

# Oral Health Status in Southern Malawian School Children: Part I

JMP Moorhouse, PJJ Lancaster

**This survey set out to determine the oral health status in selected schools in the southern region of Malawi. A total of 399 six year olds and 477 twelve year olds were examined during June and July 1990. Male to female ratio was approximately 1:1. 25 six year olds and 30 twelve year olds were chosen at random in each school. All subjects were examined by one of the two examiners. 48% of six year old children had caries-free deciduous teeth. 5% of six year olds had some caries in their permanent teeth and 71% of twelve year olds were free of caries in their permanent dentition. The decayed component was the largest factor in the DMF index in both dentitions. Only 6 subjects were observed to have restorations and of these, five were in urban subjects. Limitations in selection criteria mean that it is not possible to extrapolate these results to describe the oral health status prevailing in urban and semiurban areas of the southern region of Malawi. No difference was noted between the caries and periodontal disease data of male and female subjects. There was a significantly higher prevalence of dental caries in the urban group than in the semi-urban group. There is no difference between the high prevalence of periodontal disease observed in the urban and semi-urban groups in this survey. It will be necessary to develop and implement preventive oral health education programmes in the community and to provide preventive and emergency oral health services that are affordable, accessible and acceptable to the community.**

## Introduction

There have been several oral health surveys in Malawi over the last decade<sup>1,2</sup>. A knowledge, attitudes and practice survey and examination of oral health status in Mchinji district was carried out in 1989<sup>3</sup>. The present survey set out to determine the

oral health status in certain schools in the southern region which could then be influenced by an oral health education programme. Because of the nature of the sample selection it is not possible to compare these results directly with those of the Mchinji study. However, it will be possible to evaluate the efficiency of the oral health education programme using this survey as baseline data and incorporating two schools as control groups. The results of this survey demonstrate the trend of dental caries and periodontal disease in six and twelve year old primary school children in these areas.

## Methods

The 7 districts selected had a dental assistant in post at the district hospital. Blantyre and Zomba districts were designated as being urban and the others as semi-urban (Mangochi, Chikwawa, Nsanje, Mwanza and Mulanje). Two schools were chosen in each district and each school had to be within easy access to the district hospital and could therefore be consistently influenced by the schools oral health education programme. Two other schools, one urban in Blantyre and one semi-urban in Mwanza were chosen to act as controls. A total of 399 six year olds and 477 twelve year olds were examined during June and July 1990. The male to female ratio was approximately 1:1. 25 six year olds and 30 twelve year olds were chosen at random in each school. All subjects were examined by one of the two examiners. Examiners had previously been calibrated to ensure consistency of results. Every tenth subject was re-examined at the end of the session by the same examiner. Overhead dental operating lights were used where possible, otherwise torches were employed. The criteria used for examination were those recommended by the W.H.O.<sup>4</sup>. During the survey any emergency treatment needed was provided where necessary.

## Results

There were 399 six year olds (males = 192, females = 207) and 477 twelve year olds (males = 223, females = 254) in the study. 31% of the six year olds and 31% of the twelve year olds were classified as urban. The remaining 69% of both age groups were classified as semi-urban. Table 1 shows the number

---

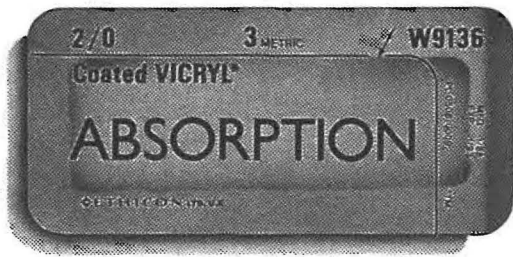
Dental Department, Queen Elizabeth Central Hospital

JMP Moorhouse, PJJ Lancaster

Correspondence to:  
Dr. J.M.P. Moorhouse  
Dental Department  
Queen Elizabeth Central Hospital  
Box 95  
Blantyre  
Malawi

---

# Why more and more Surgeons are selecting Coated VICRYL\*



and percentage of subjects with decayed primary and permanent teeth. 48% of 6 year old children had caries free deciduous teeth. 5% of 6 year olds had some caries in their permanent teeth and 71% of 12 year olds were free of caries in their permanent dentition.

Table 1 Number of children with decayed primary teeth (six year olds) and permanent teeth (twelve year olds)

Age:	location :	Total n	Subjects with caries n	(%)	Type of Teeth
6:	Urban	124	79	(64%)	Primary
	Semi-urban	274	128	(47%)	Primary
12:	Urban	148	49	(33%)	Permanent
	Semi-urban	329	86	(26%)	Permanent

In both age groups significantly more urban than semi-urban children had caries

Table 2 shows the mean number of decayed (D), missing (M) or filled (F) teeth per subject for deciduous and permanent teeth. The decayed component was the largest factor in the DMF index in both dentitions. Only 6 subjects were observed to have restorations and of these, five were in urban subjects. 71% of the 12 year old group had a DMF of 0, 10% of the same group scored DMF of 1 (2.5% were missing), and 11% had a DMF index of 2 in their permanent dentition.

Table 2 Mean number of primary and permanent teeth DMF by subject and Location

Age:	location	Total	DMF n (mean)	D n (mean)	M n (mean)	F n (mean)
6:	Urban	124	309 (2.5)	289 (2.3)	17 (0.1)	3 (0.02)
	Semi-urban	274	492 (1.8)	471 (1.7)	21 (0.08)	0 (0.0)
12:	Urban	148	127 (0.9)	103 (0.7)	23 (0.2)	1 (0.01)
	Semi-urban	329	185 (0.6)	177 (0.5)	7 (0.02)	1 (0.0)

The DMF index was significantly greater in the urban groups

The percentage of six year olds with various periodontal indicators were as follows: healthy (6%); bleeding (48%); calculus (46%). For twelve year olds the indicators were: healthy (9%); bleeding (21%); calculus (69%). The treatment needs for these periodontal conditions for 6 and 12 year olds are shown in Table 3.

Table 3 Treatment needs for periodontal conditions

Age	Oral Hygiene Instructions		Scaling
	n	(%)	(%)
6	399	94%	46%
12	477	1%	69%

Tables 4 and 5 show the percentage of subjects requiring extractions and conservation of teeth with the mean number of teeth to be extracted and filled. Numbers for 6 year olds show only primary teeth and those for 12 year olds show only permanent teeth.

Table 4 Teeth needing extraction

Age:	location	Subjects needing Extraction n	(%)	Mean number of teeth to be extracted
6:	Urban	124	31 (26%)	0.50
	Semi-urban	274	31 (11%)	0.24
12:	Urban	148	9 (6%)	0.11
	Semi-urban	329	25 (8%)	0.11

Table 5 Permanent teeth needing conservative care

Age:	location	Subjects needing Conservative care n	(%)	Mean number of teeth per subject
6:	Urban	124	71 (57%)	1.94
	Semi-urban	274	121 (44%)	1.54
12:	Urban	148	46 (31%)	1.94
	Semi-urban	329	87 (26%)	0.60

## Discussion

Ghandour<sup>5</sup> described males as having a lower DMF index and worse oral hygiene scores than the females in his study of 12 year old school children in Sudan. No significant difference was noted by gender in either the caries or the periodontal data in this survey. In 1978 Seyani<sup>6</sup> found the DMF of 12 year olds nationally to be 0.8. In 1984 Bailey<sup>1</sup> found the DMF of the same age school children in Blantyre to be 1.0 with the urban group of this sample having a DMF of 1.3. Mukiwa and Chimimba<sup>3</sup> in 1988 found the DMF of 12 year olds to be 1.1 with no difference between urban and rural populations. It is not possible to directly compare the results of this survey with those above because of the restrictions imposed by the selection criteria. However, significant differences were noted in the caries data between the urban and semiurban groups in this survey and this can be attributed to the greater availability of cariogenic drinks and foodstuffs in the urban areas and the ability of the parents of the school children to afford these items. That the DMF for 12 year olds is well below the target of DMF 3 by the year 2000

<sup>7</sup> is not a reason to relax our efforts in this sector. The percentage of 6 year olds with caries is already higher than the F.D.I. target of 50% and implies an increasing problem which requires preventive action at present rather than the institution of expensive curative services at a later date. Even after population growth is taken into account the increase in sugar sales (5% annually) and of beverages containing sugar (21 million litres in 1983 and 28 million litres in 1987) portends a huge increase in caries prevalence especially among the enlarging middle class.

The periodontal disease statistics represent a lack of preventive oral health behaviour and this implies a lack of awareness of oral health matters. Periodontal disease in this age group can be treated in two ways. First is the need to develop and implement preventive oral health education programmes in those groups of the community that are accessible using primary health care principles - in this case the primary schools. Second is the need for suitably trained cadres to remove the calculus deposits and emphasise the need for self-care and self-esteem. The first is the more appropriate and should be designed to produce a sense of self-reliance and self-esteem in the children.

### Conclusions

The limitations imposed on the selection criteria mean that it is not possible to use these results to describe the oral health status prevailing in urban and semiurban areas of the southern region of Malawi. However, these results can be used to portray the trend of oral disease prevalence in similar age groups in the same area.

No difference was noted between the caries and periodontal disease data of male and female subjects in this survey. There is a higher prevalence of dental caries in the urban group than in the semiurban group in this survey. There is no difference between the periodontal disease data of the urban

and semi-urban groups in this survey. It will be necessary to develop and implement preventive oral health education programmes in the community and to provide preventive and emergency oral health services that are affordable, accessible and acceptable to the community.

It will be necessary to repeat the oral health survey in the same schools after one year to determine the efficiency of the school oral health education programme. Further information is required of oral disease prevalence in the entire community and a national oral health survey should be undertaken as soon as possible.

### References

1. Bailey J. Survey of 12 year old primary school children in Blantyre 1984.
2. Chimimba PC. Survey of primary school children in Blantyre 1987. Paper presented to Dental Association of Malawi annual general and scientific meeting 1987.
3. Mukiwa WB, Chimimba PC. Oral health knowledge, attitudes, practices and oral health status in Mchinji.
4. Oral Health Surveys, Basic Methods, 3rd Edition.
5. Ghandour IAA, Ibrahim FA, Shehata AH. The prevalence of dental caries, fluorosis, and dental attitudes among primary schoolchildren in Omdurman - Sudan. *Tropical Dental Journal* 1988;3:103-106.
6. Seyani. 1978 Malawi oral health survey
7. International Dental Federation annual general assembly 1981 - global goals for oral health in the year 2000.

### Acknowledgements

The authors would like to thank the Ministry of Health for permission and assistance in carrying out this survey; Dr. W.B. Mukiwa for his advice and support throughout; and the dental assistants in the districts for their enthusiasm and diligence: Mr. Gama, Mr. Namathanga, Mr. Malema, Mr. Dzingovera, Mr. Asani, Mr. Mmangetsa and Mr. Chikafa; the British High Commission and Lever Brothers for their financial assistance.