

## Oral health of Aboriginal Australians

Australian Research Centre for Population Oral Health, The University of Adelaide, South Australia\*

### Introduction

Aboriginal Australians present with third world problems in a first world country as a result of the dispossession of their land, disruption of their culture, material deprivation and racial discrimination. They suffer high levels of morbidity and premature mortality. Historically, oral diseases were almost unknown among Aboriginal Australians. In the 1970s, reports noted the low dental caries experience of Aboriginal children compared to other Australian children.<sup>1,2</sup> As improvements in child dental health of most Australian children were reported over the last three decades, a worsening of the situation for Aboriginal children was simultaneously described.<sup>3</sup> While dental caries experience has remained comparatively low among Aboriginal adults, periodontal disease and tooth loss have emerged as substantial problems. Improvements in oral health will be a necessary component of any improvement in the health and well being of Aboriginal Australians.

### Methodology

Unless otherwise stated, data in this report come from a number of studies and surveillance activities conducted by the Australian Research Centre for Population Oral Health. Child oral health data were collected from all children in South Australia who used the South Australian Dental Service (SADS) in a six-month period during 2001 and included 900 Aboriginal children. Data on children from remote communities not regularly served by School Dental Services, were collected in 1999-2000 (n=412) in South Australia and the Northern Territory.

Oral health data for adults were collected in 1999-2000 among patients seeking dental care in one South Australian metropolitan (n=147) and two remote Aboriginal Dental Clinics (ADCs, n=534). Data from Aboriginal patients were also collected through public dental services (PDS) in South Australia and New South Wales (n=243).<sup>4</sup>

Due to differing sampling designs and the variety of sources of data, these data may not be representative of Aboriginal persons in Australia and should be regarded as indicative only.

### Results

#### Child oral health

The cumulative history of dental decay in permanent teeth was measured by the mean number of teeth that were decayed (DT), missing because of decay (MT) or filled because of decay (FT). Corresponding measures for

deciduous teeth were dt, mt and ft. At the tooth surface level DS, MS and FS, and ds, ms and fs indices were used.

Dental caries among South Australian Aboriginal children was about twice the level compared with non-Aboriginal children in both the deciduous and permanent teeth. The proportion of dental decay which was untreated was also greater (Fig 1). These comparisons are similar to previously published results for the Northern Territory for 1999.<sup>5</sup> A study by Bourke *et al.* (1999)<sup>6</sup> in South Australia found that caries levels in deciduous teeth among Aboriginal children differed by geographic location, being lowest in remote communities (mean dmfs=1.9), but higher in other non-metropolitan areas (mean dmfs=7.9) and in Adelaide (mean dmfs=5.2). Similar geographic variation was observed in the permanent teeth.

Comparisons of children over time indicate that whereas caries levels among non-Aboriginal children have historically been higher than Aboriginal children, the trend is now reversed with Aboriginal children having higher levels of caries.<sup>3,7</sup>

#### Adult oral health

##### Tooth loss

Complete loss of all natural teeth (edentulism) is an adverse outcome of the cumulative effects of oral disease. Previous research reports noted a higher percentage of Aboriginal and Torres Strait Islander persons with no natural teeth (16.3 per cent) than among non-Aboriginal Australians (10.2 per cent).<sup>8</sup>

Tooth loss is strongly associated with non-insulin-dependent diabetes,<sup>9</sup> a condition that is common among Aboriginal and Torres Strait Islander peoples. In the two

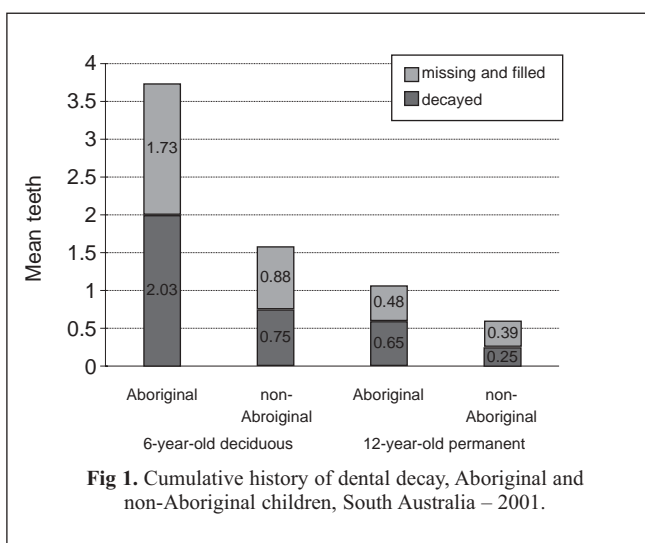
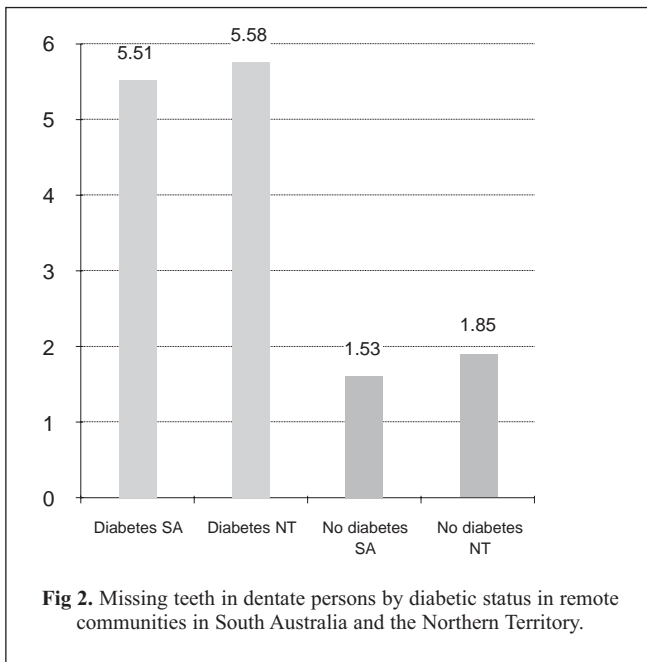


Fig 1. Cumulative history of dental decay, Aboriginal and non-Aboriginal children, South Australia – 2001.

\*Prepared by Kaye Roberts-Thomson



remote communities of central Australia where data were collected, persons with diabetes had over three times the number of missing teeth as those without diabetes (Fig 2).

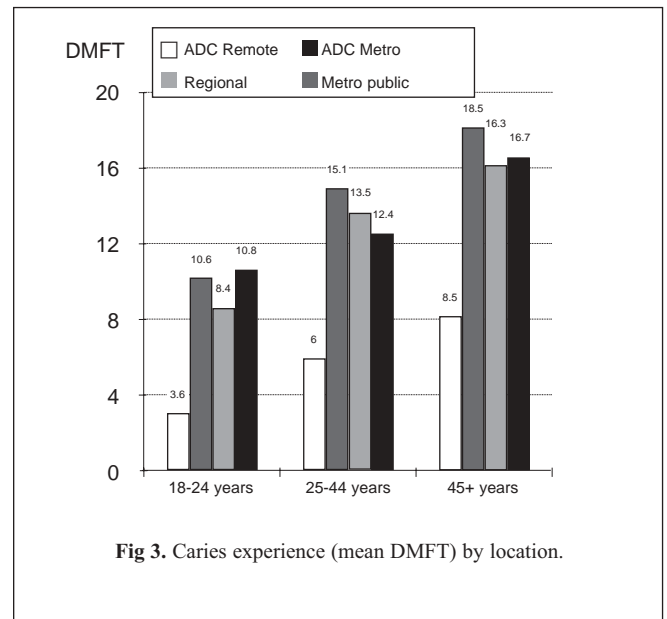
#### Dental decay

After adjusting for age, cumulative history of dental decay among Aboriginal Dental Clinic (ADC) patients in remote communities in South Australia was approximately 50 per cent lower than each of three other groups in non-remote areas: ADC patients in Adelaide, Aboriginal patients of public dental clinics in non-remote South Australia and New South Wales, and Aboriginal patients of regional New South Wales. For example, among 18-24 year olds, the mean DMFT values were 3.6, 10.6, 10.8 and 8.4, respectively. Among persons aged 45 years and over, the mean DMFT values were 8.5, 18.5, 16.7 and 16.3, respectively (Fig 3).

The distribution of components of decay reveals that the filled teeth component is lower among persons living in remote areas compared with those living in metropolitan and other (non-remote) locations. This pattern was consistent among all age groups. The majority of the decay experienced presented as untreated decay in the 18-24 year old group but the proportion decreased in other age groups. Missing teeth were the predominant component of caries experience in the oldest age group in both remote areas and Public Dental Services (PDS). However, in remote areas, missing teeth comprise almost 75 per cent of caries experience.

There is some evidence that decay rates in adults are increasing in remote communities. In one remote community of central Australia, caries experience doubled between 1987 and 1999, the number of missing teeth increased twofold and the number of filled teeth increased more than threefold.

The distribution of components of caries experience by age group and by location is shown in Fig 4. The pattern of caries experience in remote areas is compared to that seen in the PDS. The filled teeth component of the caries experience is lower in remote persons in all age groups. Untreated decay is the majority of the decay experience in the 18-24 year old group but decreases across the age groups.



Missing teeth is the predominant component in the oldest age group in both remote and PDS groups. However, in remote areas, missing teeth comprise almost 75 per cent of caries experience.

#### Periodontal status

Periodontal disease was measured using the Community Periodontal Index (CPI), a World Health Organization measure of periodontal health. Each person was categorized according to the most severe periodontal condition found by the examining dentist: 0 indicating satisfactory periodontal health, 1 — gingival bleeding, 2 — presence of calculus (tartar), 3 — periodontal pocket depth of 4-5mm and 4 — periodontal pocket depth of 6+ mm.

Among Aboriginal patients receiving care at public dental services and ADCs, the presence of calculus was the most common periodontal condition observed by examining dentists in persons below 45 years of age: 63 per cent among 18-24 year olds and 48 per cent among 25-44 year olds. However, in the 45 years and over age group 23 per cent had periodontal pockets of 6+mm and 25 per cent had periodontal pockets of 4-5mm. Figure 5 shows the percentage of Aboriginal persons in each age group by maximum CPI score.

The link between periodontal disease and diabetes is well established.<sup>10</sup> In these data, the percentage of persons with diabetes is 10.9 per cent in the 25-44 year age group and 50.6 per cent in the 45 years and over age group. The distribution of CPI scores shows marked differences between those with diabetes and those without (Fig 6). Among non-diabetics, a score of 2, indicating the presence of calculus, was the most common score. However, among persons with diabetes the most frequent CPI score was 4, indicating periodontal pockets of 6+mm.

#### Conclusions

Aboriginal children have more than twice the caries rates of non-Aboriginal children in the deciduous dentition, and dental caries in the permanent dentition among 12-year-old

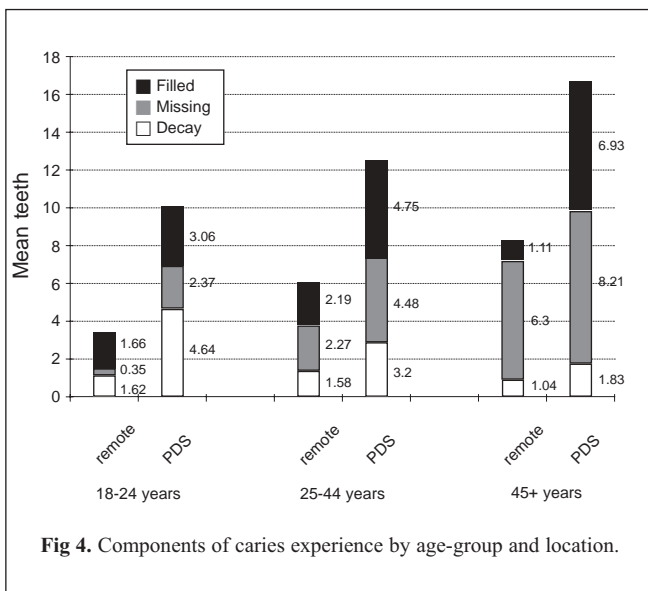


Fig 4. Components of caries experience by age-group and location.

Aboriginal children is almost twice that of non-Aboriginal children. The experience of childhood caries is particularly high in Aboriginal children and increasing.

Periodontal diseases are prevalent in Aboriginal adults. The widespread morbidity from periodontal disease in adults with non-insulin dependent diabetes mellitus (NIDDM) is profound. Periodontal diseases need to be more widely recognized as a complication of NIDDM especially when associated with poor glycaemic control.

It is well recognized that Aboriginal Australians have poorer health than non-Aboriginal Australians. The

increasingly poorer oral health outcomes only add to their disadvantage.

### References

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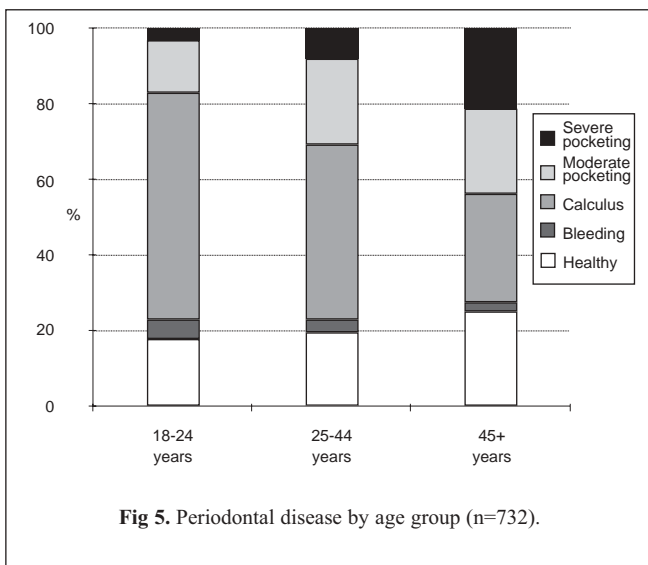


Fig 5. Periodontal disease by age group (n=732).

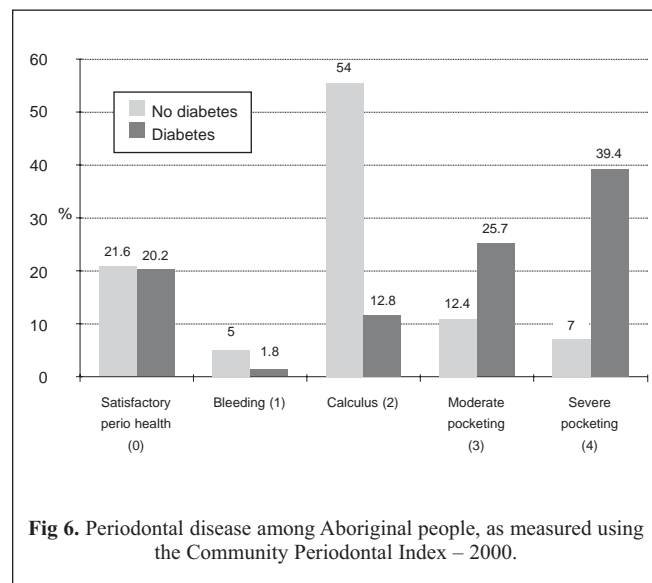


Fig 6. Periodontal disease among Aboriginal people, as measured using the Community Periodontal Index – 2000.