

# Estimation of degree of severity of goiter observed in some of the villages of Balaghat ranges of Beed district

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## Abstract

**Introduction:** As per Stedman's medical dictionary the word goiter has been taken from the French word 'goyter' which in turn is derived from the Latin word "guttur" meaning throat. A goiter is the chronic enlargement of thyroid gland, not due to neoplasm, occurring in mountainous regions and sporadically elsewhere. **Aims and Objectives:** To estimate the degree of severity of goiter observed in some of the villages of Balaghat Ranges of Beed District. **Material and Method:** The present study was carried out in Malewadi area Balaghat ranges of Beed District. The whole population of the study villages i.e. Malewadi, Malewadi Tanda, Dattawadi and Mandva was surveyed. Help of the appropriate village authorities was taken during the survey. All the houses were numbered serially and visited accordingly to be sure not to miss any house. The inhabitants present were examined clinically in the full day light and in standing position in morning hours only. Clinical examination was done for presence of goitre. The severity of goiter was assessed by the grading by Perez classification. **Results:** The overall prevalence rate was found to be 16.35%. Among males there were 7.53% of 0 grade goitre, 31.19% of Ia, 54.83% of Ib, and 6.45% cases of grade II are present. There were no cases of grade III and IV in males. Among females there are 7.29% of 0 grade, 30.61% of Ia, 44.02% of Ib, 13.41% of II, 3.50% of grade III and 1.17% of grade IV cases of goitre are seen. Majority of the patients in the age group less than 10 years of age were suffering from grade 0 and grade I of goitre. Whereas sever cases of goitre were observed in elderly population. **Conclusion:** Thus we conclude that the overall prevalence rate was found to be 16.35% and grade I and II were the common grades observed in the study. The severity of goiter was observed to be increasing with age and common in female.

**Keywords:** Goiter, severity, Perez classification.

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## INTRODUCTION

As per Stedman's medical dictionary the word goiter has been taken from the French word 'goyter' which in turn is derived from the Latin word "guttur" meaning throat. A goiter is the chronic enlargement of thyroid gland, not due to neoplasm, occurring in mountainous regions and

sporadically elsewhere<sup>1</sup>. There are certain diseases which manifest themselves so dramatically that, they promptly attract the attention of the health administration for an early and satisfactory intervention. But a few disease which have far reaching consequences, not only on the health of the people but also on the socio-economic development of the country, do not receive any attention due to their insidious nature. Endemic goiter belongs to latter group. It is one of the five principal deficiency diseases in the world today, besides kwashiorkar, marasmus, xerophthalmia and anaemia<sup>2</sup>. The term goiter is itself confusing and ill-defined, since in an endemic area the thyroid may vary in size from a non-palpable to a huge gland weighing more than one kilogram. Most authors accept the term, goiter, applied to the condition of any thyroid weighing 40gm or of size twice or more than normal<sup>3</sup>. Clinically, endemic goitre appears as a general or local hypertrophy of the thyroid parenchyma. Perez,

scrimshaw and Minoz do not admit the existence of goitre, unless the thyroid has become 4-5 times its normal size and is visible. In Maharashtra the goitre has been reported in the regions of Sahyadri at Mahabaleshwar area, in Satpura ranges in Dhule district from the city of Mumbai and in the districts of Auragabad, Pune, Wardha, Buldhana, Amravati and Jalna. According to world health organization definition, a geographical region is said to be endemic, if more than 10% of the population show clinical sign of generalised or localised thyroid hypertrophy<sup>4</sup>. In the present study we tried to find the prevalence of goitre in Malewadi area of Balaghat ranges, which is not an endemic area as per the government records but more cases has been diagnosed in this area. Beed district is situated between 18<sup>0</sup>27' and 19<sup>0</sup>27' North latitude and 74<sup>0</sup>49 'and 79<sup>0</sup>44' East longitude. The villages; s malewadi, dattawadi, malevadi tanda and mandva are situated in the hilly areas in the Balaghat extensions in south east corner of the district. It has height from 450-600 meter mean sea level.

### AIMS AND OBJECTIVES

To estimate the degree of severity of goiter observed in some of the villages of Balaghat Ranges of Beed District.

### MATERIAL AND METHOD

The present study was carried out in Malewadi area. It is located in Parai Vajinath, which is the field practice area of Rural Health Training Centre of Swami Ramanand Teerth Rural Medical College, Ambajogai, Dist. Beed. The malewade village is at a distance of 6km south east side of Parli Vajinath and Dattawadi is 5km south east of Malewade. Malewade Tanda is at a distance of 1 km. from Malewade and is situated on its west side. Mandva village is at a distance of 2 km north east wards of Malewade and 2 km north of Dattawadi. All these study villages are in the hilly area of Balaghat ranges of south east side. These villages are situated on the slopes of the hills. Malewadi and Dattawadi gets their water supply from the rivulets flowing between these hills. Mandva village gets water from the same rivulet 2kms downwards. Malewadi tanda gets its water supply from the stored water in the dam at the other side of the hill on another river, chandapur.dam. As such this area is about 450 to 600 meter above the mean sea level<sup>5</sup>. It was decided to example the whole population of the study villages i.e. Malewadi, Malewadi Tanda, Dattawadi and Mandva. It was decided to do the house survey to estimate the total population of study village and to examine simultaneously all persons clinically for the present of goitre and its consequences, as well grading the goitre. As it was decided to cover up the whole population under the study at least 4 visits were paid to

each family to example uncovered population. For the cases of hypothyroidism, clinical signs such as pallor, puffiness of face, coarse and thickened skin, relaxation of tendon jerks, sluggishness and lethargy and myxoedema were being looked. Examination of whole population was carried out in person in all study villages. Village health guides assisted for communication with families. Group meeting with local Sarpanch, Police Patil, Panchayat members and prominent villagers explained the purpose of study on 'galganda' and their co-operation was sought. All the houses were numbered serially and visited accordingly to be sure not to miss any house. The inhabitants present were examined clinically in the full day light and in standing position in morning hours only. Those having thyroid enlargement, grading was recorded as Perez classification. Clinical examination was done for presence of goitre and due attention was paid not be miss the following.

1. Consistency of thyroid
2. Presence of nodule
3. Feable mindness
4. Deaf mutism
5. Gait defect
6. Squint
7. Stunted growth
8. Evidence of hypothyroidis in adults such as pallor, puffiness of face, coarse and thickened skin, delayed relaxation of tendon jerks, slugginshness, lethargey and myxoedema.
9. Evidence of hyperthyroidism such as exophthalmos, tachycardia tremors, perspiration etc. was looked for.

The severity of goiter was assessed by the grading by Perez classification.

#### Classification of goitre grades (Perez classification)<sup>6</sup>

1. Thyroid not palpable or, if palpable not larger than normal
2. Thyroid distinctly palpable and definitely larger than normal but usually not visible with the head in normal or extended position.
3. Thyroid easily palpable and visible with head in an extended position. The presence of a discrete nodule is also qualifies a patient per inclusion in this grade.
4. Thyroid easily visible with head in a normal position.
5. Goiter visible at a distance
6. Monstrous goiter

Above information was recorded in pretested proformas. And collected data was analyzed by appropriate statistical methods.

### RESULTS

**Table 1:** Villagewise prevalence of goitre cases

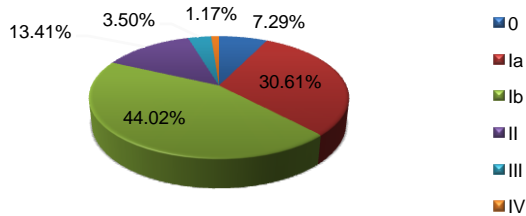
Population	No. (%)
Total population	2556
Population Examined	2097 (82.04%)
Goitre cases diagnosed	343
Prevalence	16.35%

The total population of the study villages was 2256, out of which 2097 was covered in this study (82.04%). Examined population contained 987 males and 1110 females. Out of the total of 2097 individuals clinically examined in this area, 343 individuals were found to have goitre. The overall prevalence rate was found to be 16.35%.

**Table 2:** Sexwise grade distribution of goitre cases

Grades	Males		Females		Total	
	No of cases	%	No of cases	%	No of cases	%
	0	7	7.53%	18	7.20%	25
Ia	29	31.19%	76	30.40%	105	30.61%
Ib	51	54.83%	100	40.00%	151	44.02%
II	6	6.45%	40	16.00%	46	13.41%
III	-	-	12	4.80%	12	3.50%
IV	-	-	4	1.60%	4	1.17%
<b>Total</b>	<b>93</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>343</b>	<b>100</b>

**Grade wise distribution of goitre cases**



It was observed that among males there were 7.53% of 0 grade goitre, 31.19% of Ia, 54.83% of Ib, and 6.45% cases of grade II are present. There were no cases of grade III and IV in males. Among females there are 7.29% of 0 grade, 30.61% of Ia, 44.02% of Ib, 13.41% of II, 3.50% of grade III and 1.17% of grade IV cases of goitre are seen.

**Table 3:** Agewise distribution various grades of goitre

Age Group	Grade						Total	%
	0	Ia	Ib	II	III	IV		
0-5	10	5	4	-	-	-	16	4.66
5-10	5	35	36	-	-	-	76	22.16
10-15	4	28	37	12	-	-	81	23.62
15-20	2	14	23	6	3	2	50	14.58
20-25	1	7	18	7	4	-	37	10.79
25-30	3	4	11	9	-	-	27	7.87
30-35	-	4	4	7	4	-	19	5.54
35-40	-	4	8	3	-	-	15	4.37
40-45	-	3	5	-	1	-	9	2.62
45-50	-	-	6	2	-	-	8	2.33
50-55	-	-	1	-	-	1	2	0.58
>55	-	1	1	-	-	1	3	0.88
<b>Total</b>	<b>25</b>	<b>105</b>	<b>151</b>	<b>46</b>	<b>12</b>	<b>4</b>	<b>343</b>	<b>100</b>

It was observed that majority of the patients in the age group less than 10 years of age were suffering from grade 0 and grade I of goitre. Whereas sever cases of goitre were observed in elderly population.

**Table 4:** Age and Sex wise distribution of various grades of goitre

Age group	Grades														%	
	Male							Female								
	0	Ia	Ib	II	III	IV	Total	0	Ia	Ib	II	III	IV	Total		
0-5	5	2	1	-	-	-	8	8.60	5	3	-	-	-	-	8	3.2
5-10	1	16	16	-	-	-	33	35.48	4	19	20	-	-	-	43	17.2
10-15	1	7	14	4	-	-	26	27.96	3	21	23	8	-	-	55	22.0
15-20	-	1	7	-	-	-	8	8.60	2	13	16	6	3	3	42	16.8
20-25	-	-	6	1	-	-	7	7.53	1	7	12	6	4	4	30	12.0
25-30	-	1	3	-	-	-	4	4.30	3	3	8	9	-	-	23	9.2
30-35	-	1	-	1	-	-	2	2.15	-	3	4	6	4	-	17	6.8
35-40	-	1	2	-	-	-	3	3.22	-	3	6	3	-	-	12	4.8
40-45	-	-	-	-	-	-	-	-	-	3	5	-	1	-	9	3.6
45-50	-	-	1	-	-	-	1	1.08	-	-	5	-	-	-	5	2.0
50-55	-	-	1	-	-	-	1	1.08	-	-	-	2	-	1	3	1.2
>55	-	-	-	-	-	-	-	-	-	1	1	-	-	1	3	1.2

Total	7	29	51	6	-	-	93	100	18	76	100	40	12	4	250	100
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It was seen that up to the age of 50 there was difference in prevalence of goitre in both sexes but after the age 15 onward goitre of grade II, III and IV was found more common in females whereas it regresses sharply in males after puberty.

## DISCUSSION

In the present study a total population of 2097 was covered, which was 82.04% of the actual population of the area (2556). The examined population contained 987 males and 1110 females. Out of the total of 2097 individuals clinically examined in this area, 343 individuals were found to be having goitre. The overall prevalence rate was found to be 16.35%. According to world health organization definition, a geographical region is said to be endemic, if more than 10% of the population show clinical sign of generalised or localised thyroid hypertrophy<sup>4</sup>. Thus we could state that the study area is an endemic for goiter. In the present study 7.53% cases of 0 grade goitre, 31.19% of Ia, 54.83% of Ib, and 6.45% cases of grade II were observed among the male population. While there were no cases of grade III and IV in males. Among females there are 7.29% of 0 grade, 30.61% of Ia, 44.02% of Ib, 13.41% of II, 3.50% of grade III and 1.17% of grade IV cases of goitre are seen. There was more number of cases of grade II, III and IV cases of goitre in females as compared to male population and the difference observed was also statistically significant ( $\chi^2_3=12.90$ ,  $p<0.005$ ). Similar finding were also reported by Sengupta SK et al<sup>7</sup> and Pattiwar SV<sup>8</sup> in their study. Prevalence of more number of grade II, III and IV can be explained on the basis of repeated pregnancies and lactation<sup>9</sup>. Lawson trait was one of the first to recognise the step wise enlargement of the thyroid gland in women with each succeeding pregnancies<sup>9</sup>. It was observed that majority of the patients in the age group less than 10 years of age were suffering from grade 0 and grade I of goitre. Whereas sever cases of goitre were observed in elderly population. Thus we can state that the severity of goitre increases with age. It was seen that up to the age of 50 there was difference in prevalence of goitre in both sexes but after the age 15 onward goitre of grade II, III and IV was found more common in females whereas it regresses sharply in males after puberty. In this study only 2 cases of females were found to have thyroid nodule, one in 15-20 year age group and one in 50-55 year age group. The reason for appearance of thyroid

nodule could not be attributed to any specific reason. It was also seen that there were total of 389 families in all 4 study villages, out of which 229 families were having goitre case/cases. There were 75 families out of 229 goitre affected families, having 2 or more number of goitre cases in their family. There was only one family having maximum number of 5 goitre cases. Reason for appearance of goitre in a family need to be studied further. A familial incidence of goitre has been observed. Not due solely to environment<sup>10</sup>. In this study no case with abnormalities associated with thyroid dysfunction such as endemic cretinism, deaf-mutism, mental retardation, Myxoedema and thyrototoxicosis was found.

## CONCLUSION

Thus we conclude that the overall prevalence rate was found to be 16.35% and grade I and II were the common grades observed in the study. The severity of goiter was observed to be increasing with age and common in female.

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