

Research Article

Prevalence of goitre among school going children in urban area of Dehradun

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ABSTRACT

Background: Iodine is an important micro-nutrient required for human nutrition. Iodine Deficiency Disorders (IDDs) are one of the major world-wide public health problems of today which causes wide spectrum of disabilities. It includes impairment of reproductive functions, lowering of IQ levels in school age children, goiter, deaf mutism, mental defects, weakness and paralysis of muscles as well as lesser degree of physical dysfunction.

Methods: Selection of population: The school children in age group of 6-18 years from both the sexes were screened from SGRR Schools of different locations at Dehradun, after taking approval from principal and the parents.

Results: The prevalence of goitre among school going children was 5%. Prevalence of goitre among female was 6.4% compare to male were 4.1%. There was significant association found between prevalence of goitre and vegetarian diet. In pre pubertal age (11-14 years) maximum (7.6%) cases of goitre were seen. A significant association of goitre with pallor was also observed

Conclusion: The sustained efforts in implementing the guidelines of National Iodine Deficiency Disorders Control Programme (NIDDCP) have been able to reduce the prevalence of goitre in Uttarakhand state. In spite of reduction in prevalence over years, goitre continues to be a major public health problem in the state.

Keywords: Prevalence, Goitre, School children

INTRODUCTION

Iodine is an important micro-nutrient required for human nutrition. Iodine Deficiency Disorders (IDDs) are one of the major world-wide public health problems of today which causes wide spectrum of disabilities. It includes impairment of reproductive functions, lowering of IQ levels in school age children, goitre, deaf mutism, mental defects, weakness and paralysis of muscles as well as lesser degree of physical dysfunction. Many studies conducted all over India had shown high prevalence of

goitre. In an attempt to eliminate iodine deficiency and to comply with the international goal of Universal Salt Iodization (USI), compulsory iodization of all table salts was introduced in India in 1983.

In June 1992 the national goitre control programme was appropriately redesigned as "National Iodine Deficiency Disorders Control Programme (NIDDCP)", in recognition of the spectrum of disorders due to iodine deficiency.

Objectives

To evaluate the prevalence of goitre in school going children

METHODS

Selection of population: The school children in age group of 6-18 years from both the sexes were screened from SGRR Schools of different locations at Dehradun, after taking approval from principal and the parents. Each child was given a reference number and a questioner Performa was given on prior day to the class teacher to fill it by parents and teachers them self. Next day the enrolled students were examined in OPD by a specialist and complete the performa.

RESULTS

Table 1 shows the prevalence of goitre in school going children in our study was 5%. Total no. of children were 1278 including both male and female out of which 64 were having goitre.

Table 1: Prevalence of goitre among the study sample.

Goitre	Frequency	Percent
Yes	64	05.0
No	1214	95.0
Total	1278	100.0

Table 3 shows out of 1278, 518 (40.5%) were female and 760 (59.5%) were male child and out of 518 female 33(6.4%) and out of 760 male 31 (4.1%) were having goitre.

Table 2: Prevalence of goitre among different age groups.

Age group (years)	Goitre		Total
	No	Yes	
7-10	335	3 (0.9%)	338
11-14	694	56 (7.4%)	750
15-18	185	5 (2.6%)	190
Total	1214	64	1278

There in a significant association between goitre and increased age (P <0.05) this is due to increase demand of iodine at growth spurt.

There was no significant association found between prevalence of goitre and gender (P >0.05).

Table 4 shows that out of 1278 children 767 (60.0%) were non vegetarian and 511 (40%) were vegetarian.

There was significant association found between prevalence of goitre and dietary habits (P <0.001)

Table 3: Gender distribution of goitre among the study sample.

Goitre	Gender		Total (%)
	Female (%)	Male (%)	
No	485 (93.6)	729 (95.9)	1214 (95)
Yes	33 (6.4)	31 (4.1)	64 (5)
Total	518 (40.5)	760 (59.5)	1278

There is no significant association between goitre and gender (male/female) (P >0.05)

Table 2 shows age wise prevalence of goitre out of 1278, 338 (26.4%) child between age of 7 to 10 years, 750 (58.7%) child were between age of 11 to 14 and 190 (14.9%) child were between age of 15 to 18 years.

Table 4: Association of dietary habits and goitre.

Goitre	Dietary habits		Total
	Non veg (%)	Veg (%)	
No	753 (98.1)	461 (90.2)	1214
Yes	14 (1.9)	50 (9.8)	64
Total	767	511	1278

There is a significant association between goitre and dietary habit (Veg/non veg) (P <0.001)

It shows that prevalence among 11 to 14 years age (Pre pubertal) was found to be 7.6% (56/750).

There is a significant association between Goitre and increased age (P <0.05).

Table 5 shows out of 1278 children 222 (17.3%) were having pallor and 1056 (82.7%) were normal.

Table 5: Association of goitre with pallor.

Goitre	Pallor		Total
	Yes (%)	No (%)	
No	161 (13.3)	1053 (86.7)	1214
Yes	61 (95.3)	3 (4.6)	64
Total	222 (17.3)	1056 (82.7)	1278

There is a significant association between goitre & pallor (P <0.001)

There is a significant association between goitre and pallor (P <0.001). However no such study was found during review of literature for comparison.

DISCUSSION

In our present study was conducted among 1278 school going children of Dehradun district of Uttarakhand. In age b/w 6-18 years we found that goitre prevalence was 5% however other studies across India showed a prevalence

that ranged from 2.4% to 30% in different geographical area.

In a study done by T. Sahu et al.¹ from Kandhmal district in Orissa. The goitre prevalence was 30.18% among 1448 school going children of aged 6-12 years.

In a study at Kulgam district Jammu & Kashmir, by S. Mohammad Salim Khan et al.² The goitre prevalence was 18.9% among 2700 school going children of aged 6-12 years. In a similar study done by R. K. Gakkhar et al.³ from Jabalpur, (M. P.) goitre prevalence was 2.4% (26/1205) among school going children of aged 6-12 years.

In our present study females were found to have higher prevalence 33/518 (6.9%) then males 31/760 (4.1%), however difference was not statistically significant.

In a study done by R. K. Gakkhar et al.³ Girls higher prevalence (3.2%) then boys (1.6%) however the difference was statistically not significant. In a study at Kulgam district, Jammu and Kashmir India shows higher prevalence among boys 21.2% than girls 16.7%

In our study the prevalence of goitre is maximum among age group 11 to 14 years 56 (7.4%)/750 followed by 5 (2.6%)/190 between 15-18 and 3 (0.9%)/ 338 between 7-10 years of age group. There was strong statistically association in pre pubertal age group (11-14 years).

In study done by Ramesh et al.⁵ shown similar findings, the prevalence of goitre was maximum between age group 10-12 years (12.3%).

In present study the children predominately on vegetarian diet were found higher prevalence 9.8% (50/511) as compare to non-vegetarian diet 1.9 % (14/767). There is a strong statistically significance found in children who are on predominant vegetarian diet.

In a similar study by Ramest et al.⁵ at Kottayam district Kerala 600 school going children of 6-12 years age groups found higher prevalence of goitre among vegetarian 11.4% (49/429) as compare to non-vegetarian diet 5.8% (10/171).

CONCLUSION

The sustained efforts in implementing the guidelines of National Iodine Deficiency Disorders Control

Programme (NIDDCP) have been able to reduce the prevalence of goitre in Uttrakhand state. In spite of reduction in prevalence over years, goitre continues to be a major public health problem in the state. There may be some other reasons responsible for goitre prevalence other than low iodine intake example environmental goitrogens which needs further study.

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Ethical approval: The study was approved by the institutional ethics committee

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