

# The prevalence of endemic goitre among penans of the baram

Paul C.Y. Chen, MD, MPH, MSc, FFCM,  
*Professor*

S.B. Yap, MBBS, MPH  
*Lecturer*

*Department of Social and Preventive Medicine  
Faculty of Medicine,  
University of Malaya  
59100 Kuala Lumpur*

## Summary

Two hundred and thirty three Penan households from the Silat area, Ulu Baram and the Tutoh of the Fourth Division, Sarawak, were studied with regards to the prevalence of endemic goitre and the consumption of iodised salt. Of the 343 Penan women aged 15 years and above who were examined, 60.6% had goitres. The serious nature of this, in the case of the Penans, is indicated by the fact that 39.3% of adult men have goitres. For both sexes, the remote Silat Penans had the highest rate of goitre prevalence, followed by those from the less inaccessible Ulu Baram, while the more accessible Tutoh had the lowest rates. Only 10.7% of the Penan households interviewed consumed iodised salt, while the majority (73.0%) used rock salt indicating that there was a need to revise legislation to require the iodization of all forms of salt including rock salt.

## Introduction

As in several areas in South-East Asia, Sarawak is endemic for goitre.<sup>1</sup> It has been noted that 39% of the women aged 15 years and above have visible goitres, with Lubok Antu<sup>2</sup> and the Upper Lemanak,<sup>3</sup> registering very high prevalences of 99.5% and 93.3%, respectively. Maberly reported that 3.5% of the children in the rural areas of the Sri Aman Division were endemic cretins.<sup>4</sup> This is caused by the simple lack of iodine in the diet.<sup>5</sup> Thus, in Sarawak, legislation requiring the iodization of fine table salt was passed in the year 1982. The question is whether this legislation has had any impact on the prevalence of goitre as many of the rural people in Sarawak do not use fine table salt but use a crude non-iodised rock salt. An example in question is the rural Penans of the Fourth and Seventh Divisions.

## Materials and Method

Of the many tribes in Sarawak today, the Penans are one of the most disadvantaged groups. With a total population of about 5,500, scattered throughout the Fourth and Seventh Divisions, most live in very inaccessible areas, along the tributaries of the Baram river. For the purposes of this study,

Table 1

Number and per cent of Penan women aged 15 years and over, by grade of goitre

Grade of goitre	Number (per cent) of adult Penan women			
	Silat	Ulu Baram	Tutoh	Total
None	0 (0%)	40 (38.1%)	95 (67.8%)	135 (39.4%)
I (palpable) but not visible	0 (0%)	16 (15.2%)	35 (25.0%)	51 (14.9%)
2 (small visible)	40 (40.8%)	39 (37.1%)	4 (2.9%)	83 (24.2%)
3 (moderate)	35 (35.7%)	10 (9.5%)	6 (4.3%)	51 (14.9%)
4 (large)	23 (23.5%)	0 (0%)	0 (0%)	23 (6.7%)
<b>Total</b>	<b>98 (100%)</b>	<b>105 (100%)</b>	<b>140 (100%)</b>	<b>343 (100%)</b>

three groups were included, namely, the Western Penans of the Silat area and the Eastern Penans of the Ulu Baram and the Tutoh. A total of 233 households were included in the goitre prevalence study. Some 707 respondents aged 15 years and above were examined and those having goitres were graded. The availability and consumption of salt, both iodised as well as non-iodised salt, was noted for the households included in the study.

## Results

Of the 707 respondents aged 15 years and above who were examined, the sex ratio was one male: 0.94 female. Some 60.6% of the women had goitres, of which the visible goitres made up 45.8% (Table 1). The prevalence rates of goitres also showed marked variation according to locality, with the highest prevalence among the remote Silat group (100.0%), followed by the less inaccessible Penans of the Ulu Baram with 61.9%, while the relatively accessible Penans of the Tutoh area had the lowest rate of 32.2%. The severity of goitre enlargement also showed variations according to locality, following the same pattern as that of the prevalence rates.

Table 2 shows prevalence of goitre among the Penan men with an overall rate of 39.3%. Differences in the prevalence rates of goitre also followed the same pattern as that observed among the women, with the remote Silat Penans having the highest rate of 87.8%, followed by the less inaccessible Penans of Ulu Baram and the relatively accessible Penans of the Tutoh with rates of 33.0% and 13.4%, respectively.

Of the 233 households interviewed, 16.3% did not use salt while only 10.7% used iodised salt. Most of the Penan households (73.0%) used rock salt which is not iodised since existing legislation only requires the iodization of fine table salt which is found mainly in the most urban areas.

Table 2

Number and per cent of Penan men aged 15 years and over, by grade of goitre

Grade of goitre	Number (per cent) of adult Penan men			
	Silat	Ulu Baram	Tutoh	Total
None	12 (12.2%)	73 (67.0%)	136 (86.6%)	221 (60.7%)
I (palpable) but not visible	4 (4.0%)	21 (19.3%)	18 (11.5%)	43 (11.8%)
2 (small visible)	76 (77.6%)	14 (12.8%)	2 (1.3%)	92 (25.3%)
3 (moderate)	6 (6.1%)	1 (0.9%)	1 (0.6%)	8 (2.2%)
4 (large)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<b>Total</b>	<b>98 (100%)</b>	<b>109(100%)</b>	<b>157 (100%)</b>	<b>364 (100%)</b>

### Discussion

Endemic goitre is a serious problem among rural Penans. Not only did 60.6% of adult women have goitres but 39.3% of adult men exhibited goitres. It is unusual for males to have such a high prevalence of endemic goitre.

The above findings indicate that inspite of legislation requiring the iodization of fine table salt, endemic goitre especially in the more remote and inaccessible areas of the state continues to be a serious problem. This is principally due to the fact that rural communities use cheap uniodised rock salt instead of fine table salt. Consequently there is a need for legislation to be revised to include the iodization of rock salt.

### References

1. Tan, Y.K. Endemic goitre in the state of Sarawak, Malaysia. In Delange, F. & Ahluwalia, R. (eds). Cassava toxicity and thyroid: Research and Public Health Issues. Proceedings of a workshop held in Ottawa, Canada, 31 May - 2 June 1982, IDRC, 1983; 64-68.
2. Polunin, I. Endemic goitre in Malaysia 5602-E (0081). Assignment Report, WHO Regional Office for the Western Pacific, Manila, 1971.
3. Alexander, G.H. Endemic goitre and salt iodization in Sarawak, Malaysia, Assignment Report, WHO Regional Office for the Western Pacific, Manila, 1979.
4. Maberly, G.F. & Eastman, C.J. Endemic goitre in Sarawak, Malaysia: I; Somatic growth and aetiology. South-east Asian J. Trop. Med. Pub. Hlth., 1976; 7: 434-442.
5. Ogihara, T., Oki, K., Iida, Y. & Hayashi, S. Endemic goitre in Sarawak, Malaysia. Endocr. Jap., 1972; 19: 285-293.