

Age, sex, religion and caste specific goitre prevalence in Murshidabad district of West Bengal, India

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ABSTRACT

Goitre prevalence of selected population in respect of age, sex, religion and caste was evaluated in the Murshidabad district of West Bengal during post salt iodization phase. The study was carried out on 9321 school children in the age group 6-12 years of both sexes from randomly selected 26 representative localities from all 26 Community Development Blocks. Children were clinically examined for goitre. Result showed that the prevalence of goitre was found at endemic level. The overall goitre prevalence was found 22.1%. Besides palpable goitre (2.5%), the prevalence of visible goitre (19.7%) in school children was prevalent. A gradual increase in goitre rate was found from the age of 6 year till the age of 8 year followed by a short decline at the age of 9 year to 12 year. Goitre was most prevalent in Hindus (23.7%) than Muslim (21.4%) communities. Among the Hindus, general caste (20.8%) students suffered more than Scheduled caste and Scheduled tribe (19.0%). These variations in goitre prevalence among different caste and religions might be due to their different environmental adaptability and dietary habit.

Keywords: Goitre, Age, Sex, Religion, Caste, Murshidabad.

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INTRODUCTION

A normal thyroid gland has the minimal size compatible with euthyroidism under conditions of normal iodine intake in nongoitrogenous environment. This gland would be nonpalpable or barely palpable. A thyroid gland whose lateral lobes have a volume greater than the terminal phalanges of the thumbs of the person examined would be considered goitrous as the definition of goitre for practical purposes as has been recommended by Perez *et al.*¹

In the large area of Gangetic West Bengal, the population of all ages and both sexes irrespective of their socio-economic status are severely affected by endemic goitre and associated iodine deficiency disorders (IDD) in spite of the consumption of iodized salt. The reported areas are Howrah district, Sundarban delta of South 24- Parganas and North 24- Parganas districts.^{2,3,4} Prevalence of goitre among school children (6–12 year) of the Murshidabad district of West Bengal was also reported.^{5,6} The multifactorial nature and complex interactions of host factors (sge,sex) with region-specific environmental conditions in the pathogenesis of endemic goiter constitute a major challenge in understanding and control of the problem of goitrogenic substances in endemic areas.⁷ So, in the present study, attempt has been made to find out the interaction of host factors, viz. age, sex, religions, caste in influencing goitre prevalence among school children during post salt iodization phase i.e., during the time when supplementation of iodine through edible salt was made mandatory.

MATERIALS AND METHODS

Murshidabad is one of the important and historical districts in West Bengal. There are 26 CD Blocks under 5 sub-divisions in Murshidabad district. Despite the progress of West Bengal

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in every way there is no significant change observed in Murshidabad district. Poverty and illiteracy are very common. Most of the people are engaged in agricultural activities. From each CD block one area was selected at random by purposive sampling method.⁸ In each area one primary school and one the nearest adjoining secondary school were selected at random because the children in the age group 6-12 year were available in the primary school and the children in 10-12 year were made available in the secondary school.^{3,4} In the areas where the primary school is attached with secondary school and both the boys and girls are available, one school was found sufficient. On the other hand in the areas where the school for boys and girls were separate, one boys' school and one girls' school were selected.

All the student of the recommended age group who were present on the day/days of survey were clinically examined for goiter. The age of students was recorded from the school register and was rounded off to the nearest whole number. Goiter was graded as per definition provided by the WHO/ UNICEF/ICCIDD⁹ consultation on IDD indicators.

Table 1. Sex, religion and caste specific goitre prevalence in Murshidabad district

Host factors	No. of children examined	Number of children with goitre		
		Grade 1	Grade 2	Total
Boys	4,445	712 (16.0%)	85 (1.9%)	797 (17.9%)
Girls	4,876	1120 (23.0%)	156 (3.2%)	1276 (26.2%)
Hindus	3,007	625 (20.8%)	89 (2.9%)	714 (23.7%)
Muslims	6,314	1207 (19.1%)	142 (2.2%)	1349 (21.4%)
General caste	1894	340 (17.9%)	55 (2.9%)	395 (20.8%)
SC/ST	1113	178 (16.0%)	34 (3.0%)	212 (19.0%)

The grading of goitre is described as follows

Grade 0: No palpable or visible goitre

Grade 1: A goitre that is palpable but not visible when the neck is in the normal position (i.e., the thyroid is not visibly enlarged). Thyroid nodules in a thyroid which is otherwise not enlarged fall into this category.

Grade 2: A swelling in the neck that is visible when the neck is in a normal position and is consistent with an enlarged thyroid when the neck is palpated.

RESULTS

In all 9,321 school children of age group 6-12 years of both sexes were selected randomly from 76 schools of 26 blocks taking at least 250 children from each block. The overall goitre prevalence was found 22.1%. Besides palpable goitre (2.5%), the prevalence of visible goitre (19.7%) in school children was prevalent. A gradual increase in goitre rate was found from the age of 6 year till the age of 8 year followed by a short decline at the age of 9 year to 12 year (Fig. 1). The overall result showed that girls (26.2%) were more affected than boys (17.9%) (Table 1). The prevalence of grade 2 goitre is also found higher in girls (3.2%) than boys (1.9%) (Table 1). Result showed that goitre was most prevalent in Hindus (23.7%) than Muslim (21.4%) communities (Table 1). Among the Hindus, general caste (20.8%) students suffered more than Scheduled caste and Scheduled tribe (19.0%) (Table 1). Age specific data showed that in initial stage (6 year) growth pattern is comparably better in boys than girls. The growth rate is high among the girls than boys at the age of 9 year to 12 year. It may be due to the high demand of steroid hormones among the girls before menarche.

DISCUSSION

The epidemiological criteria in defining the severity of public health problem in a geographical area has been recommended by WHO/UNICEF/ICCIDD (1994).¹⁰ According to WHO/UNICEF/ICCIDD¹⁰ recommended criteria, a prevalence rate of 5.0-19.9% is considered mild; 20.0-29.9% is considered as moderate and a prevalence rate of above 30% is considered as a severe public health problem. The overall goitre prevalence in the studied region is 22.1 % which indicates

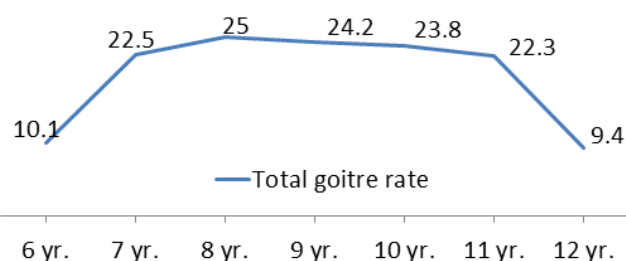


Figure 1: Age specific total goitre prevalence in Murshidabad district

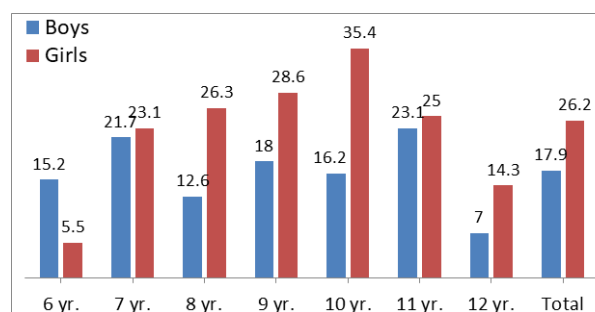


Figure 2: Age and sex specific total goitre (Grade 1 and Grade 2) prevalence among school children in Murshidabad district.

that clinically the region is moderately goitre endemic zone. A gradual increase in goitre rate was found from the age of 6 year till the age of 8 year followed by a short decline at the age of 9 year to 12 year. (Figures 1 and 2). Epidemiological data compiled from the result of surveys made by a number of workers also show that the prevalence of goitre rises steadily in both sexes upto a certain age and thereafter it starts declining in nature.^{2,11,12,13} The reduced goitre prevalence in the higher age was probably for the compensatory adjustment of the thyroid gland with the advancement of age. The overall result showed that girls (26.2%) were more affected than boys (17.9%). The prevalence of grade 2 goitre is also found higher in girls (3.2%) than boys (1.9%) (Table 1). The higher prevalence in girls has been generally attributed to increase physiological demands at puberty. Result showed that goitre was most prevalent in Hindus (23.7%) than Muslim (21.4%) communities (Table 1). Among the Hindus, general caste (20.8%) students suffered more than Scheduled caste and Scheduled tribe (19.0%) (Table 1). These variations in goitre prevalence among different caste and religions might be due to their different environmental adaptability and dietary habit.

CONCLUSION

The present study shows that the entire studied region is moderately affected by endemic goitre or clinically the region is moderately IDD affected. The prevalence of grade 2 goitre was more in girls than boys. Goitre was most prevalent in Hindus than Muslim communities. Among the Hindus, general caste students suffered more than Scheduled caste (SC) and Scheduled tribe (ST).

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