodized salt coverage in Telangana state, India.

Around 60.8 percent of households in urban areas used salt with 15 ppm or more iodine content compared with 51.9 percent of households in rural areas though the difference was not significant. Except for the age 30-44yrs in other socio-demographic variables like education, religion and caste the difference in adequately iodized salt was insignificant (Table 1).

DISCUSSION

Availability and consumption of adequately iodized salt must be granted for sustainable elimination of IDD. According to WHO and International Council for Control of Iodine Deficiency Disorders (ICCIDD) standard, elimination of IDD will be possible if more than 90% of the households consume adequately iodized salt.

In India as per the Coverage Evaluation Survey 2009, 91 per cent of households had access to iodized salt, of whom 71 per cent consumed adequately iodized salt.¹¹ Another 9 per cent consumed salt with no iodine. There are wide rural and urban variations in household coverage of adequately iodized salt (83.2% in urban areas vs. 66.1% in rural areas). The similar differences were reported by other studies in India and in other countries. 12-16 But according to NFHS-4 report, the Telangana state coverage adequately iodized salt is only 55.7% and there is not wide variation in urban and rural areas. We found almost an equal proportion of salt being adequately iodized at the households. The difference was insignificant in relation to education, religion and caste. Studies in West Bengal reported that the religion and caste of households was related to the consumption of iodized salt.17

The coverage of adequately iodized salt in Telangana is suboptimal. Increasing consumer awareness and demand for adequately iodized salt has been proven to be one of the most effective interventions to promote USI globally. The Behaviour Change Communication (BCC) activities need to be upscaled and intensified.

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Institutional Ethics Committee

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