

## Original Article

# Study on Goitre In The Villages of Sirajgonj In Bangladesh

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### Abstract

*A total of 551 subjects were studied, 363 males and 188 females in some villages in Sirajgonj. The purpose of the study was to unravel the relation of goitre to intake of iodized-salt, mustard oil and cabbage. In our study the prevalence of goitre was 28.13%, in which the goitre of grade 1 and grade 2 was 21.96% and 6.17% respectively. In our study males were suffering more than the females. In this study goitre prevalence in those taking iodized salt was 28.57% and in those taking non-iodized salt was 28.05%. It is wonder to note that after more than two decades of enacting iodized salt more than 80% took non-iodized salt and even then the prevalence of goitre in the two groups were almost identical, with utter surprise goitre prevalence was more in those who took iodized salt. In this study goitre prevalence in those taking mustard oil was 28.6% and in those taking non-mustard oil was 24.14%. Goitre prevalence was much more in those who took mustard oil than those who took non-mustard oil. In this study goitre prevalence in those taking cabbage was 28.12% and in those taking non-cabbage was 28.21%.*

### Introduction

Goitre is the enlargement of the thyroid gland. The thyroid gland is located in the neck below the larynx, on either side of and anterior to the trachea<sup>1</sup>. The posterior surface of the isthmus is firmly adhered to the second to fourth rings of the trachea, by pretracheal fascia the investment of the whole gland by pretracheal fascia were responsible for the gland moving up and down with the larynx during swallowing<sup>2</sup>. Environmental goitrogens include foods such as cassava, cabbage, turnip, maize, bamboo shoots and mustard<sup>3</sup>. The Government of Bangladesh has enacted iodized salt in 1989 and its iodine content should be 45 to 50 parts per million (PPM) at production and at least 20 PPM at the time of selling<sup>4</sup>. The purpose of the study was to unravel the relation of goitre with intake of iodized-salt, mustard oil and cabbage.

### Methods and materials

A number of villages Panchthakuri, Jamunabazarhat, Aminpur and Matiarpur at Sirajgonj in Bangladesh were surveyed for goitre. The purpose of the study was explained to each subject. Subjects were instructed to keep their head erect. Enlargement of thyroid gland was looked for in front of the neck and confirmation of one by observing the upward movement of the swelling on deglutition. It was grade 2 goitre. If it was not visible then the neck was palpated with fingers while the subject was requested to swallow. If it was palpable then it was grade 1 goitre. If it was neither visible nor palpable then it was grade 0 goitre. Besides this the subjects were asked for whether they were taking iodized salt, non-iodized salt or both of them. They were also asked for whether they were taking soybean oil, mustard oil or both of them. Lastly it was inquired for whether the subjects were taking cauliflower, cabbage or both of them or none of them.

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## Results

Grade 0 was reported as non-goitre and grade 1 and grade 2 were reported as goitre in the tables. A total of 551 subjects were studied, 363 males and 188 females. According to the presence of goitre they were graded as:

Grade 0: 250 males and 146 females

Grade 1: 94 males and 27 females

Grade 2: 19 males and 15 females

### Goitre and salt intake

35 males and 9 females were taking iodized salt, 296 males and 171 females were taking non-iodized salt and 32 males and 8 females were taking both the salts.

Grade 0: 27 males and 5 females were taking iodized salt, 202 males and 134 females were taking non-iodized salt and 21 males and 7 females were taking both the salts.

Grade1: 8 males and 3 females were taking iodized salt, 77 males and 23 females were taking non-iodized salt and 9 males and 1 female were taking both the salts.

Grade 2: 1 female was taking iodized salt, 17 males and 14 females were taking non-iodized salt and 2 males were taking both the salts.

### Goitre and oil intake

39 males and 19 females were taking soybean oil, 256 males and 130 females were taking mustard oil and 68 males and 39 females were taking both the oils.

Grade 0: 29 males and 15 females were taking soybean oil, 177 males and 101 females were taking mustard oil and 44 males and 30 females were taking both the oils.

Grade 1: 7 males and 3 females were taking soybean oil, 64 males and 19 females were taking mustard oil and 23 males and 5 females were taking both the oils.

Grade 2: 3 males and 1 female were taking soybean oil, 15 males and 10 females were taking mustard oil and 1 male and 4 females were taking both the oils.

### Goitre and vegetables intake

27 males and 33 females were taking cauliflower, 9 males and 5 females were taking cabbage, 316 males and 143 females were taking both cauliflower and cabbage and 11 males and 7 females were taking neither cauliflower nor cabbage.

Grade 0: 16 males and 26 females were taking cauliflower, 8 males and 4 females were taking cabbage, 219 males and 109 females were taking both cauliflower and cabbage and 7 males and 7 females were taking neither cauliflower nor cabbage.

Grade 1: 9 males and 7 females were taking cauliflower, 1 male and 1 female were taking cabbage, 81 males and 19 females were taking both cauliflower and cabbage and 3 males were taking neither cauliflower nor cabbage.

Grade 2: 2 males were taking cauliflower, 16 males and 15 females were taking both cauliflower and cabbage and 1 male was taking neither cauliflower nor cabbage.

Table 1. Prevalence of goitre according to sex

| Subjects   | Male N%     | Female N%   | Total N%    |
|------------|-------------|-------------|-------------|
| Goitre     | 113 (31.13) | 42 (22.34)  | 155 (28.13) |
| Non-goitre | 250 (68.87) | 146 (77.66) | 396 (71.87) |
| Total      | 363 (100)   | 188 (100)   | 551 (100)   |

Table 1

Table 2. Prevalence of goitre in those who took iodized salt.

| Subjects   | Iodized salt N% | Non-iodized salt N% | Total N%    |
|------------|-----------------|---------------------|-------------|
| Goitre     | 24 (28.57)      | 131 (28.05)         | 155 (28.13) |
| Non-goitre | 60 (71.43)      | 336 (71.95)         | 396 (71.87) |
| Total      | 84 (100)        | 467 (100)           | 551 (100)   |

Table 2

Table 3. Prevalence of goitre in those who took mustard oil.

| Subjects   | Mustard oil N% | Non-mustard oil N% | Total N%    |
|------------|----------------|--------------------|-------------|
| Goitre     | 141 (28.6)     | 14 (24.14)         | 155 (28.13) |
| Non-goitre | 352 (71.4)     | 44 (75.86)         | 396 (71.87) |
| Total      | 493 (100)      | 58 (100)           | 551 (100)   |

Table 3

Table 4. Prevalence of goitre in those who took cabbage.

| Subjects   | Cabbage N%  | Non-cabbage N% | Total N%    |
|------------|-------------|----------------|-------------|
| Goitre     | 133 (28.12) | 22 (28.21)     | 155 (28.13) |
| Non-goitre | 340 (71.88) | 56 (71.79)     | 396 (71.87) |
| Total      | 473 (100)   | 78 (100)       | 551 (100)   |

Table 4

## Discussion

In our study the prevalence of goitre was 28.13%, of which grade 1 goitre was 21.96% and grade 2 goitre was 6.17%. Three major surveys -the than East Pakistan Nutrition Survey of 1962-64, the National Goitre Prevalence Study of 1981-82 and the National Iodine Deficiency Disorders Survey in Bangladesh-1993 showed prevalence rates of goitre in this country to the extent of 20%, 10.5% and 47.1% respectively<sup>5</sup>. Alam F and Moslem F found goitre in 73.5% in 1998. They studied 210 thyroid related disease patients, not in general population<sup>6</sup>. In our study males were suffering more than the females (Table 1).

In this study goitre prevalence in those taking iodized salt was 28.57% and in those taking non-iodized salt was 28.05%. This difference is not significant. Those taking both the iodized salt and non-iodized salt were grouped into those taking iodized salt. It is wonder to note that after more than two decades of enacting iodized salt more than 80% took non-iodized salt and even then the prevalence of goitre in the two groups were identical, with utter surprise goitre prevalence was more in those who took non-iodized salt (Table 2).

In this study goitre prevalence in those taking mustard oil was 28.6% and in those taking non-mustard oil was 24.14%. This difference is not significant. Those taking both the soybean oil and mustard oil were grouped into those taking mustard oil (Table 3).

In this study goitre prevalence in those taking cabbage was 28.12% and in those taking non-cabbage was 28.21%. This difference is not significant. Those taking both the cauliflower and cabbage were grouped into those taking cabbage. Those taking cauliflower and those who were taking neither cauliflower nor cabbage were grouped into those taking non-cabbage (Table 4).

## References

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