Iodine Deficiency Disorder (IDD) in Burie and Womberma Districts, West Gojjam, Ethiopia

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Abstract

Burie and Womberma districts are two of the endemic goiter areas in the country. The etiology of goiter in these areas is not fully studied so far. A cross-sectional , two-stage random sampling (sub-district and village) was used to select children aged 6-12 years and their biological mothers. The study revealed a total goiter prevalence rate of 54% and 30.1% in children and their biological mothers respectively. There are no goitrogenic foods such as cassava, however, goitrogenic chemicals such as Dichloro diphenyl trichloroethane (DDT) and 2, 4-Dichlorophenoxyacetic acid (2, 4-D) were widely used. In order to reverse the problem, immediate and sustainable distribution of iodated salt/oil capsule, prohibition of direct application of pesticides on foods and awareness creation on adverse effects of IDD and benefits of iodine nutrition is highly recommended.

Background

- IDD affect millions of people in developing countries because of dietary iodine deficiency and /or aggravating factors that affect the bioavailability of iodine in the body
- Iodine deficiency is one of the nutritional problems of public health importance in Ethiopia
- Burie and Womberma districts are known for endemic goiter, although rate is not known.
- To make matters worse, the rate of goiter in the districts is increasing
- More than half of the topography of the area is middle land (>50%) with a range of 750-2,500 meters above sea level and heavy rainfall and run-off

Method

- Cross-sectional study that used a two-stage random sampling (sub-district and village) was used to select children aged 6-12 years and their biological mothers from 10 randomly selected villages in each of the districts.
- The assessment was conducted using palpation of thyroid size, urinary iodine level determination, household level interview and Focus Group Discussion (FGD).

Results

Table 1. Total Goiter rate of children by sex (N = 513)

	Goiter grade ,%		*Goiter*	*Remark*
Sex	**Visible**	**Palpable**	**rate, %**	
Male	11.3	34.4	45.7	P =
Female	21.6	38.7	60.3	0.001
Total	***17.5***	***37.0***	***54.5***	
Mothers	14.7	17.0	31.7	

Table 2. % children by Urinary Iodine Excretion cutoff points

Cut off points	**Categories**	**% children in this study (n = 95)**
< 2 µg/ dl	Severe	64.4
2 – 4.9 µg/ dl	Moderate	31.2
5 - 9.9 µg/ dl	Mild	2.2
10 µg/ dl and above	Normal	2.2
Median Urinary Iodine (MUI)		*0.5 µg/dl*
Mean ± STDEV		*2.8 ± 7.5 µg/dl*

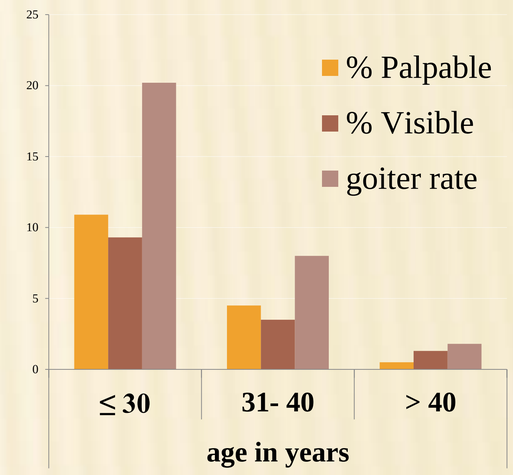

Figure 1. Goiter rate of biological mothers of children by age category (N = 387)

Table 3. Knowledge, Attitude and Practices of the households (N = 390)

Parameters	**%**
Households who are using iodated salt	1.1
% biological mother reported having knowledge on cause of goiter	12
% biological mother reported having knowledge on importance of iodized salt	1.3
Goiter rate among of Women using contraceptives (p = 0.05)	58.2

Conclusions

- Dietary iodine deficiency is a major problem in the districts.
- There are no goitrogenic foods, however, goitrogenic chemicals such as Dichloro diphenyl trichloroethane (DDT) and 2, 4-Dichlorophenoxyacetic acid (2, 4-D) were widely used

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