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# **The National Survey of Adult Oral Health 2004–06**

**South Australia**

**2008**

Australian Institute of Health and Welfare  
Canberra

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# Abbreviations

AAP	American Academy of Periodontology
AHMAC	Australian Health Ministers' Advisory Council
AIHW	Australian Institute of Health and Welfare
ARCPOH	Australian Research Centre for Population Oral Health
CAL	clinical attachment loss
CATI	computer-assisted telephone interview
CDC	US Centers for Disease Control and Prevention
CEJ	cemento-enamel junction
DHS	Department of Human Services, Melbourne
DMFT	number of decayed, missing and filled permanent teeth
DSRU	Dental Statistics and Research Unit
IRSDA	Index of Relative Socioeconomic Advantage/Disadvantage
MT	missing teeth
NHANES	US National Health and Nutrition Examination Survey
NHMRC	National Health and Medical Research Council
NOHSA	National Oral Health Survey of Australia
NSAOH	National Survey of Adult Oral Health
SEIFA	Socioeconomic Indices for Areas

## Place abbreviations

ACT	Australian Capital Territory
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
UK	United Kingdom
US	United States
Vic	Victoria
WA	Western Australia

# Symbols

\$	Australian dollars
%	per cent
..	not applicable
–	nil
>	greater than
<	less than
≥	greater than or equal to
≤	less than or equal to
<0	estimate is less than zero

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# Overview of results

This report describes levels of oral health in the adult population of South Australia (SA) at the beginning of the twenty-first century. The findings are from the 2004–06 National Survey of Adult Oral Health (NSAOH). In SA, 1,335 people were interviewed and 629 people were dentally examined for the survey. This report presents percentages and means for 30 oral health indicators in tables that compare three age groups and classify people according to five sociodemographic characteristics: sex, residential locality, socioeconomic status of residential postcode, government health card status and dental insurance status.

## Oral health status

- 8.2% of people had no natural teeth and among dentate people, an average of 4.1 teeth per person were missing. Tooth loss was associated with socioeconomic status of their residential postcode, government health card status, and dental insurance.
- 26.1% of people had untreated dental decay and an average of 12.7 teeth per person were decayed, missing or filled. Indicators of dental decay experience were more frequent among government health cardholders compared with non health cardholders.
- 18.4% of people had inflamed gums and 19.8% had moderate or severe gum disease. Indicators of gum disease occurred more frequently in males compared to females, and they were associated with government health card status, and dental insurance.

## Oral health care

- 57.9% of people had visited a dentist within the preceding 12 months, and 51.9% said they usually did so. These and two other measures of dental attendance varied according to socioeconomic status and dental insurance status.
- 78.6% of people had a dentist that they usually attended, although 28.0% said that they avoided or delayed dental care due to its cost. Barriers to dental care were most strongly associated with socioeconomic status, government health card status and dental insurance status.

## Oral health perceptions

- 17.7% of people said they had avoided some foods due to dental problems, and 15.2% had experienced toothache in the preceding 12 months. Perceptions of poor oral health were associated with socioeconomic status, government health card status and dental insurance status.
- 32.8% of people felt they needed an extraction or filling, although only 7.7% said they needed dentures. Government health cardholders and the uninsured reported relatively higher levels of treatment need.

Age-standardised analysis revealed that government health cardholders had poorer outcomes for 17 of the 29 indicators reported, while the uninsured had poorer outcomes for 20 of the 30 indicators.

# 1 Introduction

This report presents findings from the SA component of the 2004–06 National Survey of Adult Oral Health (NSAOH). Information was collected using interviews and standardised dental examinations that were conducted among a random sample of SA residents aged 15 years or more. Three major themes are reported in chapters describing oral health status, oral health care and perceptions of oral health. Statistics summarising those themes are tabulated for the SA adult population and for three age groups that are further classified according to: sex, residential locality, socioeconomic status of the area in which they live, government health cardholder status and dental insurance.

The 2004–06 NSAOH took place 17 years after the first oral examination survey of Australians conducted in the six states and the Australian Capital Territory (Barnard 1993). State/territory reports from that 1987–88 National Oral Health Survey of Australia (NOHSA) highlighted variations among age groups, between the sexes and between people living in or outside capital cities. The major findings reported from the survey were:

- children’s dental decay rates were low by historical standards and when compared internationally
- nearly one-half (48%) of adults had made a dental visit within the preceding year, the majority of them to a private dental practice (88%)
- however, 44% of adults were found to need one or more dental fillings
- the percentage of Australians with complete tooth loss had reduced compared with earlier interview surveys, although 50% of people aged 65 years or more had no natural teeth and
- one of the four national oral health targets had been achieved, and it was expected that the remaining three targets would be achieved by 2000.

However, the first survey did not collect information about government health cardholder status or socioeconomic status, and results were not contrasted between insured and uninsured.

In the 17-year period since the NOHSA, there has been substantial growth in public sector dental care and dental insurance. Increasingly, national and state/territory health goals call for reductions in socioeconomic inequalities in health, including oral health. For those reasons, this report includes a focus on the relationship between oral health and indicators of socioeconomic status and access to dental care, as well as the traditional demographic markers of age, sex and residential location.

## Purpose and organisation of this report

The purpose of this report is to provide a descriptive ‘snapshot’ of oral health in the adult population of SA. The findings are intended to provide up-to-date evidence that can contribute to the development of oral health policies and programs in SA.

This introductory chapter outlines the motives for undertaking the survey. Chapter 2 reviews the survey’s methods and describes the population distribution of sociodemographic and dental access characteristics presented in later tables. Statistical findings regarding oral health status are tabulated and described in Chapter 3, followed by statistical findings regarding oral health care (Chapter 4) and perceptions of oral health (Chapter 5). The Appendix contains additional tables of oral health statistics for conventional 10-year age groups. These are narrower than the age ranges reported in the chapters, and are presented to permit comparisons with surveys conducted at other places and other times.

The national report of the survey’s findings (Slade et al. 2007) provides additional details about the survey, including participation rates and analysis of potential biases due to non-participation. The national report also presents qualitative findings from ‘oral histories’ conducted with a small number of survey participants to document historical influences on the nation’s oral health. Further appendix material is available at:

<<http://www.arcpho.adelaide.edu.au/project/distribution/NSAOH.html>>.

## Background to the survey

Up-to-date information about population oral health is important because oral diseases have broad implications for the health of the public. Dental problems are ranked among the most frequently reported illness episodes by Australians (AIHW 2000), and provision of dental care accounts for 6.6% of recurrent health expenditure in 2005–06 (AIHW 2007). In the United States the Surgeon General characterised oral disease as a ‘silent epidemic’ (Surgeon General 2000).

In the 17 years following the 1987–88 NOHSA, no state-wide oral examination surveys of adults have been conducted. Instead, published oral examination surveys were restricted to special groups of the adult population and often they were conducted within selected locations in states. They included studies of oral health in:

- military recruits (Dawson & Smales 1994; Hopcraft & Morgan 2003a,b, 2005, 2006; Morgan et al. 1992)
- adults in Melbourne (Wright et al. 1994)
- community-dwelling elderly people (Bergman et al. 1991; Chalmers, Carter & Spencer 2002; Slade et al. 1993; Slade & Spencer 1995, 1997; Thomson et al. 1995)
- elderly people living in nursing homes or hostels (Chalmers, Carter, Fuss et al. 2002; Chalmers, Hodge et al. 2002; Chalmers et al. 2005; Saub & Evans 2001)
- Aboriginals and Torres Strait Islanders (Endean et al. 2004; Smith et al. 2007)
- immigrants (Marino et al. 2001, 2007) or refugees (Kingsford Smith & Szuster 2000)
- prisoners (Osborn et al. 2003)
- patients receiving dental care in public dental services (Brennan et al. 2000, 2001, 2007; Brennan & Spencer 2004) and
- patients with selected medical conditions (Coates et al. 1996, 2000).

By the late 1990s, several collaborative efforts among federal and state/territory stakeholders attempted to secure support for a second national oral health survey, although none were funded. Renewed impetus for a national survey began with the work of the National Advisory Committee on Oral Health (AHMAC 2001). The committee formulated a National Oral Health Plan for the period 2004–13 comprising seven action areas:

- promotion of oral health across the population
- children and adolescents
- older people
- people with low income and social disadvantage
- people with special needs
- Aboriginal and Torres Strait Islander people and
- workforce development.

One of four short-term goals listed for the plan's first action area was the conduct of a national survey of adult oral health. Fulfilment of that goal became possible in 2003 when researchers at the Australian Research Centre for Population Oral Health (ARCPOH) in The University of Adelaide sought project grant funding from the National Health and Medical Research Council (NHMRC). The proposal was for funding to support a collaborative project that pooled resources already committed or promised from the following sources: funding from the Australian Government Department of Health and Ageing to the Dental Statistics and Research Unit (DSRU) within ARCPOH to undertake a telephone interview survey; commitment of staff from oral health sections within state and territory health departments to conduct oral epidemiological examinations; and core funding from the Australian Institute of Health and Welfare (AIHW) to DSRU. Following peer review, the NHMRC awarded a project grant to ARCPOH in November 2003.

## Aspects of oral health and dental care relevant to the National Oral Health Plan

The National Oral Health Plan outlined nine population indicators that were informative in developing the plan and that are cited as key performance indicators to evaluate the outcomes of the plan. This survey reports findings that relate to six of those key performance indicators:

- The percentage of the dentate population reporting a social impact (for example toothache, difficulty chewing, concerned about appearance) because of problems with teeth, mouth or gums in the last 12 months, by age group, living circumstance, government health cardholder status, Indigenous identity and special needs.
- The percentage of the population with untreated decay, by age group, living circumstance, government health cardholder status and Indigenous identity.
- The proportion of the dentate population with a maximum periodontal pocketing of 3.5 mm and 5.5 mm, by age group.
- The mean number of missing teeth and proportion of existing teeth with untreated decay, by age group, living circumstance, government health cardholder status and card status, and Indigenous identity.
- The percentage of the dentate population who visited a dental practitioner in the last 2 years, by age group, living circumstance, government health cardholder status and Indigenous identity.
- The percentage of the dentate population whose reason for visiting a dental practitioner in the last 12 months was for a check-up, by age group, living circumstance, government health cardholder status and Indigenous identity.

## 2 Methods

Full details of the survey's methods have been described in Chapter 2 of the national report (Slade et al. 2007). The following summary highlights the main methodological features of the survey.

### Study population and sampling

A three-stage, stratified clustered sampling design was used to select people from the target population of Australian residents aged 15 years or more:

- Postcodes were sampled at random from capital city and non-capital city strata in six states and the Northern Territory, and from a single stratum in the Australian Capital Territory. Postcodes represented the geographic clustering in the design and were selected with probability proportional to size, where size was defined as the number of households listed in the 'electronic white pages' in each postcode.
- A systematic sample of households listed in the 'electronic white pages' was selected for each sampled postcode. Thirty households per metropolitan stratum and 40 households per ex-metropolitan stratum were selected.
- One person aged 15 years or more was randomly selected per household. In households with only one person aged 15 years or more, that person was selected. In other households telephone interviewers asked for the name of the person aged  $\geq 15$  years who most recently had had a birthday and the name of the person aged  $\geq 15$  years who would next have a birthday. A computer algorithm then selected one of those two people at random.

### Sampled postcodes

In SA the following postcodes were sampled: 5008, 5014, 5019, 5023, 5032, 5038, 5041, 5044, 5048, 5051, 5063, 5067, 5070, 5074, 5082, 5086, 5091, 5096, 5108, 5109, 5113, 5118, 5155, 5159, 5162, 5167, 5174, 5212, 5251, 5275, 5290, 5302, 5341, 5373, 5491, 5573, 5725.

### Computer-assisted telephone interview

Self-reported information about oral health and characteristics associated with it was obtained through telephone interviews. Interviewers read questions from a computer screen and recorded answers directly onto the computer. They were conducted from a dedicated computer-assisted telephone interview (CATI) suite at University of Adelaide research offices. The methods were based on those advocated by Dillman (2000), including the mailing of a letter to households prior to telephoning, a protocol for contacting each household and standardised procedures for asking questions and recording answers. Interviews were conducted by 29 interviewers, each of whom was trained in the survey methods. Every effort was made to interview the target person although, in certain circumstances, the questions were answered by another adult in the form of a proxy interview.

The interview consisted of 79 questions, several with multiple response categories. A copy of the questions used is included in an Appendix available online:

<<http://www.arcpoh.adelaide.edu.au/project/distribution/NSAOH.html>>.

## Oral epidemiological examination

Information about clinical oral status was collected during standardised dental examinations conducted by dentists who undertook training in the survey procedures. Examinations were limited to people who reported having some or all of their own natural teeth at the time of the interview. Examining dentists followed a standardised protocol to record levels of tooth loss, dental decay experience, tooth wear and – for subjects with no medical contraindications to periodontal probing – signs of gum disease. During data collection, replicate examinations were conducted for approximately five study participants per examiner to evaluate the consistency of their findings when judged against the principal survey examiner.

There were 30 examiners nationwide (Table 1). Prior to their work on the survey, they undertook a 2-day training and calibration session at The University of Adelaide. Separate training sessions were held for the examination teams from each state and territory. Prior to the scheduled training session, each examiner was sent a 50-page manual and a DVD detailing the survey protocol, including the criteria and coding for the examination.

**Table 1: Distribution of examiners and examinations among states and territories**

State	No. of examiners	No. of people examined	No. of examinations per examiner		
			Minimum	Maximum	Mean
NSW	11	1,113	32	164	101
Vic	3	1,181	267	585	394
Qld	3	824	217	305	275
SA	2	629	241	388	315
WA	3	470	134	196	157
Tas	3	385	49	186	128
ACT	2	386	125	261	193
NT	3	517	154	203	172
<b>All states</b>	<b>30</b>	<b>5,505</b>	<b>32</b>	<b>585</b>	<b>184</b>

## Scope of examination

Survey participants were examined in a supine position in standard dental chairs with illumination provided by the chair's overhead dental light. Examiners used an intra-oral mirror that additionally had its own battery-powered light source. A periodontal probe with 2-mm markings was used to record distances, for example when assessing periodontal destruction (described further below); however, sharp explorers were not used and no radiographs were taken. Full details of the examination protocol are provided online: <http://www.arcpoh.adelaide.edu.au/project/distribution/NSAOH.html>.

The following overview summarises criteria used to assess the main oral health variables reported in this volume.

## Tooth loss

For people aged less than 45 years, examiners distinguished between missing teeth that had been extracted due to decay or periodontal disease and teeth that were absent for any other reason (that is, congenitally missing; unerupted; or extracted for orthodontics, trauma or impaction). For people aged 45 years or more, no such distinction was made, so that an extracted or otherwise absent tooth was recorded as missing. Dental implants, root fragments and deciduous teeth were coded separately and not counted as missing or absent teeth.

## Replacement teeth

All lost teeth were further classified as replaced or not replaced by a fixed bridge or a removable denture that was worn to the examination.

## Decay experience of coronal tooth surfaces

All teeth present were subdivided into five tooth surfaces: mesial, buccal, distal, lingual, and either occlusal (for premolars or molars) or incisal (for incisors and canines). Each coronal surface was assessed and categorised using visual criteria (no explorer was used) and one of the following codes was assigned:

- decay: cavitation of enamel or dentinal involvement or both are present
- recurrent caries: visible caries that is contiguous with a restoration
- filled unsatisfactorily: a filling placed for any reason in a surface that requires replacement but that has none of the above conditions
- filling to treat decay: a filling placed to treat decay in a surface that had none of the above conditions
- filling placed for reasons other than decay: in a surface that has none of the above conditions (incisors and canines only)
- fissure sealant: where none of the above conditions were found
- sound: when none of the above conditions was found.



## **Decay experience of tooth root surfaces**

All teeth present were subdivided into four root surfaces: medial, buccal, distal and lingual. Each root surface was assessed visually and, if necessary, using a ball-ended periodontal probe. One of the following codes was assigned:

- decay: a discrete, well-defined or discoloured lesion on the root surface that is soft to exploration using the periodontal probe
- recurrent caries: detectable caries that is contiguous with a restoration
- filled unsatisfactorily: a filling placed for any reason in a surface that has unacceptable defects but meeting none of the above conditions
- filled root surface: one or more permanent restorations placed for any reason but none of the above conditions
- wear of 2 mm or more: recorded only on buccal surfaces with none of the above conditions
- sound root surface: when none of the above conditions was found
- no visible root surface.

## **Periodontal tissue destruction**

The assessment of periodontal tissue destruction was based on methods used in the US National Health and Nutrition Examination Survey (NHANES 2005). Assessments were made of probing pocket depth and gingival recession, both recorded in millimetres using a periodontal probe that had 2-mm markings. Measurements were made at the mesio-buccal, mid-buccal and disto-buccal aspects of all teeth present, except for third molars. All fractional millimetre measurements were rounded down to the lowest whole millimetre before calling the number. For recession, the cemento-enamel junction (CEJ) was identified or its position was estimated (for example, if a filling obscured its position), and the distance from the CEJ to the free gingival margin was recorded in millimetres. When the CEJ was subgingival, the number called was negative; otherwise it was positive. For probing pocket depth, the distance from the free gingival margin to the bottom of the periodontal crevice/pocket was called.

Examiners did not make a direct measurement of clinical attachment loss; instead, it was computed during data analysis.

## **Gingival inflammation around six index teeth**

The Loe and Silness (1963) gingival index was used to assess inflammation of the marginal gingival tissues around six index teeth (if present) – the most anterior molar in each dental quadrant (up to four teeth), the right maxillary central incisor and the left mandibular central incisor. Pressure was applied to the free gingival margin on the buccal aspect of the tooth by swiping with the side of a periodontal probe that was held at approximately 90 degrees to the long axis of the tooth. One of the following codes was assigned:

- severe inflammation: marked redness and oedema, ulceration or tendency to spontaneous bleeding
- moderate inflammation: redness, oedema, glazing or bleeding after applying pressure with the probe
- mild inflammation: slight change in colour or slight oedema but no bleeding after applying pressure with the probe
- none of the above.

## **Data recording for examinations**

Each code called by an examiner was recorded directly onto a laptop computer by state/territory staff who had experience in clinical dental procedures. They were trained in use of the software during the 2-day training session for examination teams held at The University of Adelaide.

## **Assessment of inter-examiner reliability**

In order to measure inter-examiner reliability, the principal survey examiner attended examination sessions for all but one examiner to conduct masked replicate examinations of survey participants. The remaining examiner withdrew from the survey after completing 32 examinations. Replicate examination entailed assessments of tooth presence, periodontal assessment of teeth in one jaw, and assessment of caries experience in both crowns and roots of teeth. The observed levels of agreement for most oral health indicators were equivalent to benchmarks reported for national oral health surveys conducted in the United Kingdom and the United States.

## Period of data collection

Data collection began in July 2004 and was completed in September 2006 (Table 2). Interviews were timed to begin approximately 1 month prior to the planned start of examinations in each jurisdiction.

**Table 2: Periods of data collection in states and territories**

State/territory	Dates of interviews		Dates of examinations	
	Beginning	End	Beginning	End
ACT	July 2004	October 2004	July 2004	October 2004
SA	September 2004	December 2004	September 2004	May 2005
WA	October 2004	March 2005	November 2004	May 2005
Vic	January 2005	September 2005	February 2005	September 2005
NSW	May 2005	November 2005	June 2005	July 2006
NT	August 2005	October 2005	September 2005	March 2006
Tas	January 2006	May 2006	March 2006	September 2006
Qld	March 2006	September 2006	June 2006	September 2006
Australia	July 2004	September 2006	July 2004	September 2006

## Ethical conduct of research

This project was reviewed and approved by The University of Adelaide's Human Research Ethics Committee. Interviewed subjects provided verbal consent prior to answering questions. All examined subjects provided signed, informed consent prior to the examination.

## Target sample size

Sample size requirements were calculated for a range of key outcome variables to be reported nationally. One outcome, the capacity to detect a 25% or greater reduction in national age-specific estimates of mean number of decayed teeth since 1987–88, was nominated as the critical threshold that should be detectable with standard statistical power of 80%. Another outcome was a capacity to detect a 10% or greater reduction in national age-specific mean DMFT. This identified a need for 7,500 examinations and 13,560 interviews, assuming a 65% participation rate in the examination. The sample size within each state and territory was planned to be approximately proportional to the population of the jurisdiction.

## Participation in the survey

National participation rates were lower than intended, both in the interview, where 49.0% of sampled people participated, and the examination, where 43.7% of those eligible took part. Interview participation rates varied from 43.9% in NSW to 61.8% in SA. Examination rates varied from 33.2% in NSW to 57.5% in SA (Table 3).

**Table 3: Number and percentage of people sampled, interviewed and examined<sup>(a)</sup>**

	No. of people sampled	No. of people interviewed	Per cent of sampled people interviewed	No. of people eligible for exam	No. of people examined	Per cent of eligible people examined
<b>Australia</b>	<b>28,812</b>	<b>14,123</b>	<b>49.0</b>	<b>12,606</b>	<b>5,505</b>	<b>43.7</b>
<b>State/territory</b>						
NSW	8,270	3,630	43.9	3,310	1,099	33.2
Vic	6,013	2,667	44.4	2,360	1,181	50.0
Qld	4,219	2,052	48.6	1,841	824	44.8
SA	2,159	1,335	61.8	1,093	629	57.5
WA	2,365	1,290	54.5	1,109	470	42.4
Tas	1,745	1,042	59.7	873	385	44.1
ACT	1,892	1,025	54.2	981	400	40.8
NT	2,149	1,082	50.3	1,039	517	49.8

(a) Unweighted data.

## Data analysis

The aim of the data analysis was to generate summary statistics describing oral health for the SA population. With the exception of data regarding participation rates, results in this report have been weighted to compensate for individuals' different probabilities of selection and survey participation rates. For the telephone interview survey, weights were adjusted to ensure survey estimates were consistent with the 2005 Australian Bureau of Statistics Estimated Residential Population data. For the oral examination survey, which was restricted to dentate people aged 15 years or more, estimates of the dentate population were derived from the telephone interview survey and used to derive examination weights. This means that results can be generalised to the SA population.

Tables 35 and 36 contain age-standardised estimates for each indicator presented in preceding tables. Age-standardisation is a statistical procedure that aims to remove any effects of age that might account for differences in each oral health indicator between the two comparison groups: health cardholders versus non health cardholders (Table 35) and insured versus non-insured people (Table 36). For these tables, percentages and means were standardised using the direct method. The reference population was the 2005 Australian Estimated Residential Population classified into 14 five-year age categories within the range 15–84 years and a fifteenth category aged 85 years of more.

## Presentation of results

Oral health measures are tabulated for each of three age groups representing the survey participant's age reported in the telephone interview, plus an 'all ages' summary. The three age groups are: 15–34 years, 35–54 years and ≥55 years. The tables report estimates for mutually exclusive subgroups of people created for each of six characteristics based on responses to the telephone interview questions. The subgroups and unweighted number of respondents are listed in the Appendix to this volume and the six characteristics are described below:

**Sex** was classified as 'Male' or 'Female' recorded during the interview.

**Residential location** was classified as 'Capital city' or 'Other places' based on the sampling postcode used in selection of households.

**Postcode socioeconomic status** was used to classify individuals according to the Index of Relative Socioeconomic Advantage/Disadvantage (IRSAD) of the postcode in which they lived. The IRSAD is an aggregate measure of a postcode's socioeconomic status based on characteristics of its residents recorded in the 2001 Population Census. A postcode that has a relatively high proportion of people with high incomes or a skilled labour force is assigned a relatively higher value on this index. Conversely, a low score on the index indicates that an area has a higher proportion of individuals with low incomes and more people who work in unskilled occupations. Postcodes were classified into three groups of ascending socioeconomic status, each group comprising approximately one-third of the SA population. This type of analysis is said to be 'ecological' because it is not based on individuals' own socioeconomic status, but on the socioeconomic status of the area in which they live. Hence, care should be taken in the interpretation of results – because Socioeconomic Indices for Areas (SEIFA) scores refer to areas, not individuals, results are not interpretable at the level of the individual.

**Government health card** status identified whether or not people were covered either by a pensioner concession card or health care card. Both cards are issued according to a means test administered by Centrelink, an agency of the Australian Government's Family Assistance Office. People with either card and their dependents are eligible for public-sector dental care in most states and territories.

**Place of last dental visit** further disaggregated health cardholders according to the location of their last dental visit. The latter was established during the interview by asking people 'Where did you make your last dental visit?'. Health cardholders who responded 'Government dental clinic' or 'School dental service' were classified as 'Cardholder/Public'. Otherwise, eligible people were classified as 'Cardholder/Non-public' if they reported any of the other locations: Private dental practice (including specialist); Dental technician; Clinic operated by health insurance fund; Armed Services/Defence Force clinic; Other site. People who were not health cardholders were classified as 'Non-cardholder/Non-public' regardless of their reported visit location.

**Dental insurance** coverage was based on responses to the question 'Do you have private insurance cover for dental expenses?'. People were classified as insured if they responded 'yes' and uninsured if they responded 'no'.

## Criteria for determining statistical significance

As with any survey where data are collected from only some of the people in the population, proportions and means in this report are estimates of the true population values. The estimates have some degree of uncertainty, which is expressed in this report using 95% confidence intervals (95% CIs). The 95% CI signifies the likely lower and upper limits of the range of values within which the true population percentage would fall. In this context 'likely' means that there is a 95% probability that the true population value lies between those two values.

In this report 95% CIs are used additionally as a guideline to identify differences between population subgroups that are statistically significant. Specifically, when there is no overlap between 95% CIs for two groups, the difference between the groups is deemed to be statistically significant. This criterion for judging statistical significance is more conservative than the alternative method of calculating P-values. In fact, when 95% CIs do not overlap, it means that a test of statistical significance for the difference between the groups would have a P-value of less than 0.05 (the conventional threshold used in many reports), and it could be as small as less than 0.005. The 'conservative' nature of the criterion used in this report comes about because 95% CIs that overlap to a small degree could, nevertheless, be found to differ to a statistically significant degree (at  $P < 0.05$ ) using a hypothesis test.

Data files were managed and summary variables computed using SAS software version 9.1.<sup>1</sup> Means and their associated 95% CIs were generated using SUDAAN software release 9.0.0.<sup>2</sup> The SUDAAN procedures used sampling weights to generate population estimates and calculated 95% CIs that allowed for the complex sampling design used in this survey. To do so, 'with replacement' sampling was specified with two levels of stratification (state and section of state). The subject's sampling postcode was specified as the primary sampling unit, which was used by SUDAAN as the clustering variable.

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<sup>1</sup> SAS Institute Inc. 100 SAS Campus Drive, Cary, NC 27513-2414, USA.

<sup>2</sup> Research Triangle Institute. PO Box 12194, Research Triangle Park, NC 27709-2194, USA.

## Distribution of sociodemographic and dental access characteristics

Approximately one-half of the SA population was female, with little variation in the proportion among age groups (Table 4). Three-quarters lived in the capital city, a proportion that did not vary noticeably among age groups. By design, people of all ages were approximately evenly distributed among tertiles of postcode socioeconomic status. However, younger people were more likely to live in postcodes with high socioeconomic status, while people aged 35–54 years were less likely to do so. Approximately one-quarter of the population had a government health card and the proportion was strongly associated with age, being greatest for people aged 55 years or more. Government health cardholders were less likely to have last attended a public dental clinic than other dental care providers, most noticeably in the oldest age group. Approximately one-half of the SA population had dental insurance, although the proportion was greater in the oldest age group.

**Table 4: Percentage of people with selected sociodemographic and dental access characteristics in the SA population and three age groups**

	All ages	Age group (years)		
		15–34	35–54	>=55
<b>Sex</b>				
Males	50.5	51.3	50.0	50.1
Females	49.5	48.7	50.0	49.9
<b>Residential location</b>				
Capital city	74.8	76.4	73.8	74.2
Other places	25.2	23.6	26.2	25.8
<b>Postcode socioeconomic status</b>				
Lowest	36.3	34.7	39.7	33.5
Middle	29.8	25.1	30.7	34.5
Highest	34.0	40.1	29.6	32.1
<b>Government health card</b>				
Health care card or pensioner concession card	27.6	14.2	20.1	55.2
Neither card	72.4	85.8	79.9	44.8
<b>Place of last dental visit</b>				
Cardholder/Public	11.8	7.8	9.1	20.8
Cardholder/Non-public	15.7	6.4	11.0	34.5
Non-cardholder/Non-public	72.4	85.8	79.9	44.8
<b>Dental insurance</b>				
Insured	53.9	51.0	50.7	61.8
Uninsured	46.1	49.0	49.3	38.2

## 3 Oral health status

### Complete tooth loss

In NSAOH, complete tooth loss was assessed in the interview by asking people 'Do you have any of your own natural teeth?'. People who answered 'no' were classified as edentulous. In SA, edentulous people represented 8.2% of the population aged 15 years or more (Table 5), which was slightly higher than the national estimate of 6.4% (Slade et al. 2007).

#### Key findings

- The prevalence of edentulism was strongly associated with age, being negligible among 15–34-year-olds but affecting 23.4% of SA adults aged 55 years or more.
- Prevalence of complete tooth loss was greater among females than males for all ages combined and for people aged 55 years or more.
- People living in regional areas tended to have higher prevalence of edentulism than Adelaide residents although the difference was statistically significant only among 35–54-year-olds.
- Prevalence was more than twice as high among people living in postcodes with low socioeconomic status (11.2% for all ages) than in postcodes with high socioeconomic status (4.5% for all ages). Within age groups, the difference was statistically significant only for people aged 55 years or more. Intermediate prevalence rates were observed for people living in postcodes with middle rankings of socioeconomic status.
- Among all ages, people who had a government health card were eight times more likely to be edentulous (20.6%) than those who did not (2.5%). Within age groups, cardholder status was statistically significantly associated with edentulism only among people aged 55 years or more.
- Within the population of government health cardholders, there was no clear pattern of variation in prevalence according to place of most recent dental visit.
- The prevalence of complete tooth loss was lower for people with dental insurance compared with the uninsured, a difference that was statistically significant for all ages combined and for people aged 55 years or more.

#### Discussion

As emphasised in the national report, variation among age groups in prevalence of edentulism can be attributed primarily to the differing historical experiences of generations born in different time periods during the 20th century, rather than the effects of ageing. Because edentulism prevalence was so strongly dependent upon age group, comparisons between population groups were observed most clearly for the oldest age group.

In summary, complete tooth loss in SA was a condition observed infrequently below the age of 55 years, while among people aged 55 years or more, it was most likely to occur among those in socioeconomically disadvantaged groups.



**Table 5: Percentage of adults with complete tooth loss**

		Population: all people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>8.2</b>	<b>0.0</b>	<b>1.6</b>	<b>23.4</b>
	95% CI <sup>(a)</sup>	6.7–10.1	—	0.9–2.9	19.6–27.7
<b>Sex</b>					
Males	% of people	5.8	0.0	1.3	17.2
	95% CI	4.1–8.0	—	0.5–3.1	12.6–23.1
Females	% of people	10.6	0.0	2.0	28.8
	95% CI	8.6–13.0	—	0.8–4.9	24.3–33.8
<b>Residential location</b>					
Capital city	% of people	7.1	0.0	0.5	21.5
	95% CI	5.4–9.2	—	0.1–2.2	16.8–27.1
Other places	% of people	11.5	0.0	4.6	28.4
	95% CI	8.4–15.5	—	2.4–8.4	23.8–33.5
<b>Postcode socioeconomic status</b>					
Lowest	% of people	11.2	0.0	2.6	30.8
	95% CI	9.1–13.7	—	1.3–5.2	26.2–35.9
Middle	% of people	9.2	0.0	1.9	24.9
	95% CI	7.0–12.0	—	0.5–6.8	19.0–32.0
Highest	% of people	4.5	0.0	0.3	14.4
	95% CI	2.4–8.5	—	0.1–2.1	8.4–23.7
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	20.6	0.0	3.9	32.9
	95% CI	16.5–25.5	—	1.5–9.5	27.1–39.3
Neither card	% of people	2.5	0.0	1.1	10.5
	95% CI	1.8–3.6	—	0.5–2.3	7.1–15.1
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	14.5	0.0	5.7	27.7
	95% CI	9.6–21.3	—	1.4–20.8	19.6–37.4
Cardholder/Non-public	% of people	24.5	0.0	2.7	35.2
	95% CI	19.2–30.7	—	0.7–9.6	28.3–42.8
Non-cardholder /Non-public	% of people	2.5	0.0	1.1	10.5
	95% CI	1.8–3.6	—	0.5–2.3	7.1–15.1
<b>Dental insurance</b>					
Insured	% of people	4.7	0.0	0.6	13.3
	95% CI	3.3–6.8	—	0.2–2.0	9.4–18.5
Uninsured	% of people	12.3	0.0	2.8	35.1
	95% CI	10.2–14.8	—	1.5–5.1	30.3–40.2

(a) 95% CI = 95% confidence interval for estimated percentage.

# Inadequate natural dentition among dentate people

Adults who have approximately 20 teeth or more usually have satisfactory chewing function (Elias & Sheiham 1998), diet and nutritional status (Sheiham et al. 2002), whereas people with fewer teeth are more likely to suffer impaired quality of oral health (McGrath & Bedi 2002). In NSAOH, people were asked during the interview to report either the number of remaining teeth or the number of missing teeth in their upper jaw and lower jaw. Responses were used to classify people as having an inadequate natural dentition if they reported having fewer than 21 natural teeth, the same threshold that has been reported for the UK population. In SA, 10.4% of dentate adults had fewer than 21 teeth (Table 6), which was almost identical to the national figure of 11.4% (Slade et al. 2007).

## Key findings

- The prevalence of an inadequate natural dentition was strongly associated with age, occurring in fewer than 1% of people aged 15–34 years but affecting 27.7% of dentate people aged 55 years or more.
- Differences in prevalence between males and females were small and statistically non-significant, both for the population as a whole and within the three age groups.
- Similarly, prevalence did not vary to a statistically significant degree between residents of Adelaide and the rest of the state.
- People living in postcodes with low socioeconomic status were approximately twice as likely to report an inadequate natural dentition (14.0% for all ages) than those in postcodes of high socioeconomic status (7.6% for all ages). People living in postcodes with middle socioeconomic status had prevalence rates that were intermediate between the other two groups. A similar pattern was observed within age groups although it was statistically significant only among people aged 55 years or more.
- A four-fold difference in prevalence was observed between people who had a government health card (22.6% for all ages) compared with those who did not (5.9% for all ages). A similar pattern was observed within age groups although it was statistically significant only among people aged 55 years or more.
- Within the population of government health cardholders, there was no clear pattern of variation in prevalence between people whose last dental visit was to the public sector and those who attended a private dentist.
- Large differences in prevalence were observed between people with dental insurance and the uninsured, and the differences were statistically significant for all ages combined (8.1% versus 13.2%) and for people aged 55 years or more (21.2% versus 37.7%).

## Discussion

A threshold of fewer than 21 teeth is used here as an indicator of likely impairment in oral function, nutrition and quality of life, rather than a cardinal sign of those problems. As observed for complete tooth loss, there was a pronounced age-gradient in prevalence of an inadequate natural dentition. Because of this age-association, valid comparisons between other sociodemographic groups should be made only within age groups. Those comparisons reveal that prevalence was associated with socioeconomic indicators. However, unlike the pattern observed for complete tooth loss, prevalence of an inadequate natural dentition did not vary significantly between the sexes.

**Table 6: Percentage of people with fewer than 21 teeth**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>10.4</b>	<b>0.2</b>	<b>7.4</b>	<b>27.7</b>
	<i>95% CI<sup>(a)</sup></i>	<i>8.8–12.2</i>	<i>0.0–1.3</i>	<i>4.8–11.1</i>	<i>24.0–31.6</i>
<b>Sex</b>					
Males	% of people	11.5	0.0	9.2	29.9
	<i>95% CI</i>	<i>8.8–15.0</i>	—	<i>5.1–16.1</i>	<i>24.0–36.5</i>
Females	% of people	9.2	0.4	5.6	25.4
	<i>95% CI</i>	<i>7.7–11.1</i>	<i>0.0–2.7</i>	<i>3.3–9.3</i>	<i>20.6–31.1</i>
<b>Residential location</b>					
Capital city	% of people	10.2	0.0	7.5	27.6
	<i>95% CI</i>	<i>8.3–12.5</i>	—	<i>4.4–12.4</i>	<i>23.4–32.2</i>
Other places	% of people	10.8	0.8	7.1	27.9
	<i>95% CI</i>	<i>8.4–13.9</i>	<i>0.1–5.4</i>	<i>4.1–12.1</i>	<i>20.9–36.3</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	14.0	0.6	10.9	36.4
	<i>95% CI</i>	<i>11.1–17.5</i>	<i>0.1–4.1</i>	<i>6.0–18.9</i>	<i>30.5–42.8</i>
Middle	% of people	10.0	0.0	7.9	24.6
	<i>95% CI</i>	<i>8.0–12.4</i>	—	<i>4.3–14.0</i>	<i>19.0–31.1</i>
Highest	% of people	7.6	0.0	3.4	23.4
	<i>95% CI</i>	<i>5.7–10.1</i>	—	<i>1.3–8.7</i>	<i>18.7–28.9</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	22.6	1.0	14.2	36.6
	<i>95% CI</i>	<i>18.1–27.8</i>	<i>0.1–6.9</i>	<i>6.5–28.2</i>	<i>30.5–43.1</i>
Neither card	% of people	5.9	0.0	5.8	18.7
	<i>95% CI</i>	<i>4.4–7.7</i>	—	<i>3.4–9.7</i>	<i>13.5–25.3</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	21.7	1.6	14.3	43.5
	<i>95% CI</i>	<i>15.0–30.3</i>	<i>0.2–10.4</i>	<i>2.9–48.2</i>	<i>32.4–55.2</i>
Cardholder/Non-public	% of people	23.3	0.0	14.1	33.1
	<i>95% CI</i>	<i>18.3–29.2</i>	—	<i>7.2–25.6</i>	<i>26.1–41.0</i>
Non-cardholder /Non-public	% of people	5.9	0.0	5.8	18.7
	<i>95% CI</i>	<i>4.4–7.7</i>	—	<i>3.4–9.7</i>	<i>13.5–25.3</i>
<b>Dental insurance</b>					
Insured	% of people	8.1	0.0	4.2	21.2
	<i>95% CI</i>	<i>6.3–10.5</i>	—	<i>2.0–8.7</i>	<i>16.8–26.5</i>
Uninsured	% of people	13.2	0.4	10.6	37.7
	<i>95% CI</i>	<i>10.7–16.2</i>	<i>0.1–2.6</i>	<i>6.4–17.1</i>	<i>30.3–45.7</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Denture wearing by dentate people

Removable dentures, also called 'false teeth', are worn to replace missing teeth, with the objective to improve function (for example eating), appearance or both. Whereas virtually all edentulous people wear dentures, the decision of dentate people to wear dentures is influenced by numerous factors in addition to the number and location of missing teeth. In NSAOH, removable denture wearing was assessed during the interview by asking two similar questions, 'Do you have a denture or false teeth for your upper (lower) jaw?'. There were 12.2% of dentate adults in SA who reported wearing one or two dentures (Table 7), a figure that was only marginally lower than the national estimate of 14.9% (Slade et al. 2007).

### Key findings

- The frequency of denture wearing was strongly associated with age, ranging from 0.6% among 15–34-year-olds to 31.9% among people aged 55 years or more.
- There were small and statistically non-significant differences between the sexes in the percentage of denture wearers.
- Similarly, there were small and statistically non-significant differences between residents of Adelaide and the rest of the state.
- In all ages combined and within the three age groups, the socioeconomic gradient in denture wearing was statistically non-significant, even in the oldest age group, where dentures were worn by 40.0% of people living in postcodes with low socioeconomic status compared with 27.5% of those living in postcodes with high socioeconomic status.
- Pronounced differences in frequency of denture wearing were seen between people who had a government health card (24.2%) and those who did not (7.6%). The difference was statistically significant for all ages combined and for people aged 55 years or more.
- Within the population of government health cardholders, there were no consistent differences between people who attended the public sector and those who attended non-public sources of dental care.
- People without dental insurance were more likely to wear dentures than the insured although the difference was statistically significant only among people aged 55 years or more.

### Discussion

The percentage of dentate adults in SA who wore dentures (12.2%) exceeded the percentage with fewer than 21 natural teeth (10.4%), illustrating that the decision to wear dentures is dictated by factors other than the number of missing teeth. Furthermore, it was noteworthy that sociodemographic variation in frequency of denture wearing was smaller and less likely to be statistically significant than sociodemographic variation in prevalence of an inadequate natural dentition. The consequence was that frequency of denture wearing was associated most clearly with government health cardholder status, while other sociodemographic characteristics had less consistent or statistically non-significant relationships.

**Table 7: Percentage of dentate people who wear denture(s)**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>12.2</b>	<b>0.6</b>	<b>8.8</b>	<b>31.9</b>
	<i>95% CI<sup>(a)</sup></i>	<i>10.1–14.3</i>	<i>&lt;0–1.3</i>	<i>5.3–12.2</i>	<i>27.3–36.6</i>
<b>Sex</b>					
Males	% of people	13.1	0.0	10.5	33.8
	<i>95% CI</i>	<i>9.8–16.4</i>	<i>0.0–0.0</i>	<i>4.2–16.7</i>	<i>26.0–41.7</i>
Females	% of people	11.4	1.3	7.0	30.0
	<i>95% CI</i>	<i>8.9–13.8</i>	<i>&lt;0–2.7</i>	<i>3.5–10.6</i>	<i>24.7–35.3</i>
<b>Residential location</b>					
Capital city	% of people	12.1	0.6	8.9	31.6
	<i>95% CI</i>	<i>9.5–14.6</i>	<i>&lt;0–1.4</i>	<i>4.5–13.3</i>	<i>25.9–37.3</i>
Other places	% of people	12.7	0.8	8.3	33.0
	<i>95% CI</i>	<i>9.4–16.0</i>	<i>&lt;0–2.3</i>	<i>3.4–13.1</i>	<i>25.4–40.6</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	13.5	0.6	7.4	40.0
	<i>95% CI</i>	<i>10.9–16.2</i>	<i>&lt;0–1.7</i>	<i>3.5–11.3</i>	<i>34.2–45.9</i>
Middle	% of people	12.4	0.6	9.9	29.6
	<i>95% CI</i>	<i>9.1–15.6</i>	<i>&lt;0–1.9</i>	<i>4.0–15.7</i>	<i>21.4–37.8</i>
Highest	% of people	11.0	0.6	9.0	27.5
	<i>95% CI</i>	<i>6.7–15.2</i>	<i>&lt;0–1.8</i>	<i>1.6–16.4</i>	<i>20.0–35.1</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	24.2	1.0	6.9	43.6
	<i>95% CI</i>	<i>20.4–28.1</i>	<i>&lt;0–3.1</i>	<i>0.8–12.9</i>	<i>37.4–49.9</i>
Neither card	% of people	7.6	0.5	9.2	19.5
	<i>95% CI</i>	<i>5.6–9.7</i>	<i>&lt;0–1.2</i>	<i>5.1–13.3</i>	<i>13.4–25.6</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	21.5	1.6	0.0	51.9
	<i>95% CI</i>	<i>15.9–27.0</i>	<i>&lt;0–4.7</i>	<i>0.0–0.0</i>	<i>40.4–63.5</i>
Cardholder/Non-public	% of people	26.2	0.0	11.3	39.5
	<i>95% CI</i>	<i>20.9–31.5</i>	<i>0.0–0.0</i>	<i>1.9–20.7</i>	<i>31.9–47.2</i>
Non-cardholder /Non-public	% of people	7.6	0.5	9.2	19.5
	<i>95% CI</i>	<i>5.6–9.7</i>	<i>&lt;0–1.2</i>	<i>5.1–13.3</i>	<i>13.4–25.6</i>
<b>Dental insurance</b>					
Insured	% of people	11.7	0.9	9.3	25.8
	<i>95% CI</i>	<i>9.1–14.3</i>	<i>&lt;0–2.1</i>	<i>5.0–13.6</i>	<i>20.6–30.9</i>
Uninsured	% of people	13.0	0.4	7.6	41.6
	<i>95% CI</i>	<i>10.4–15.6</i>	<i>&lt;0–1.1</i>	<i>3.4–11.8</i>	<i>34.2–48.9</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

# Average number of teeth per person missing due to pathology

During NSAOH examinations of people aged less than 45 years, dentists counted the number of teeth judged to be missing due to decay or gum disease; for older age groups, dentists counted the number of teeth missing for any reason. The distinction according to age was made because often it is very difficult to judge in older people whether teeth have been extracted because of decay, gum disease or other causes (for example orthodontic reasons), or whether the teeth never developed or remain unerupted. Instead, the convention is to assume that teeth not present among people aged 45 years or more are missing due to pathology. In SA, dentate people had an average of 4.1 teeth per person missing due to pathology (Table 8), a figure that was similar to the national average of 4.5 (Slade et al. 2007).

## Key findings

- The average number of missing teeth per person was strongly associated with age, ranging from less than 1 among 15–34-year-olds to 9.6 among people aged 55 years or more.
- There was little difference between males and females, and the differences were inconsistent between age groups.
- Similarly, there were small and statistically non-significant differences in the average number of missing teeth per person between residents of Adelaide and the rest of the state.
- In all ages combined, variation in average levels of tooth loss did not follow a clear gradient across postcodes classified according to three levels of socioeconomic status, and observed differences were not statistically significant. Differences were also statistically non-significant within age groups.
- Average levels of tooth loss per person were higher among government health cardholders (7.5) compared with non-cardholders (2.8), and the differences were statistically significant in the oldest age group and among all ages combined.
- Among the group of government health cardholders, there was no clear pattern of variation according to place of most recent dental visit.
- Average levels of tooth loss due to pathology differed to a statistically significant degree between people with dental insurance and the uninsured.

## Discussion

Unlike previous tables summarising other indicators of tooth loss, there was much less sociodemographic variation in the average number of teeth per person missing due to pathology. The one sociodemographic marker that was significantly associated with this measure was government health cardholder status, where a three-fold difference was observed. Yet there was no significant variation according to sex, postcode socioeconomic status or dental insurance, all of which were associated with complete tooth loss.

**Table 8: Average number of teeth per person missing due to pathology**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	mean	4.1	0.4	3.5	9.6
	95% CI <sup>(a)</sup>	3.6–4.6	0.1–0.6	3.0–4.0	8.9–10.4
<b>Sex</b>					
Males	mean	4.2	0.4	3.8	9.8
	95% CI	3.5–4.9	<0–0.9	2.9–4.7	8.6–11.0
Females	mean	3.9	0.3	3.3	9.5
	95% CI	3.4–4.5	0.1–0.4	2.6–3.9	8.5–10.4
<b>Residential location</b>					
Capital city	mean	4.0	0.4	3.6	9.5
	95% CI	3.5–4.6	0.0–0.7	3.0–4.3	8.6–10.3
Other places	mean	4.2	0.3	3.2	10.2
	95% CI	3.2–5.2	0.1–0.6	2.7–3.7	8.9–11.4
<b>Postcode socioeconomic status</b>					
Lowest	mean	4.4	0.2	3.8	10.8
	95% CI	3.5–5.2	0.0–0.4	2.9–4.8	9.3–12.4
Middle	mean	4.8	1.0	3.6	9.7
	95% CI	4.1–5.4	0.3–1.7	2.8–4.5	8.8–10.6
Highest	mean	3.2	0.1	3.0	8.3
	95% CI	2.5–3.8	<0–0.1	2.3–3.8	7.4–9.3
<b>Government health card</b>					
Health care card or pensioner concession card	mean	7.5	0.3	4.5	11.5
	95% CI	6.3–8.8	<0–0.7	2.5–6.4	10.4–12.6
Neither card	mean	2.8	0.4	3.3	7.4
	95% CI	2.4–3.1	0.1–0.6	2.8–3.8	6.6–8.3
<b>Place of last dental visit</b>					
Cardholder/Public	mean	7.6	0.0	5.0	12.9
	95% CI	5.6–9.6	0.0–0.0	2.0–8.0	10.7–15.1
Cardholder/Non-public	mean	7.5	0.7	4.1	10.7
	95% CI	6.3–8.8	<0–1.5	1.9–6.2	9.2–12.1
Non-cardholder/Non-public	mean	2.8	0.4	3.3	7.4
	95% CI	2.4–3.1	0.1–0.6	2.8–3.8	6.6–8.3
<b>Dental insurance</b>					
Insured	mean	4.0	0.4	3.2	8.5
	95% CI	3.3–4.6	<0–0.9	2.6–3.7	7.5–9.5
Uninsured	mean	4.3	0.3	3.9	11.5
	95% CI	3.5–5.2	0.1–0.6	3.0–4.8	10.0–13.0

(a) 95% CI = 95% confidence interval for estimated mean.

## Prevalence of untreated coronal decay

The prevalence of untreated coronal dental decay is reported in Table 9 as the percentage of dentate people who have at least one or more decayed surfaces on the crowns of their teeth. Untreated coronal decay reflects both the prevalence of dental decay in the population and access to dental care for treatment. The prevalence of untreated coronal decay in SA was 26.1% (Table 9), which is close to the national estimate of 25.5% (Slade et al. 2007).

### Key findings

- The prevalence of untreated coronal decay was not associated with age.
- Among people of all ages, prevalence varied significantly by socioeconomic status of residential postcode, government health cardholder status, place of last dental visit and dental insurance.
- The prevalence of untreated coronal decay was significantly associated with socioeconomic status of area of residence, with the percentage among people in the lowest socioeconomic areas being more than twice that of those living in the most affluent areas (37.9% versus 15.8%).
- Significantly more government health cardholders had untreated coronal decay (39.9%) than non-cardholders (21.0%).
- There was a significantly higher prevalence among government health cardholders who visited a public dental clinic at their last visit than among non-cardholders who visited elsewhere (48.8% versus 21.0%).
- Among people aged 55 years or more, significant differences were found in relation to government health cardholder status and insurance status.
- Among people aged 35–54 years, significant differences were found in relation to government health cardholder status and place of last dental visit.
- Among people aged 15–34 years, significant differences were found in relation to socioeconomic status of postcode, where the largest difference was seen between the lowest and highest postcode categories.

### Discussion

Untreated coronal decay is related to both incidence of disease and access to timely dental treatment. Over one-quarter of all people in SA had untreated coronal decay. There was significant association with sociodemographic variables, with more disadvantaged people having higher prevalence.



**Table 9: Percentage of people with untreated coronal decay**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>26.1</b>	<b>26.3</b>	<b>28.1</b>	<b>23.1</b>
	<i>95% CI<sup>(a)</sup></i>	<i>21.2–31.8</i>	<i>17.8–37.0</i>	<i>21.9–35.3</i>	<i>18.8–28.2</i>
<b>Sex</b>					
Males	% of people	31.2	26.6	40.7	24.0
	<i>95% CI</i>	<i>24.3–39.0</i>	<i>16.2–40.5</i>	<i>30.9–51.4</i>	<i>16.7–33.0</i>
Females	% of people	21.0	26.0	15.5	22.3
	<i>95% CI</i>	<i>15.8–27.4</i>	<i>15.9–39.6</i>	<i>9.2–24.9</i>	<i>15.1–31.7</i>
<b>Residential location</b>					
Capital city	% of people	21.9	21.2	23.3	20.9
	<i>95% CI</i>	<i>16.5–28.5</i>	<i>12.1–34.6</i>	<i>16.5–31.9</i>	<i>15.8–27.1</i>
Other places	% of people	38.6	42.8	41.7	29.5
	<i>95% CI</i>	<i>28.2–50.2</i>	<i>25.0–62.7</i>	<i>30.1–54.2</i>	<i>22.2–37.9</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	37.9	44.3	37.3	30.5
	<i>95% CI</i>	<i>28.7–48.2</i>	<i>29.0–60.7</i>	<i>24.6–52.1</i>	<i>23.9–38.0</i>
Middle	% of people	23.6	30.0	19.9	22.1
	<i>95% CI</i>	<i>15.2–34.7</i>	<i>13.4–54.2</i>	<i>11.8–31.7</i>	<i>14.1–32.8</i>
Highest	% of people	15.8	8.5	24.2	16.6
	<i>95% CI</i>	<i>11.8–20.7</i>	<i>4.1–16.8</i>	<i>15.8–35.3</i>	<i>11.2–23.9</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	39.9	48.2	50.3	31.9
	<i>95% CI</i>	<i>32.6–47.7</i>	<i>29.9–66.9</i>	<i>35.4–65.2</i>	<i>24.7–40.1</i>
Neither card	% of people	21.0	22.8	22.5	12.8
	<i>95% CI</i>	<i>16.0–27.0</i>	<i>14.7–33.7</i>	<i>16.1–30.5</i>	<i>6.7–22.8</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	48.8	44.4	59.4	44.4
	<i>95% CI</i>	<i>34.2–63.6</i>	<i>22.7–68.5</i>	<i>35.0–79.8</i>	<i>28.0–62.1</i>
Cardholder/Non-public	% of people	33.3	52.7	42.7	24.4
	<i>95% CI</i>	<i>25.1–42.6</i>	<i>24.0–79.8</i>	<i>22.6–65.7</i>	<i>17.2–33.3</i>
Non-cardholder/Non-public	% of people	21.0	22.8	22.5	12.8
	<i>95% CI</i>	<i>16.0–27.0</i>	<i>14.7–33.7</i>	<i>16.1–30.5</i>	<i>6.7–22.8</i>
<b>Dental insurance</b>					
Insured	% of people	20.0	18.2	25.5	15.5
	<i>95% CI</i>	<i>14.6–26.7</i>	<i>9.2–32.8</i>	<i>17.1–36.1</i>	<i>9.6–24.1</i>
Uninsured	% of people	34.1	36.9	30.8	35.5
	<i>95% CI</i>	<i>26.4–42.8</i>	<i>23.9–52.1</i>	<i>21.7–41.7</i>	<i>25.9–46.3</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Percentage of people with untreated root decay

The prevalence of untreated root decay is reported as the percentage of people who had at least one natural tooth and one or more surfaces of the roots of their teeth decayed. Decay of the root surface requires that it be exposed in the mouth, usually by recession of the gums. The prevalence of untreated root decay in SA was 8.4% (Table 10), which is higher than for the Australian population (6.7%) (Slade et al. 2007).

### Key findings

- Prevalence of untreated root decay was significantly associated with age. There was more than a four-fold relative difference between prevalence in those aged 55 years or more and those aged 15–34 years (16.1% versus 3.9%). The percentage among 35–54-year-olds was almost twice that of those in the youngest age group (7.0% versus 3.9%).
- Among people of all ages, the highest prevalence was recorded in people who had a government health card who last visited a non-public clinic (12.5%), and the lowest in females and in those who resided in areas with the highest socioeconomic status (each 5.8%).
- Among people of all ages, prevalence of untreated root decay was not significantly associated with any of the sociodemographic variables examined, as indicated by the overlapping of 95% CIs in each case.
- While not reaching statistical significance, a number of trends may be discerned in the results in relation to sociodemographic factors. More uninsured people appeared to have untreated root decay than insured people (11.2% versus 6.1%), and more of those who resided in areas with the lowest socioeconomic status than those in the area with the highest status (10.9% versus 5.8%).

### Discussion

The association of root decay with gum recession more commonly seen in older people explains the strong relationship of untreated root decay with age.

In summary, prevalence of untreated root decay was strongly associated with age but not with any other sociodemographic factors.

**Table 10: Percentage of people with untreated root decay**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>8.4</b>	<b>3.9</b>	<b>7.0</b>	<b>16.1</b>
	<i>95% CI<sup>(a)</sup></i>	<i>6.3–10.9</i>	<i>1.2–11.6</i>	<i>4.1–11.5</i>	<i>11.8–21.4</i>
<b>Sex</b>					
Males	% of people	10.8	7.5	9.6	16.9
	<i>95% CI</i>	<i>7.4–15.6</i>	<i>2.3–21.5</i>	<i>5.3–16.7</i>	<i>11.5–24.2</i>
Females	% of people	5.8	0.0	4.4	15.2
	<i>95% CI</i>	<i>3.7–9.1</i>	—	<i>1.9–9.6</i>	<i>8.7–25.3</i>
<b>Residential location</b>					
Capital city	% of people	8.1	4.1	7.8	13.7
	<i>95% CI</i>	<i>5.7–11.4</i>	<i>1.0–15.0</i>	<i>4.3–13.9</i>	<i>8.7–20.8</i>
Other places	% of people	9.1	3.0	4.5	22.9
	<i>95% CI</i>	<i>6.3–13.1</i>	<i>0.6–13.6</i>	<i>1.6–11.7</i>	<i>17.5–29.3</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	10.9	6.3	8.0	21.7
	<i>95% CI</i>	<i>7.6–15.4</i>	<i>1.7–20.2</i>	<i>3.6–16.7</i>	<i>14.1–32.0</i>
Middle	% of people	8.2	6.7	3.8	14.9
	<i>95% CI</i>	<i>4.4–14.5</i>	<i>0.9–34.7</i>	<i>1.3–10.7</i>	<i>8.5–25.0</i>
Highest	% of people	5.8	0.0	8.8	11.4
	<i>95% CI</i>	<i>4.0–8.4</i>	—	<i>3.9–18.7</i>	<i>5.9–20.9</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	11.9	0.0	6.2	18.7
	<i>95% CI</i>	<i>8.0–17.4</i>	—	<i>2.1–17.0</i>	<i>13.1–26.0</i>
Neither card	% of people	7.0	4.5	7.1	13.1
	<i>95% CI</i>	<i>4.8–10.1</i>	<i>1.4–13.5</i>	<i>3.9–12.8</i>	<i>6.6–24.3</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	11.1	0.0	4.5	20.7
	<i>95% CI</i>	<i>5.5–21.3</i>	—	<i>1.0–17.7</i>	<i>10.7–36.3</i>
Cardholder/Non-public	% of people	12.5	0.0	7.7	17.6
	<i>95% CI</i>	<i>7.9–19.1</i>	—	<i>1.7–28.1</i>	<i>11.0–26.9</i>
Non-cardholder/Non-public	% of people	7.0	4.5	7.1	13.1
	<i>95% CI</i>	<i>4.8–10.1</i>	<i>1.4–13.5</i>	<i>3.9–12.8</i>	<i>6.6–24.3</i>
<b>Dental insurance</b>					
Insured	% of people	6.1	0.0	5.8	12.8
	<i>95% CI</i>	<i>4.1–9.1</i>	—	<i>2.3–13.5</i>	<i>7.2–21.7</i>
Uninsured	% of people	11.2	8.2	8.2	21.3
	<i>95% CI</i>	<i>7.3–16.7</i>	<i>2.6–22.7</i>	<i>4.5–14.6</i>	<i>12.4–34.1</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Percentage of people with one or more filled teeth

Fillings for treatment of tooth decay leave permanent marks on the teeth and are one measure of people's lifetime experience of decay. Filled teeth also indicate patterns of dental treatment and access to dental care. The prevalence of filled teeth in SA was 86.4% (Table 11), which is slightly higher than the Australian population figure (83.9%) (Slade et al. 2007).

### Key findings

- Prevalence of filled teeth was significantly associated with age; among people aged 55 years or more and 35–54 years, it was about 1.5 times that of those in the 15–34 years age group (96.7% and 98.7% versus 65.3% respectively).
- Among people of all ages, the highest prevalence was seen among those who had a government health card who visited a non-public clinic (93.2%), and the lowest among those living in the highest status postcode (82.1%).
- Prevalence of filled teeth was not significantly associated with any of the sociodemographic variables examined, as indicated by the overlapping of 95% CIs.
- While not reaching statistical significance, a number of trends may be discerned in the results in relation to other sociodemographic factors. More females appeared to have filled teeth than males (90.4% versus 82.5%), and more of those who had a government health card and visited a non-public clinic than non-cardholders who visited a public clinic (93.2% versus 84.8%).

### Discussion

The percentage of people with filled teeth relates to lifetime experience of dental decay, and hence is associated with age. Prevalence also reflects access to timely dental care, and type of care used to treat caries being a restoration rather than an extraction.

**Table 11: Percentage of people with one or more filled teeth**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>86.4</b>	<b>65.3</b>	<b>98.7</b>	<b>96.7</b>
	95% CI <sup>(a)</sup>	81.6–90.2	54.5–74.8	95.6–99.6	92.9–98.5
<b>Sex</b>					
Males	% of people	82.5	55.7	98.7	95.7
	95% CI	75.2–88.1	41.8–68.8	93.7–99.7	90.7–98.1
Females	% of people	90.4	75.5	98.7	97.7
	95% CI	85.8–93.7	62.4–85.1	91.4–99.8	93.9–99.1
<b>Residential location</b>					
Capital city	% of people	84.8	62.0	98.5	96.1
	95% CI	79.3–89.0	49.8–72.9	94.0–99.6	91.0–98.3
Other places	% of people	91.5	76.1	99.4	98.5
	95% CI	77.1–97.1	48.5–91.5	95.4–99.9	89.8–99.8
<b>Postcode socioeconomic status</b>					
Lowest	% of people	89.4	72.5	99.6	95.3
	95% CI	80.4–94.5	53.6–85.7	97.0–99.9	85.8–98.6
Middle	% of people	87.9	61.6	100.0	97.6
	95% CI	80.4–92.8	42.0–78.0	—	86.1–99.6
Highest	% of people	82.1	61.5	96.2	97.2
	95% CI	72.0–89.1	42.6–77.5	86.4–99.0	91.3–99.1
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	89.6	59.3	99.2	94.8
	95% CI	82.9–93.8	35.7–79.3	94.1–99.9	88.4–97.7
Neither card	% of people	85.4	66.6	98.6	99.0
	95% CI	78.8–90.2	54.9–76.6	94.5–99.6	93.2–99.9
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	84.8	53.8	98.1	91.7
	95% CI	73.5–91.8	29.2–76.7	86.8–99.8	77.0–97.3
Cardholder/Non-public	% of people	93.2	66.0	100.0	96.6
	95% CI	84.4–97.2	31.9–88.9	—	91.4–98.7
Non-cardholder/Non-public	% of people	85.4	66.6	98.6	99.0
	95% CI	78.8–90.2	54.9–76.6	94.5–99.6	93.2–99.9
<b>Dental insurance</b>					
Insured	% of people	85.3	58.5	97.8	98.6
	95% CI	78.6–90.2	43.9–71.8	91.5–99.4	94.3–99.7
Uninsured	% of people	88.5	72.8	99.7	93.7
	95% CI	82.0–92.9	57.7–84.0	97.5–100.0	85.8–97.3

(a) 95% CI = 95% confidence interval for estimated percentage.

## Average number of decayed, missing and filled teeth per person

The number of decayed, missing because of pathology, and filled teeth (DMFT) reflects a person's lifetime experience of dental caries. In this survey all missing teeth in people aged 45 years or more were counted as missing due to pathology, while for people aged less than 45 years, the count only included teeth where the examiner judged that dental decay or gum disease was the likely reason for the extraction. The average DMFT number in SA was 12.7 teeth (Table 12), which is very similar to that for the Australian population (12.8 teeth) (Slade et al. 2007).

### Key findings

- The average number of affected teeth was strongly associated with age, being highest in people aged 55 years or more (22.1 teeth). This was 1.6 times that of the 35–44-year-olds (14.0 teeth) and over five times that of the 15–34 years age group (4.1 teeth).
- Among people of all ages, the highest average was seen in government health cardholders who last attended a non-public clinic (17.7 teeth), and the lowest among non-cardholders who last visited a non-public clinic (11.2 teeth).
- Government health cardholder status was significantly associated with average number of teeth with caries experience, with cardholders having 1.4 times the prevalence compared with non-cardholders (16.8 versus 11.2 teeth).
- The average DMFT was significantly associated with place of last dental visit, with those people who had a government health card and last visited a public clinic and those who visited a private practitioner having significantly higher scores than non-cardholders whose last visit was at a private clinic (15.7 and 17.7 versus 11.2 teeth respectively).

### Discussion

The average number of teeth with caries experience over a lifetime is a cumulative score, and hence is strongly associated with age. Disease experience is related to disadvantage, as evidenced by associations with government health cardholder status and place of last dental visit.

**Table 12: Average number of decayed missing or filled teeth per person**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	mean	12.7	4.1	14.0	22.1
	95% CI <sup>(a)</sup>	11.7–13.7	3.1–5.0	13.0–15.0	21.2–22.9
<b>Sex</b>					
Males	mean	12.5	3.9	14.1	21.4
	95% CI	10.9–14.0	2.4–5.4	12.5–15.8	20.2–22.7
Females	mean	13.0	4.3	13.9	22.7
	95% CI	12.0–14.0	3.2–5.3	12.6–15.1	21.8–23.6
<b>Residential location</b>					
Capital city	mean	12.4	4.1	13.7	21.6
	95% CI	11.3–13.5	2.9–5.2	12.4–15.0	20.6–22.7
Other places	mean	13.6	4.2	14.7	23.3
	95% CI	11.3–16.0	2.6–5.7	13.2–16.2	22.4–24.2
<b>Postcode socioeconomic status</b>					
Lowest	mean	13.3	4.5	14.7	22.7
	95% CI	11.5–15.0	2.8–6.1	13.2–16.2	21.6–23.9
Middle	mean	13.7	5.9	13.3	21.3
	95% CI	12.1–15.2	4.2–7.6	11.7–15.0	20.3–22.3
Highest	mean	11.3	2.6	13.7	22.2
	95% CI	9.5–13.1	1.6–3.6	11.5–15.9	20.2–24.1
<b>Government health card</b>					
Health care card or pensioner concession card	mean	16.8	4.4	14.4	22.2
	95% CI	15.1–18.6	2.3–6.5	11.9–16.9	21.2–23.2
Neither card	mean	11.2	4.1	13.9	22.1
	95% CI	9.9–12.4	3.0–5.1	12.8–15.0	20.8–23.3
<b>Place of last dental visit</b>					
Cardholder/Public	mean	15.7	3.3	15.3	22.0
	95% CI	13.5–17.9	1.6–5.0	11.2–19.4	20.4–23.6
Cardholder/Non-public	mean	17.7	5.8	13.7	22.3
	95% CI	15.8–19.5	1.7–10.0	11.2–16.1	21.2–23.4
Non-cardholder/Non-public	mean	11.2	4.1	13.9	22.1
	95% CI	9.9–12.4	3.0–5.1	12.8–15.0	20.8–23.3
<b>Dental insurance</b>					
Insured	mean	13.4	3.3	14.3	22.7
	95% CI	11.9–14.9	2.1–4.5	12.7–15.9	21.7–23.7
Uninsured	mean	12.2	5.0	13.7	21.1
	95% CI	11.0–13.4	3.5–6.5	12.5–14.8	19.6–22.5

(a) 95% CI = 95% confidence interval for estimated mean.

## Prevalence of moderate or severe periodontitis

A case definition of periodontitis has been developed jointly by the US Centers for Disease Control and Prevention (CDC) and the American Academy of Periodontology (AAP) to describe prevalence of moderate and severe periodontitis. The CDC/AAP defines moderate periodontitis as the presence of either two sites between adjacent teeth where the gum has lost its attachment to the tooth for 4 mm or more, or at least two such sites that have pockets of 5 mm or more. Severe periodontitis has been defined as having at least two sites between adjacent teeth where the gum has lost its attachment to the tooth for 6 mm or more, and there is at least one pocket of 5 mm or greater depth. Table 13 reports estimates of a combined moderate or severe periodontitis. In SA, a total of 19.8% of the dentate population had moderate or severe periodontitis (Table 13), which was lower, but not significantly, than the national estimate of 22.9% (Slade et al. 2007).

### Key findings

- The prevalence of moderate or severe periodontitis was strongly associated with age, being 8% in 15–34-year-old adults but affecting 38.4% of SA adults aged 55 years or more.
- Males were significantly more likely to have moderate or severe periodontitis compared with females. This difference also remained in the middle-aged group.
- People who had a government health card were more than twice as likely to have periodontitis, both for all ages combined and for people aged 55 years or more.
- This difference remained even after stratification by place of last dental visit. People who had a government health card had significantly higher prevalence of periodontitis regardless of place of their last dental visit.
- People with no private dental insurance were significantly more likely to have periodontitis, with prevalence being twice as high compared with insured people.

### Discussion

Components of periodontal disease measurement reflect both concurrent disease state and historical accumulation of the disease. Therefore, a strong association with age was fully expected. Because periodontitis was more prevalent in the middle-aged and older people, comparisons between the population groups were observed most clearly in those age groups.

In summary, moderate or severe periodontitis affected one-quarter of the SA adult population, with the highest proportion of those affected being in the older age group. The disease was most likely to be observed in the socioeconomic disadvantaged groups and among male participants.



**Table 13: Percentage of people with moderate or severe periodontitis**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>19.8</b>	<b>8.0</b>	<b>19.4</b>	<b>38.4</b>
	<i>95% CI<sup>(a)</sup></i>	<i>16.4–23.6</i>	<i>3.8–16.3</i>	<i>14.1–26.1</i>	<i>30.2–47.2</i>
<b>Sex</b>					
Males	% of people	25.0	12.8	30.3	36.3
	<i>95% CI</i>	<i>19.3–31.6</i>	<i>5.3–28.1</i>	<i>21.6–40.7</i>	<i>25.8–48.3</i>
Females	% of people	14.5	3.0	8.5	40.2
	<i>95% CI</i>	<i>11.6–18.0</i>	<i>0.7–12.4</i>	<i>5.1–13.8</i>	<i>30.8–50.4</i>
<b>Residential location</b>					
Capital city	% of people	22.2	9.6	23.0	41.4
	<i>95% CI</i>	<i>17.9–27.1</i>	<i>4.2–20.5</i>	<i>16.5–31.2</i>	<i>31.5–52.1</i>
Other places	% of people	12.9	3.0	9.4	30.6
	<i>95% CI</i>	<i>9.5–17.2</i>	<i>0.6–13.6</i>	<i>4.6–18.4</i>	<i>19.5–44.6</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	18.8	9.3	19.5	31.9
	<i>95% CI</i>	<i>14.9–23.5</i>	<i>3.2–23.8</i>	<i>11.7–30.8</i>	<i>21.5–44.5</i>
Middle	% of people	24.7	14.8	13.9	50.7
	<i>95% CI</i>	<i>17.2–34.2</i>	<i>4.7–38.1</i>	<i>9.0–20.9</i>	<i>33.8–67.4</i>
Highest	% of people	16.5	2.7	24.7	32.1
	<i>95% CI</i>	<i>11.5–23.1</i>	<i>0.6–10.4</i>	<i>13.6–40.6</i>	<i>20.9–45.8</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	34.2	10.7	20.7	51.2
	<i>95% CI</i>	<i>25.7–43.9</i>	<i>1.6–47.1</i>	<i>8.9–41.1</i>	<i>39.9–62.3</i>
Neither card	% of people	14.4	7.6	19.1	20.9
	<i>95% CI</i>	<i>10.7–19.1</i>	<i>3.4–16.4</i>	<i>12.4–28.2</i>	<i>13.7–30.5</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	37.1	19.4	19.6	58.4
	<i>95% CI</i>	<i>25.5–50.5</i>	<i>3.3–62.8</i>	<i>5.3–51.3</i>	<i>42.2–73.0</i>
Cardholder/Non-public	% of people	32.0	0.0	21.6	46.7
	<i>95% CI</i>	<i>21.7–44.4</i>	—	<i>6.4–52.4</i>	<i>33.7–60.2</i>
Non-cardholder/Non-public	% of people	14.4	7.6	19.1	20.9
	<i>95% CI</i>	<i>10.7–19.1</i>	<i>3.4–16.4</i>	<i>12.4–28.2</i>	<i>13.7–30.5</i>
<b>Dental insurance</b>					
Insured	% of people	13.6	0.0	15.6	28.8
	<i>95% CI</i>	<i>10.2–18.0</i>	—	<i>9.6–24.2</i>	<i>19.7–40.0</i>
Uninsured	% of people	27.1	17.1	23.3	51.6
	<i>95% CI</i>	<i>21.5–33.5</i>	<i>8.0–32.9</i>	<i>15.2–33.9</i>	<i>39.3–63.7</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Prevalence of deep pocket depth

Deep periodontal pockets have been defined as 4 mm or more. The depth of the pocket, measured in millimetres using a periodontal probe, is an indication of the severity of the destructive process. In SA, a total of 21.5% of the dentate adult population had at least one site with periodontal pocket depth of 4 mm or more (Table 14), which was higher, but not significantly, than the national estimate of 19.8% (Slade et al. 2007).

### Key findings

- There was a tendency that prevalence of deep periodontal pocket was higher among people with lower socioeconomic status. However, none of the differences were statistically significant.
- There were no statistically significant differences between the other population groups.

### Discussion

The depth of periodontal pockets reflects a more current activity of periodontal inflammation. This activity may be more dependent on oral hygiene status, which was found to not vary widely between groups.

In summary, deep periodontal pocketing affected one-fifth of the SA dentate population. The trend of higher prevalence of the condition among people with lower socioeconomic status was not statistically significant due to a relatively small number of participants.

**Table 14: Percentage of people with 4+ mm periodontal pocket depth**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>21.5</b>	<b>16.7</b>	<b>24.5</b>	<b>24.1</b>
	<i>95% CI<sup>(a)</sup></i>	<i>17.7–25.8</i>	<i>10.1–26.3</i>	<i>18.9–31.0</i>	<i>17.6–32.1</i>
<b>Sex</b>					
Males	% of people	21.6	19.2	26.2	18.3
	<i>95% CI</i>	<i>15.9–28.8</i>	<i>10.0–33.6</i>	<i>17.5–37.4</i>	<i>10.1–30.7</i>
Females	% of people	21.3	14.0	22.7	29.5
	<i>95% CI</i>	<i>16.8–26.5</i>	<i>8.0–23.5</i>	<i>16.2–30.9</i>	<i>20.5–40.4</i>
<b>Residential location</b>					
Capital city	% of people	23.2	18.6	25.7	26.7
	<i>95% CI</i>	<i>18.5–28.6</i>	<i>10.9–30.0</i>	<i>19.1–33.6</i>	<i>18.6–36.8</i>
Other places	% of people	16.5	10.4	21.2	17.5
	<i>95% CI</i>	<i>11.1–23.9</i>	<i>2.0–40.3</i>	<i>12.5–33.5</i>	<i>9.1–31.0</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	21.4	21.7	22.0	19.9
	<i>95% CI</i>	<i>15.5–28.7</i>	<i>10.3–39.8</i>	<i>14.6–31.7</i>	<i>11.5–32.3</i>
Middle	% of people	27.7	21.0	31.0	31.0
	<i>95% CI</i>	<i>21.4–35.1</i>	<i>8.1–44.2</i>	<i>21.0–43.2</i>	<i>17.8–48.2</i>
Highest	% of people	16.1	9.6	21.4	21.2
	<i>95% CI</i>	<i>10.8–23.4</i>	<i>4.6–18.9</i>	<i>12.6–33.9</i>	<i>12.3–34.1</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	28.1	18.3	30.4	30.8
	<i>95% CI</i>	<i>20.2–37.7</i>	<i>5.3–47.3</i>	<i>15.0–52.0</i>	<i>21.1–42.4</i>
Neither card	% of people	18.8	16.5	23.0	14.1
	<i>95% CI</i>	<i>14.7–23.9</i>	<i>9.4–27.3</i>	<i>17.8–29.2</i>	<i>7.4–25.2</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	30.1	25.3	25.3	35.8
	<i>95% CI</i>	<i>19.6–43.0</i>	<i>6.4–62.6</i>	<i>8.5–55.2</i>	<i>20.5–54.6</i>
Cardholder/Non-public	% of people	26.7	9.8	34.3	27.6
	<i>95% CI</i>	<i>17.9–37.8</i>	<i>1.3–47.3</i>	<i>14.0–62.5</i>	<i>17.9–40.1</i>
Non-cardholder/Non-public	% of people	18.8	16.5	23.0	14.1
	<i>95% CI</i>	<i>14.7–23.9</i>	<i>9.4–27.3</i>	<i>17.8–29.2</i>	<i>7.4–25.2</i>
<b>Dental insurance</b>					
Insured	% of people	18.5	9.6	27.6	17.8
	<i>95% CI</i>	<i>14.6–23.1</i>	<i>5.0–17.7</i>	<i>20.1–36.6</i>	<i>10.6–28.3</i>
Uninsured	% of people	25.4	25.4	21.4	32.8
	<i>95% CI</i>	<i>19.0–33.0</i>	<i>13.4–42.8</i>	<i>13.8–31.5</i>	<i>21.1–47.1</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Prevalence of 4+ mm clinical attachment loss

Clinical attachment loss (CAL) is the loss of supporting periodontal structure around the tooth. Attachment may be lost through gum recession or the development of periodontal pockets from the inflammatory disease periodontitis. In NSAOH, CAL was measured using a combination of gum recession and periodontal probing depth on three sites per tooth. In SA, a total of 45% of dentate adults had at least one site with 4 mm or more CAL (Table 15), which was higher, but not significantly, than the national estimate of 42.5% (Slade et al. 2007).

### Key findings

- The prevalence of 4+ mm CAL was strongly associated with age, being 18.5% in 15–34-year-old adults but affecting 66.8% of SA adults aged 55 years or more.
- There was a tendency that males had higher prevalence compared with females. This tendency was statistically significant in the middle-aged group.
- People who had a government health card were significantly more likely to have CAL of 4 mm or more compared with people who were non-cardholders.
- People who had their last visit to a public sector clinic had significantly higher prevalence of CAL of 4+ mm. The difference was significant for all age groups combined and for the oldest age group.

### Discussion

Clinical attachment loss reflects an accumulation of activity of periodontal inflammation as well as a physiological process in the gums. Therefore, a strong age effect was observed. This condition was almost universal in certain groups of the oldest population. This strong age effect might confound the effect of other attributes depending on data structures within and between groups (for example by residential location).

In summary, clinical attachment loss was highly prevalent in this population. It was more likely to occur in the older population, males and people with lower socioeconomic status.

**Table 15: Percentage of people with 4+ mm clinical attachment loss**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>39.3</b>	<b>18.5</b>	<b>42.3</b>	<b>66.8</b>
	<i>95% CI<sup>(a)</sup></i>	34.4–44.4	11.1–29.2	35.3–49.5	58.3–74.3
<b>Sex</b>					
Males	% of people	45.2	23.7	54.0	66.6
	<i>95% CI</i>	37.1–53.7	12.1–41.2	43.3–64.3	55.3–76.3
Females	% of people	33.3	12.9	30.5	66.9
	<i>95% CI</i>	28.5–38.5	7.0–22.8	23.5–38.5	56.3–76.0
<b>Residential location</b>					
Capital city	% of people	41.5	22.3	42.6	71.3
	<i>95% CI</i>	35.3–47.9	12.9–35.7	33.9–51.7	60.2–80.4
Other places	% of people	33.0	6.0	41.4	55.3
	<i>95% CI</i>	27.3–39.3	1.2–25.6	31.6–51.9	44.4–65.8
<b>Postcode socioeconomic status</b>					
Lowest	% of people	38.8	16.6	44.2	62.6
	<i>95% CI</i>	32.5–45.5	7.6–32.8	34.5–54.3	52.1–72.1
Middle	% of people	45.9	25.3	42.4	74.1
	<i>95% CI</i>	35.4–56.8	7.9–57.4	27.6–58.8	57.5–85.8
Highest	% of people	34.2	15.7	39.5	63.4
	<i>95% CI</i>	27.0–42.1	8.0–28.5	30.2–49.6	44.1–79.1
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	53.3	10.7	41.2	77.2
	<i>95% CI</i>	44.0–62.4	1.6–47.1	25.3–59.1	67.7–84.5
Neither card	% of people	34.2	19.8	42.5	53.0
	<i>95% CI</i>	28.6–40.1	11.7–31.5	34.5–51.0	41.4–64.3
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	56.8	19.4	45.7	85.4
	<i>95% CI</i>	43.4–69.4	3.3–62.8	19.2–74.8	73.2–92.6
Cardholder/Non-public	% of people	50.7	0.0	37.8	72.1
	<i>95% CI</i>	39.7–61.5	—	19.3–60.7	58.5–82.6
Non-cardholder/Non-public	% of people	34.2	19.8	42.5	53.0
	<i>95% CI</i>	28.6–40.1	11.7–31.5	34.5–51.0	41.4–64.3
<b>Dental insurance</b>					
Insured	% of people	37.3	14.6	42.9	59.6
	<i>95% CI</i>	31.4–43.7	6.9–28.1	35.3–50.9	47.6–70.6
Uninsured	% of people	42.6	24.0	41.6	76.7
	<i>95% CI</i>	35.5–50.0	13.7–38.6	30.8–53.3	65.4–85.1

(a) 95% CI = 95% confidence interval for estimated percentage.

## Prevalence of gingival inflammation

The gingival index is a measure of gingivitis, inflammation of the gums. Gingivitis occurs as a response to the bacteria in plaque accumulation near the gum line. In NSAOH, gingivitis was assessed on six index teeth. A gingival index score of 2 or more indicated bleeding on probing or spontaneous bleeding, and was classified as indicating gingival inflammation (gingivitis). In SA, a total of 18.4% of the dentate adult population had at least one site with a gingival score of 2 or more (Table 16), which was lower, but not significantly, than the national estimate of 19.7% (Slade et al. 2007).

### Key findings

- Males were twice as likely to have gingival inflammation compared with females.
- People who were without private dental insurance were significantly more likely to have gingival inflammation than the insured.

### Discussion

Gingival inflammation is a condition observed in people of all ages at a similar rate. There was a tendency that people with lower socioeconomic status had higher prevalence of gingival inflammation. However, some differences were small and relatively low numbers of people in each population group made the confidence interval wide, overlapping between most groups.

In summary, gingival inflammation was more likely to affect males and people with lower socioeconomic status.

**Table 16: Percentage of people with gingival inflammation**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>18.4</b>	<b>22.9</b>	<b>13.6</b>	<b>19.2</b>
	95% CI <sup>(a)</sup>	14.6–23.0	16.0–31.6	8.8–20.3	14.2–25.3
<b>Sex</b>					
Males	% of people	24.6	29.6	18.8	25.7
	95% CI	17.3–33.6	16.7–46.8	11.2–29.7	17.0–36.9
Females	% of people	12.2	15.7	8.3	13.1
	95% CI	8.9–16.6	9.2–25.5	4.9–13.9	8.5–19.7
<b>Residential location</b>					
Capital city	% of people	19.4	23.9	16.3	16.8
	95% CI	15.2–24.3	16.5–33.3	10.4–24.8	10.7–25.3
Other places	% of people	15.7	19.5	6.0	25.1
	95% CI	8.0–28.3	6.3–46.3	2.2–15.1	17.7–34.3
<b>Postcode socioeconomic status</b>					
Lowest	% of people	20.2	25.1	17.0	18.3
	95% CI	13.2–29.5	13.7–41.5	8.4–31.4	11.6–27.6
Middle	% of people	17.9	23.6	11.0	20.8
	95% CI	12.3–25.3	10.7–44.5	6.8–17.2	13.8–30.0
Highest	% of people	16.9	20.4	11.5	18.3
	95% CI	11.7–23.8	12.3–31.9	5.7–21.8	8.5–35.1
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	19.5	26.8	17.0	17.9
	95% CI	13.3–27.6	11.7–50.2	5.1–43.6	11.8–26.2
Neither card	% of people	17.8	22.3	12.7	18.8
	95% CI	13.2–23.6	14.8–32.2	8.3–19.0	11.1–30.1
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	20.6	24.7	16.4	20.8
	95% CI	12.6–31.8	6.2–61.8	3.5–51.5	10.9–36.0
Cardholder/Non-public	% of people	18.7	29.3	17.4	16.2
	95% CI	10.6–30.8	8.4–65.3	4.2–50.2	8.5–28.7
Non-cardholder/Non-public	% of people	17.8	22.3	12.7	18.8
	95% CI	13.2–23.6	14.8–32.2	8.3–19.0	11.1–30.1
<b>Dental insurance</b>					
Insured	% of people	12.9	11.3	11.2	17.4
	95% CI	9.1–18.1	5.2–22.9	6.7–18.0	10.9–26.7
Uninsured	% of people	23.7	33.3	16.0	21.6
	95% CI	18.1–30.4	20.6–49.1	8.9–27.0	14.6–30.8

(a) 95% CI = 95% confidence interval for estimated percentage.

## 4 Oral health care

### Dental attendance within the preceding 12 months

Time since last visiting a dentist is a key indicator of access to dental care. In NSAOH, the time since last dental visit was assessed in the interview by asking 'How long ago did you last see a dental professional about your teeth, dentures or gums?'. Five responses were possible including 'Less than 12 months'. In SA, 57.9% of people aged 15 years or more had visited a dentist within the last 12 months (Table 17), a figure that was slightly lower than the national estimate of 59.4% (Slade et al. 2007).

#### Key findings

- Among age groups, 15–34 years were least likely to have attended within the last 12 months (53.2%) but this was not significantly different from older age groups.
- Overall, percentages were similar between males and females (54.4% versus 61.3%). However, within age groups, males aged 15–34 years were far less likely to have recently visited than females (43.5% versus 63.4%).
- For the population overall and within age groups, dental attendance rates did not vary between residents of Adelaide and the rest of SA.
- In the overall population, people living in low socioeconomic postcodes had a similar rate of dental attendance as people living in high socioeconomic postcodes (58.9% versus 63.7%). However, among people aged 55 years or more, the rate was higher in high (77.8%) compared with low socioeconomic postcodes (52.2%).
- People who had a government health card were almost as likely to have visited a dentist in the last 12 months as non-cardholders. Within age groups, significant differences were evident only in the 55 years or more age group (71.7% versus 53.5%).
- Among people who had a government health card, those who attended a public practice at their last dental visit were just as likely to have visited a dentist within the last 12 months as those who attended a private practice (53.7% versus 55.1%). Surprisingly, cardholders aged 35–54 years who last attended a public practice reported the highest percentage (70.2%); however, the confidence interval for this estimate was very large.
- Insured people were much more likely to have recently visited a dentist than uninsured people (68.1% versus 46.6%). Within age groups, the percentage was higher for insured than the uninsured, with significant differences in the 35–54 years (68.8% versus 49.9%) and 55 years or more (75.7% versus 43.2%) age groups.

#### Discussion

Adults with dental insurance were far more likely to have visited a dentist within the last 12 months than the uninsured. Differences between other SA population groups were small although young males were less likely to have made a recent visit than other people. Comparisons in visiting behaviour among population groups were most obvious for those aged 55 years or more, where residing in areas of high socioeconomic status and not having a government health card were also associated with recent dental visiting.



**Table 17: Percentage of people visiting dentist within last 12 months**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>57.9</b>	<b>53.2</b>	<b>59.7</b>	<b>60.7</b>
	<i>95% CI<sup>(a)</sup></i>	<i>54.1–61.6</i>	<i>46.9–59.4</i>	<i>54.3–64.8</i>	<i>54.0–66.9</i>
<b>Sex</b>					
Males	% of people	54.4	43.5	57.8	62.4
	<i>95% CI</i>	<i>49.3–59.5</i>	<i>35.6–51.7</i>	<i>48.0–67.0</i>	<i>53.6–70.5</i>
Females	% of people	61.3	63.4	61.6	59.1
	<i>95% CI</i>	<i>56.4–66.0</i>	<i>52.9–72.7</i>	<i>56.2–66.7</i>	<i>51.1–66.7</i>
<b>Residential location</b>					
Capital city	% of people	58.4	53.3	58.8	63.3
	<i>95% CI</i>	<i>53.7–63.0</i>	<i>46.5–60.0</i>	<i>51.9–65.3</i>	<i>54.3–71.5</i>
Other places	% of people	56.5	52.7	62.1	53.7
	<i>95% CI</i>	<i>50.8–61.9</i>	<i>38.3–66.7</i>	<i>55.3–68.4</i>	<i>47.4–59.9</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	58.9	53.5	69.6	52.2
	<i>95% CI</i>	<i>53.5–64.1</i>	<i>43.9–62.9</i>	<i>60.3–77.4</i>	<i>43.5–60.9</i>
Middle	% of people	50.9	44.4	54.8	52.4
	<i>95% CI</i>	<i>45.9–55.8</i>	<i>35.3–54.0</i>	<i>47.4–61.9</i>	<i>47.2–57.6</i>
Highest	% of people	63.7	60.0	54.7	77.8
	<i>95% CI</i>	<i>56.9–69.9</i>	<i>49.9–69.3</i>	<i>47.4–61.9</i>	<i>61.4–88.5</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	54.6	54.0	57.9	53.5
	<i>95% CI</i>	<i>49.4–59.6</i>	<i>41.0–66.5</i>	<i>43.4–71.2</i>	<i>46.1–60.7</i>
Neither card	% of people	59.7	53.0	60.2	71.7
	<i>95% CI</i>	<i>56.1–63.3</i>	<i>46.3–59.7</i>	<i>55.0–65.2</i>	<i>63.7–78.6</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	53.7	50.6	70.2	47.8
	<i>95% CI</i>	<i>45.2–62.1</i>	<i>33.6–67.5</i>	<i>46.7–86.3</i>	<i>38.4–57.2</i>
Cardholder/Non-public	% of people	55.1	60.2	49.7	56.0
	<i>95% CI</i>	<i>48.9–61.1</i>	<i>38.4–78.6</i>	<i>32.5–66.9</i>	<i>47.7–64.0</i>
Non-cardholder/Non-public	% of people	59.7	53.0	60.2	71.7
	<i>95% CI</i>	<i>56.1–63.3</i>	<i>46.3–59.7</i>	<i>55.0–65.2</i>	<i>63.7–78.6</i>
<b>Dental insurance</b>					
Insured	% of people	68.1	58.5	68.8	75.7
	<i>95% CI</i>	<i>64.2–71.7</i>	<i>49.4–67.1</i>	<i>62.9–74.2</i>	<i>68.9–81.4</i>
Uninsured	% of people	46.6	46.4	49.9	43.2
	<i>95% CI</i>	<i>41.3–51.9</i>	<i>38.6–54.5</i>	<i>41.2–58.5</i>	<i>35.6–51.2</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Attendance at private dental practice

While most Australians obtain dental care at private dental practices, alternatives exist in the public sector for targeted population groups. The two largest public programs are school dental services targeted to children; and adult public programs provided through dental hospitals, community health centres and regional facilities, and targeted to adults holding a government concession card. In NSAOH, people were asked, 'Where did you make your last dental visit?', and seven responses were offered. People who reported having visited a general dental practice, a specialist dental practice or a dental clinic associated with a health insurance fund were classified as having attended a private dental practice. In SA, 76.9% of people aged 15 years or more attended a private practice at their last dental visit (Table 18), which was lower than the national estimate of 83.1% (Slade et al. 2007).

### Key findings

- Adults aged 35–54 years were most likely to have visited a private dental practice at their last dental visit (87.2%), and those aged 15–34 years least likely (67.2%).
- The percentages of males and females were very similar (75.3% versus 78.5%), and there was no consistent pattern across age groups. The largest difference occurred within the 15–34 years age group, where males less likely than females to have attended a private practice dentist (61.3% versus 73.5%).
- People living outside the metropolitan area were equally likely to report visiting a private practice at their last dental visit as Adelaide residents (77.6% versus 76.7%). There were also no differences by residential location within age groups.
- Residents living in high socioeconomic postcodes were more likely than those living in postcodes of low socioeconomic status (83.4% versus 68.6%) to have visited a private practice dentist. Large differences were evident in the 15–34 years age group, where 78.1% of young adults living in high socioeconomic postcodes reported visiting a private practice compared with 54.9% of those living in low socioeconomic postcodes.
- Despite having a government health card, 57.5% of cardholders visited a private practice at their last dental visit, with young cardholders having the lowest percentage (34.8%). For non-cardholders, 15–34-year-olds also had the lowest percentage (73.8%), which may reflect that their last dental visit was at the school dental service.
- Insured people recorded were more likely than those without dental insurance to have attended a private practice dentist (90.5% versus 62.4%). Significant differences by insurance status were evident in all age groups, particularly for those aged 55 years or more.

### Discussion

Over three-quarters of SA residents aged 15 years or more visited a private practice at their last dental visit (76.9%). Having private dental insurance, being 35 years old or more and living in areas of high socioeconomic status were associated with private visiting. Despite having a government health card, just over one in two cardholders last attended a private practice. This is most likely due to adults who held a government health card electing to attend a private practice due to the long public waiting lists.

**Table 18: Percentage of people who attended a private dental practice at last dental visit**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>76.9</b>	<b>67.2</b>	<b>87.2</b>	<b>75.5</b>
	95% CI <sup>(a)</sup>	73.1–80.4	59.7–73.9	83.0–90.4	70.9–79.5
<b>Sex</b>					
Males	% of people	75.3	61.3	84.7	79.9
	95% CI	69.4–80.4	50.8–70.8	76.9–90.1	73.0–85.3
Females	% of people	78.5	73.5	89.6	71.7
	95% CI	74.3–82.2	64.2–81.1	84.1–93.4	65.3–77.4
<b>Residential location</b>					
Capital city	% of people	76.7	67.8	87.1	74.6
	95% CI	72.1–80.8	59.2–75.4	82.8–90.4	68.8–79.7
Other places	% of people	77.6	65.1	87.4	77.7
	95% CI	70.1–83.6	49.6–78.0	75.7–93.9	71.1–83.2
<b>Postcode socioeconomic status</b>					
Lowest	% of people	68.6	54.9	80.1	68.7
	95% CI	63.4–73.5	45.4–64.0	72.4–86.1	61.5–75.1
Middle	% of people	78.1	65.5	90.5	76.0
	95% CI	70.8–84.0	48.7–79.1	84.3–94.5	67.7–82.7
Highest	% of people	83.4	78.1	90.8	81.4
	95% CI	79.4–86.7	69.5–84.9	85.2–94.4	74.8–86.5
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	57.5	34.8	56.7	64.5
	95% CI	51.2–63.7	22.3–49.8	43.8–68.8	58.4–70.2
Neither card	% of people	85.8	73.8	94.7	90.7
	95% CI	82.1–88.8	66.3–80.2	91.2–96.8	84.5–94.6
<b>Dental insurance</b>					
Insured	% of people	90.5	82.2	96.2	91.8
	95% CI	87.6–92.8	73.4–88.5	93.0–98.0	87.8–94.5
Uninsured	% of people	62.4	54.2	76.3	55.9
	95% CI	56.7–67.8	45.1–63.0	68.8–82.5	48.9–62.7

(a) 95% CI = 95% confidence interval for estimated percentage.

## Payments by patients for dental care

While the place of last dental visit was dominated by private practice, some visits made to private dentists are paid for by public funds. In order to identify such visits, NSAOH participants who had a government health card and who had visited a dentist within the last 5 years were asked 'Did the government or an insurance fund pay any part of the expense for your last dental visit?'. A number of response options were available including 'Paid all own expenses', 'Insurance paid some – patient paid some', 'Insurance paid all', 'Government paid some – patient paid some' and 'Government paid all'. People who reported one of the first three payment mechanisms were classified as having paid for their care, together with people who were non-government health cardholders and had visited within the last 5 years. In SA, 88.5% of people aged 15 years or more who had seen a dentist within the preceding 5 years paid for that visit (Table 19), which was slightly lower than the national estimate of 91.4% (Slade et al. 2007).

### Key findings

- SA residents aged 55 years or more were less likely to have paid for their last dental visit (80.7%) than younger residents.
- Males and females who had seen a dentist within the preceding 5 years were equally as likely to have paid for their last visit (89.4% versus 87.7%). The only difference occurred in the 55 years age group, where the percentage was higher for males than females (84.3% versus 77.6%) but this difference was not statistically significant.
- Residents living outside the metropolitan did not differ from Adelaide residents (88.7% versus 88.4%). There were also no differences by residential location within age groups.
- Residents of high socioeconomic postcodes were more likely to have paid for their last dental visit than those living in low socioeconomic postcodes (94.0% versus 82.7%). This pattern was consistent within age groups although differences were not significant for adults aged 15–34 years.
- Despite having a government health card, 60.2% of cardholders who visited a dentist within the preceding 5 years paid for their last visit. The percentage was higher for people aged 55 years or more (64.7%), which may be due to older adults electing to attend a private practice due to long waiting lists in public dental care.
- Virtually all people with dental insurance paid for dental care compared with 76.3% of uninsured people. Within the uninsured population, those aged 55 years or more had the lowest percentage (57.6%).

### Discussion

The majority of government health cardholders paid for their own dental care.

**Table 19: Percentage of people who paid for their last dental visit**

		Population: people who visited dentist within last 5 years			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>88.5</b>	<b>92.2</b>	<b>91.8</b>	<b>80.7</b>
	<i>95% CI<sup>(a)</sup></i>	85.6–90.8	87.0–95.4	87.9–94.6	76.4–84.3
<b>Sex</b>					
Males	% of people	89.4	91.5	91.5	84.3
	<i>95% CI</i>	85.0–92.6	84.5–95.5	84.0–95.7	78.0–89.0
Females	% of people	87.7	92.8	92.2	77.6
	<i>95% CI</i>	84.7–90.1	85.6–96.6	87.6–95.2	71.5–82.7
<b>Residential location</b>					
Capital city	% of people	88.4	91.9	91.6	81.0
	<i>95% CI</i>	84.6–91.4	85.5–95.6	86.8–94.8	75.5–85.5
Other places	% of people	88.7	93.0	92.5	79.8
	<i>95% CI</i>	85.3–91.4	82.0–97.5	84.0–96.7	73.4–84.9
<b>Postcode socioeconomic status</b>					
Lowest	% of people	82.7	87.4	86.0	73.6
	<i>95% CI</i>	77.7–86.9	74.3–94.3	78.2–91.3	65.2–80.6
Middle	% of people	87.9	91.4	92.8	78.9
	<i>95% CI</i>	83.8–91.0	84.0–95.6	85.8–96.5	73.4–83.5
Highest	% of people	94.0	96.6	96.7	88.2
	<i>95% CI</i>	91.1–96.0	87.2–99.2	93.5–98.4	82.2–92.3
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	60.2	49.2	56.8	64.7
	<i>95% CI</i>	54.2–65.8	34.5–64.1	44.3–68.5	58.1–70.8
Neither card	% of people	100.0	100.0	100.0	100.0
	<i>95% CI</i>	—	—	—	—
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	13.3	18.5	13.9	10.2
	<i>95% CI</i>	7.4–22.7	5.8–45.4	3.1–45.2	4.2–22.7
Cardholder/Non-public	% of people	87.6	89.2	84.8	88.3
	<i>95% CI</i>	82.6–91.3	61.8–97.7	71.7–92.5	83.0–92.1
Non-cardholder/Non-public	% of people	100.0	100.0	100.0	100.0
	<i>95% CI</i>	—	—	—	—
<b>Dental insurance</b>					
Insured	% of people	97.8	97.9	99.5	96.0
	<i>95% CI</i>	96.0–98.8	91.3–99.5	97.8–99.9	92.3–98.0
Uninsured	% of people	76.3	85.3	82.2	57.6
	<i>95% CI</i>	71.3–80.6	76.1–91.4	73.6–88.4	49.0–65.7

(a) 95% CI = 95% confidence interval for estimated percentage.

## Government-subsidised dental care in private sector

In some states and territories, public sector dental programs provide care to people eligible for their services by referring them to private practitioner dentists. The cost of such care is then subsidised by the state or territory dental program. In SA, 2.4% of the adult population received state-subsidised dental care in the private sector (Table 20). This statistic was not reported nationally.

- People aged 55 years or more tended to be more likely than younger people to receive state-subsidised dental care in private practice, although the difference was not statistically significant when all people were considered.
- In contrast, the age-related pattern was reversed within the group of people who had a government health card, among whom 8.4% received state-subsidised dental care in private practice. Again, this age-related pattern was not statistically significant.
- The percentage was higher for people living in postcodes with the middle socioeconomic status than in postcodes with the highest socioeconomic status.
- Dental insurance status was associated with a significantly lower likelihood of state-subsidised dental care in private practice.

### Discussion

Variation in this statistic according to postcode socioeconomic status and dental insurance status reflected similar variation in the distribution of people who were eligible for state dental services. Age trends conflicted according to whether the data were for the entire SA population or the subgroup of the population that had a government health card.

**Table 20: Percentage of people who received government-subsidised dental care in private sector**

		Population: people who visited dentist within last 5 years			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	2.4	1.9	1.5	4.1
	<i>95% CI<sup>(a)</sup></i>	1.7–3.6	0.7–5.1	0.6–3.6	2.8–5.8
<b>Sex</b>					
Males	% of people	1.8	1.0	0.6	4.1
	<i>95% CI</i>	0.9–3.3	0.1–6.9	0.1–2.4	2.2–7.4
Females	% of people	3.1	2.9	2.4	4.0
	<i>95% CI</i>	1.9–4.9	0.9–8.8	0.9–6.3	2.5–6.4
<b>Residential location</b>					
Capital city	% of people	2.2	2.2	1.5	3.0
	<i>95% CI</i>	1.3–3.6	0.7–6.6	0.5–4.6	1.8–4.9
Other places	% of people	3.2	1.3	1.6	7.1
	<i>95% CI</i>	1.9–5.3	0.2–8.2	0.5–4.5	4.2–11.7
<b>Postcode socioeconomic status</b>					
Lowest	% of people	2.8	3.6	0.4	5.1
	<i>95% CI</i>	1.5–4.9	0.9–12.5	0.0–2.6	2.8–9.1
Middle	% of people	3.9	2.8	4.4	4.5
	<i>95% CI</i>	2.3–6.6	0.7–10.3	2.0–9.5	2.4–8.0
Highest	% of people	0.9	0.0	0.0	2.8
	<i>95% CI</i>	0.4–2.0	—	—	1.3–6.0
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	8.4	12.4	8.1	7.4
	<i>95% CI</i>	5.8–12.0	5.1–27.3	3.5–17.5	5.0–10.8
Neither card	% of people	0.0	0.0	0.0	0.0
	<i>95% CI</i>	—	—	—	—
<b>Dental insurance</b>					
Insured	% of people	0.4	0.7	0.0	0.7
	<i>95% CI</i>	0.1–1.3	0.1–4.6	—	0.2–2.2
Uninsured	% of people	5.1	3.5	3.4	9.1
	<i>95% CI</i>	3.4–7.4	1.2–10.1	1.4–8.1	6.1–13.3

(a) 95% CI = 95% confidence interval for estimated percentage.

## People's usual pattern of dental visits

While time since last visiting a dentist provides a snapshot of dental visiting behaviour, people's usual dental attendance patterns reflects longer term behaviours and intentions. In NSAOH, people who were dentate were asked 'How often on average do you seek care from a dental professional?', and four categories of response were offered. In SA, 51.9% of people aged 15 years or more usually visit a dentist at least once a year (Table 21), which is slightly lower than the national estimate of 53.1% (Slade et al. 2007).

### Key findings

- Among age groups, the percentage was highest for people aged 55 years or more (61.9%), significantly higher than for adults aged 35–54 years (44.9%).
- Females were more likely than males to usually visit a dentist one or more times a year (59.0% versus 44.8%). This pattern was consistent within each age group, with large differences observed in the 15–34 years and 35–54 years age groups.
- Residents living outside the metropolitan area recorded almost the same percentage as Adelaide residents (49.8% versus 52.6%). Within age groups, the largest difference occurred in adults aged 15–34 years, with 55.1% of Adelaide residents frequently visiting compared with 41.1% living in the rest of SA.
- Socioeconomic area had little impact, with those living in low socioeconomic postcodes almost as likely to usually visit one or more times a year as people living in high socioeconomic postcodes (50.7% versus 56.6%). Within age groups, visiting behaviour was inconsistent, with no real pattern emerging by socioeconomic area.
- The percentage for government health cardholders was slightly lower than for non-cardholders (46.8% versus 53.8%). However, for the 55 years or more age group, cardholders were much less likely to visit annually than non-cardholders (52.6% versus 71.3%).
- Among government health cardholders, adults who last visited a private practice were twice as likely to usually visit one or more times a year than those who visited a public practice (59.2% versus 28.5%). Within age groups, larger differences were observed for adults aged 55 years or more, where cardholders who last visited a private practice recorded a three-fold greater percentage compared with cardholders who attended a public practice (66.3% versus 23.3%).
- Insured people were far more likely to usually visit a dentist one or more times a year than uninsured people (62.8% versus 38.3%). Large differences by insurance status were evident in all age groups.

### Discussion

Just over half of SA residents aged 15 years or more usually visit the dentist at least once a year. Being female, last visiting a private practice and having dental insurance were all associated with regular visiting. Those who had a government health card, were aged 35 years or more and had visited a public practice at their last dental visit were the least likely population group to visit the dentist frequently (23%).



**Table 21: Percentage of people who usually visit a dental professional at least once a year**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>51.9</b>	<b>51.8</b>	<b>44.9</b>	<b>61.9</b>
	95% CI <sup>(a)</sup>	48.5–55.3	46.7–56.9	40.6–49.3	54.9–68.4
<b>Sex</b>					
Males	% of people	44.8	43.7	35.7	59.5
	95% CI	39.2–50.7	35.6–52.3	29.0–43.0	48.2–69.8
Females	% of people	59.0	60.4	54.0	64.2
	95% CI	54.9–62.9	52.3–67.9	47.0–60.8	56.6–71.1
<b>Residential location</b>					
Capital city	% of people	52.6	55.1	43.7	61.6
	95% CI	48.4–56.7	48.9–61.2	38.6–48.9	52.7–69.8
Other places	% of people	49.8	41.1	48.4	62.7
	95% CI	44.5–55.2	32.1–50.8	40.9–56.0	53.6–70.9
<b>Postcode socioeconomic status</b>					
Lowest	% of people	50.7	50.9	45.6	59.0
	95% CI	45.0–56.4	42.0–59.8	37.2–54.2	46.9–70.1
Middle	% of people	47.8	47.6	44.2	53.0
	95% CI	42.2–53.4	38.0–57.4	37.8–50.7	43.4–62.4
Highest	% of people	56.6	55.9	45.0	72.2
	95% CI	51.8–61.3	47.7–63.8	37.8–52.5	61.0–81.2
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	46.8	41.1	40.5	52.6
	95% CI	40.5–53.1	26.2–57.8	29.6–52.4	43.4–61.6
Neither card	% of people	53.8	54.1	46.0	71.3
	95% CI	50.6–57.0	48.5–59.5	41.4–50.7	62.6–78.7
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	28.5	37.3	23.8	23.3
	95% CI	19.8–39.1	19.0–60.1	12.1–41.4	14.4–35.5
Cardholder/Non-public	% of people	59.2	47.9	50.2	66.3
	95% CI	52.0–66.1	26.6–70.1	34.8–65.6	54.5–76.3
Non-cardholder/Non-public	% of people	53.8	54.1	46.0	71.3
	95% CI	50.6–57.0	48.5–59.5	41.4–50.7	62.6–78.7
<b>Dental insurance</b>					
Insured	% of people	62.8	59.8	54.4	76.3
	95% CI	59.0–66.5	52.1–67.1	48.5–60.2	69.0–82.4
Uninsured	% of people	38.3	42.6	34.1	38.0
	95% CI	32.7–44.2	33.7–52.0	26.9–42.1	27.7–49.4

(a) 95% CI = 95% confidence interval for estimated percentage.

## Usual attendance at the same dentist

In NSAOH, usual source of care was assessed in the interview by asking people 'Is there a dentist you usually go to for dental care?'. People who answered 'yes, have a usual source of care' were classified as having a dentist they usually attend. In SA, 78.6% of the dentate population aged 15 years or more who visited a dentist within the last 5 years reported having a dentist they usually attend (Table 22), which was comparable to the national estimate of 78.6% (Slade et al. 2007).

### Key findings

- Across age groups, the percentage who replied 'yes' to having a dentist they usually attend was lower for 15–34-year-olds (73.5%) compared with those aged 35–54 years (79.4%) and 55 years or more (84.0%). However, differences between age groups were not statistically significant.
- A greater percentage of females than males reported having a dentist they usually attend (82.8% versus 74.2%). This difference was mainly attributable to those aged 35–54 years (86.3% versus 72.2%).
- For people of all ages, there was less variation among groups classified by residential location. Percentages were higher for residents living in Adelaide compared with those in regional areas (80.2% versus 74.1%).
- People living in postcodes with low socioeconomic status were less likely to report a usual source of care compared with those in postcodes with high socioeconomic status (69.5% versus 83.0%). The largest difference occurred among those aged 55 years or more (71.9% versus 91.0%).
- The percentage was significantly lower for adults who had a government health card than for those who did not (69.7% versus 81.8%). This difference was mainly attributable to those aged 35–54 years, with 64.5% of cardholders reporting a usual source of care compared with 82.8% of non-cardholders.
- Within the population of government health cardholders, people whose last dental visit was to the public sector had a lower percentage than those who attended elsewhere (45.5% versus 86.0%). The largest differences occurred in the 35–54 years (29.9% versus 86.9%) and 55 years or more (52.4% versus 91.0%) age groups.
- The percentage was significantly higher among adults with dental insurance than for those without insurance (88.5% versus 65.4%). This pattern was consistent across all age groups.

### Discussion

In summary, 78.6% of SA adults reported that they usually visit the same dentist. This type of visiting was more frequent among the older age groups and those who were insured.

Choice of an individual dentist is not possible within most public dental clinics.

**Table 22: Percentage of people who have a dentist they usually attend**

		Population: dentate people who visited dentist within last 5 years			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>78.6</b>	<b>73.5</b>	<b>79.4</b>	<b>84.0</b>
	<i>95% CI<sup>(a)</sup></i>	<i>74.9–81.9</i>	<i>67.1–79.0</i>	<i>75.2–83.0</i>	<i>78.1–88.6</i>
<b>Sex</b>					
Males	% of people	74.2	69.4	72.2	83.2
	<i>95% CI</i>	<i>67.8–79.7</i>	<i>58.2–78.7</i>	<i>64.3–78.9</i>	<i>73.0–90.0</i>
Females	% of people	82.8	77.4	86.3	84.8
	<i>95% CI</i>	<i>79.1–86.0</i>	<i>69.6–83.7</i>	<i>80.2–90.7</i>	<i>79.1–89.1</i>
<b>Residential location</b>					
Capital city	% of people	80.2	76.1	80.0	85.6
	<i>95% CI</i>	<i>75.8–83.9</i>	<i>67.9–82.8</i>	<i>75.3–84.0</i>	<i>79.9–89.9</i>
Other places	% of people	74.1	65.7	77.6	79.4
	<i>95% CI</i>	<i>66.6–80.3</i>	<i>57.1–73.4</i>	<i>68.3–84.8</i>	<i>62.6–89.8</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	69.5	65.4	71.5	71.9
	<i>95% CI</i>	<i>63.7–74.7</i>	<i>54.5–74.9</i>	<i>66.1–76.4</i>	<i>60.0–81.3</i>
Middle	% of people	82.4	76.4	84.7	86.1
	<i>95% CI</i>	<i>77.6–86.3</i>	<i>63.3–85.8</i>	<i>77.4–89.9</i>	<i>78.1–91.4</i>
Highest	% of people	83.0	77.7	82.0	91.0
	<i>95% CI</i>	<i>77.2–87.5</i>	<i>66.9–85.7</i>	<i>74.7–87.5</i>	<i>84.9–94.8</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	69.7	55.8	64.5	78.4
	<i>95% CI</i>	<i>60.4–77.6</i>	<i>37.6–72.5</i>	<i>49.8–76.9</i>	<i>70.6–84.5</i>
Neither card	% of people	81.8	77.1	82.8	89.4
	<i>95% CI</i>	<i>78.3–84.8</i>	<i>70.2–82.7</i>	<i>78.5–86.4</i>	<i>79.2–95.0</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	45.5	49.7	29.9	52.4
	<i>95% CI</i>	<i>33.7–57.8</i>	<i>28.0–71.5</i>	<i>16.9–47.1</i>	<i>36.7–67.6</i>
Cardholder/Non-public	% of people	86.0	64.5	86.9	91.0
	<i>95% CI</i>	<i>80.0–90.4</i>	<i>46.1–79.4</i>	<i>72.5–94.4</i>	<i>84.4–95.0</i>
Non-cardholder/Non-public	% of people	81.8	77.1	82.8	89.4
	<i>95% CI</i>	<i>78.3–84.8</i>	<i>70.2–82.7</i>	<i>78.5–86.4</i>	<i>79.2–95.0</i>
<b>Dental insurance</b>					
Insured	% of people	88.5	83.3	90.4	91.0
	<i>95% CI</i>	<i>84.1–91.7</i>	<i>73.5–90.0</i>	<i>86.8–93.2</i>	<i>83.2–95.4</i>
Uninsured	% of people	65.4	63.0	64.8	70.7
	<i>95% CI</i>	<i>59.7–70.8</i>	<i>53.4–71.8</i>	<i>57.9–71.1</i>	<i>60.7–79.0</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Usual dental attendance for a check-up

In NSAOH, dentate people were asked 'Is your usual reason for visiting a dental professional for check-ups or when you have a dental problem?'. In SA, 55.4% of the adult dentate population reported usually visiting a dentist for a check-up (Table 23), which was slightly lower than the national estimate of 56.2% (Slade et al. 2007).

### Key findings

- A significantly higher percentage of adults aged 55 years or more reported usually visiting for a check-up compared with those aged 35–54 years (60.6% versus 47.7%).
- For all ages combined and across age groups, there were no significant differences among groups classified by sex or residential location.
- The percentage was significantly lower for those living in low socioeconomic postcodes (45.1%) than high socioeconomic postcodes (66.0%), with statistically significant differences observed in the 15–34 years (50.0% versus 71.6%) and 55 years or more (48.5% versus 75.6%) age groups. In the oldest age group, adults living in postcodes with middle socioeconomic status were significantly less likely to report usually visiting for a check-up compared with those in postcodes with high socioeconomic status (54.6% versus 75.6%).
- For all ages combined and among those aged 55 years or more, the percentage of adults reporting usually visiting for a check-up was significantly lower for those who had a government health card than for those who did not (46.6% versus 58.9% and 50.2% versus 72.2% respectively).
- Within the population of government health cardholders, there was a tendency for less frequent check-ups for people whose last dental visit was to the public sector than those who attended elsewhere (31.4% versus 57.5%). Statistically significant differences were observed among those aged 35–54 years (11.7% versus 51.5%) and 55 years or more (21.2% versus 64.6%). Note that for those aged 15–34 years, cardholders who last visited publicly were more likely to report usually visiting a dentist for a check-up than cardholders who last visited elsewhere (57.9% versus 39.9%). However, the 95% CI in this age group was large, so this difference was not statistically significant.
- The percentage was significantly higher among adults with dental insurance than for the uninsured (67.6% versus 40.4%). Statistically significant differences were observed in the 35–54 years (62.1% versus 31.1%) and 55 years or more (75.3% versus 37.3%) age groups.

### Discussion

In summary, just over half of the SA adult population usually visit the dentist for a check-up, with this percentage being higher for adults aged 55 years or more. Being a non-government health cardholder and having dental insurance showed the strongest association. Usually visiting for a check-up was also significantly associated with living in high socioeconomic postcodes.

**Table 23: Percentage of people who usually visit a dentist for a check-up**

		Population: dentate people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>55.4</b>	<b>59.8</b>	<b>47.7</b>	<b>60.6</b>
	95% CI <sup>(a)</sup>	51.1–59.7	53.0–66.2	42.1–53.4	54.3–66.7
<b>Sex</b>					
Males	% of people	50.1	55.1	40.0	57.7
	95% CI	44.4–55.9	43.6–66.1	32.2–48.3	48.1–66.8
Females	% of people	60.8	64.7	55.3	63.5
	95% CI	55.3–66.1	56.0–72.6	48.1–62.4	56.1–70.3
<b>Residential location</b>					
Capital city	% of people	57.2	62.1	48.3	62.8
	95% CI	51.6–62.6	54.2–69.4	41.4–55.3	54.9–70.1
Other places	% of people	50.2	52.4	45.8	54.1
	95% CI	45.0–55.4	39.2–65.2	37.0–54.8	45.2–62.7
<b>Postcode socioeconomic status</b>					
Lowest	% of people	45.1	50.0	38.7	48.5
	95% CI	40.5–49.8	39.0–60.9	31.2–46.8	38.4–58.8
Middle	% of people	53.6	54.7	51.8	54.6
	95% CI	46.7–60.2	45.2–64.0	42.5–61.0	45.9–63.0
Highest	% of people	66.0	71.6	52.4	75.6
	95% CI	60.2–71.3	62.0–79.5	42.5–62.1	68.3–81.6
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	46.6	51.5	35.9	50.2
	95% CI	40.3–53.1	40.7–62.1	25.5–47.8	41.7–58.6
Neither card	% of people	58.9	61.6	50.6	72.2
	95% CI	54.5–63.1	54.3–68.3	44.6–56.6	63.5–79.4
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	31.4	57.9	11.7	21.2
	95% CI	24.0–39.8	46.0–69.0	5.0–25.2	12.2–34.3
Cardholder/Non-public	% of people	57.5	39.9	51.5	64.6
	95% CI	48.3–66.3	21.5–61.8	39.2–63.6	53.2–74.5
Non-cardholder/Non-public	% of people	58.9	61.6	50.6	72.2
	95% CI	54.5–63.1	54.3–68.3	44.6–56.6	63.5–79.4
<b>Dental insurance</b>					
Insured	% of people	67.6	66.7	62.1	75.3
	95% CI	63.5–71.4	57.1–75.1	54.9–68.9	67.2–81.9
Uninsured	% of people	40.4	51.5	31.1	37.3
	95% CI	35.3–45.6	42.8–60.2	24.2–39.0	29.4–45.9

(a) 95% CI = 95% confidence interval for estimated percentage.

## Dental care avoided or delayed due to cost

In NSAOH, cost as a barrier to receipt of dental care was assessed with the question 'During the last 12 months, have you avoided or delayed visiting a dental professional because of the cost?'. People who answered 'yes' were classified as having delayed or avoided dental care due to cost. In SA, they represented 28.0% of the population aged 15 years or more (Table 24), which was slightly lower than the national estimate of 30.0% (Slade et al. 2007).

### Key findings

- There was some age variation in the percentage reporting cost as a barrier to receipt of dental care (30.2% of adults aged 15–34 years and 33.3% of those aged 35–54 years compared with 20.1% of those aged 55 years or more).
- The percentage was higher among females than males (28.5% versus 27.4%) but this difference was not statistically significant. For each age group, there was no statistically significant difference in the percentage of males compared with females.
- For those aged 35–54 years, the percentage was significantly higher for residents living in Adelaide compared with those living outside the capital city (39.0% versus 17.8%).
- People living in postcodes with low socioeconomic status were more likely to report having avoided or delayed care due to cost than those in postcodes with high socioeconomic status. However, because 95% CIs were large in these groups, the differences were not statistically significant.
- Adults who had a government health card were more likely to avoid or delay care than non-cardholders (34.7% versus 24.9%). This pattern was consistent across all age groups, with statistically significant differences between cardholders and non-cardholders observed in the 35–54 years (49.4% versus 29.3%) and 55 years or more (26.5% versus 11.7%) age groups.
- Within the population of cardholders, there was a tendency for the percentages to be greater among people whose last dental visit was to the public sector than for those who attended elsewhere (40.4% versus 31.1%). However, 95% CIs were large in these groups, with the consequence that differences were not statistically significant.
- The percentage of adults reporting that they had avoided or delayed care due to cost was significantly higher among uninsured than insured adults (39.2% versus 18.6%). Among people aged 15–34 years and 35–54 years, there was a greater than two-fold difference according to dental insurance status.

### Discussion

In summary, adults aged 55 years or more were less likely to report that they had avoided or delayed care due to cost compared with their younger counterparts. Government health cardholder status and dental insurance were strongly associated with having avoided or delayed receipt of dental care due to cost.

**Table 24: Percentage of people who avoided or delayed dental care**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>28.0</b>	<b>30.2</b>	<b>33.3</b>	<b>20.1</b>
	<i>95% CI<sup>(a)</sup></i>	<i>24.8–31.3</i>	<i>24.5–36.5</i>	<i>28.0–38.9</i>	<i>16.7–24.0</i>
<b>Sex</b>					
Males	% of people	27.4	27.8	33.2	20.1
	<i>95% CI</i>	<i>22.5–32.8</i>	<i>19.4–38.0</i>	<i>25.4–42.1</i>	<i>14.7–26.8</i>
Females	% of people	28.5	32.7	33.3	20.1
	<i>95% CI</i>	<i>25.1–32.3</i>	<i>25.1–41.2</i>	<i>26.7–40.7</i>	<i>15.9–25.1</i>
<b>Residential location</b>					
Capital city	% of people	30.0	28.8	39.0	21.4
	<i>95% CI</i>	<i>26.2–34.0</i>	<i>22.6–36.0</i>	<i>32.3–46.0</i>	<i>17.0–26.6</i>
Other places	% of people	22.3	34.5	17.8	16.7
	<i>95% CI</i>	<i>16.8–28.9</i>	<i>23.7–47.1</i>	<i>11.4–26.6</i>	<i>13.3–20.8</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	30.2	39.0	31.6	20.6
	<i>95% CI</i>	<i>24.5–36.4</i>	<i>28.6–50.4</i>	<i>21.2–44.1</i>	<i>14.7–28.0</i>
Middle	% of people	26.7	24.8	35.3	19.4
	<i>95% CI</i>	<i>21.2–33.1</i>	<i>16.1–36.1</i>	<i>25.0–47.1</i>	<i>13.6–26.9</i>
Highest	% of people	27.1	27.6	32.9	20.3
	<i>95% CI</i>	<i>22.5–32.3</i>	<i>19.8–37.0</i>	<i>26.5–40.1</i>	<i>15.3–26.4</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	34.7	44.1	49.4	26.5
	<i>95% CI</i>	<i>29.8–39.9</i>	<i>30.5–58.5</i>	<i>39.2–59.7</i>	<i>21.6–32.0</i>
Neither card	% of people	24.9	27.1	29.3	11.7
	<i>95% CI</i>	<i>21.2–29.1</i>	<i>21.2–34.0</i>	<i>23.6–35.7</i>	<i>7.7–17.3</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	40.4	40.0	58.9	31.7
	<i>95% CI</i>	<i>30.8–50.8</i>	<i>20.7–62.9</i>	<i>41.4–74.4</i>	<i>22.5–42.7</i>
Cardholder/Non-public	% of people	31.1	51.5	43.1	24.1
	<i>95% CI</i>	<i>25.5–37.3</i>	<i>30.7–71.8</i>	<i>30.8–56.4</i>	<i>18.3–31.2</i>
Non-cardholder/Non-public	% of people	24.9	27.1	29.3	11.7
	<i>95% CI</i>	<i>21.2–29.1</i>	<i>21.2–34.0</i>	<i>23.6–35.7</i>	<i>7.7–17.3</i>
<b>Dental insurance</b>					
Insured	% of people	18.6	19.5	19.9	16.2
	<i>95% CI</i>	<i>15.6–22.0</i>	<i>13.0–28.2</i>	<i>15.1–25.9</i>	<i>12.2–21.3</i>
Uninsured	% of people	39.2	43.0	49.4	24.5
	<i>95% CI</i>	<i>34.4–44.3</i>	<i>33.6–52.9</i>	<i>42.6–56.1</i>	<i>18.8–31.3</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Recommended dental treatment foregone due to cost

In NSAOH, treatment foregone due to cost was assessed with the question 'Has the cost prevented you from having any dental treatment that was recommended during the last 2 years?'. People who answered 'yes' were classified as having foregone dental treatment due to cost. In SA, they represented 19.0% of the population aged 15 years or more (Table 25), which was slightly lower than the national estimate of 20.6% (Slade et al. 2007).

### Key findings

- There was some age variation in the percentage of people reporting that they had forgone recommended treatment due to cost (14.4% of 15–34-year-olds and 15.2% of those aged 55 years or more compared with 26.3% of those aged 35–54 years).
- For all ages combined, a greater percentage of males reported that they had forgone treatment due to cost compared with females (19.4% versus 18.6%) but this difference was not statistically significant. A similar pattern was observed in the two older age groups.
- For all ages combined and across all age groups, there was little variation among groups classified by residential location. Percentages tended to be lower for residents living in other places compared with those in Adelaide.
- For all ages combined, the percentage was higher for people living in postcodes with low socioeconomic status than those in postcodes with middle and high socioeconomic status. This pattern was consistent across all age groups although the differences were not statistically significant due to wide 95% CIs.
- For all ages combined, the percentage of adults reporting that they had forgone recommended dental care was greater among people who had a government health card than those who did not (25.4% versus 16.5%), but this difference was not statistically significant. For people aged 35–54 years, there was an almost two-fold relative difference between cardholders (42.3%) and non-cardholders (22.2%).
- Within the population of government health cardholders, there was a tendency for the percentage to be greater among people whose last dental visit was to the public sector than for those who attended elsewhere. However, because 95% CIs were large in these groups, the differences were not statistically significant.
- The percentage was significantly higher among adults with no dental insurance than for the insured (26.0% versus 14.6%). This difference was mainly attributable to those aged 35–54 years (37.3% versus 18.6%).

### Discussion

In summary, having foregone recommended dental treatment due to cost was moderately associated with age and dental insurance status.



**Table 25: Percentage of people who reported that cost had prevented recommended dental treatment**

		Population: people who visited dentist within last 2 years			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>19.0</b>	<b>14.4</b>	<b>26.3</b>	<b>15.2</b>
	95% CI <sup>(a)</sup>	16.0–22.4	10.4–19.5	20.8–32.6	11.4–20.1
<b>Sex</b>					
Males	% of people	19.4	12.0	26.5	18.7
	95% CI	14.5–25.6	6.4–21.3	17.2–38.4	12.7–26.7
Females	% of people	18.6	16.6	26.1	12.1
	95% CI	15.7–22.0	10.9–24.5	20.7–32.2	8.6–16.9
<b>Residential location</b>					
Capital city	% of people	20.0	15.5	28.3	15.1
	95% CI	16.5–23.9	10.5–22.2	21.6–36.0	10.8–20.6
Other places	% of people	16.2	11.0	20.8	15.6
	95% CI	10.8–23.7	6.6–17.8	12.3–33.0	8.4–27.2
<b>Postcode socioeconomic status</b>					
Lowest	% of people	22.8	18.0	31.2	16.8
	95% CI	16.0–31.3	11.2–27.8	19.8–45.4	9.9–27.0
Middle	% of people	19.9	15.9	26.2	15.9
	95% CI	16.4–24.0	9.0–26.7	18.6–35.5	9.1–26.6
Highest	% of people	15.1	10.5	21.4	13.5
	95% CI	12.7–17.8	5.7–18.8	16.2–27.9	8.7–20.4
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	25.4	29.0	42.3	16.5
	95% CI	19.4–32.5	15.6–47.4	29.5–56.3	11.4–23.4
Neither card	% of people	16.5	11.7	22.2	13.8
	95% CI	13.5–19.9	8.0–16.7	17.1–28.3	8.6–21.4
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	26.9	16.7	51.2	17.0
	95% CI	15.8–42.0	3.2–54.7	26.9–74.9	8.6–30.9
Cardholder/Non-public	% of people	24.4	47.5	35.7	16.3
	95% CI	18.2–32.0	27.8–68.1	22.3–51.7	10.9–23.6
Non-cardholder/Non-public	% of people	16.5	11.7	22.2	13.8
	95% CI	13.5–19.9	8.0–16.7	17.1–28.3	8.6–21.4
<b>Dental insurance</b>					
Insured	% of people	14.6	9.3	18.6	14.8
	95% CI	11.8–18.0	5.2–16.2	13.8–24.8	10.3–20.9
Uninsured	% of people	26.0	21.8	37.3	15.9
	95% CI	20.0–33.1	14.2–32.0	27.9–47.8	8.9–26.7

(a) 95% CI = 95% confidence interval for estimated percentage.

## Difficulty paying a \$100 dental bill

In NSAOH, difficulty paying for dental care was assessed with the question 'At most times of the year, how much difficulty would you have paying a \$100 dental bill? Would you say none, hardly any, a little, a lot of difficulty, don't know?'. People who answered 'a lot' were classified as having difficulty paying a \$100 dental bill. They represented 16.5% of the SA population aged 15 years or more (Table 26), which was lower than the national estimate of 18.2% (Slade et al. 2007).

### Key findings

- Although a slightly higher percentage of adults aged 15–34 years reported that they would have difficulty paying a \$100 dental bill (17.1%) compared with those aged 35–54 years (15.9%) and 55 years or more (16.6%), differences between age groups were not statistically significant.
- For all ages combined and among those aged 55 years or more, a greater percentage of females reported that they would have difficulty paying a \$100 dental bill compared with males (19.7% versus 13.3% and 23.6% versus 8.5% respectively).
- For all ages combined and across age groups, there were no significant differences among groups classified by residential location.
- The percentage was higher for people living in postcodes with low socioeconomic status than those in postcodes with high socioeconomic status (21.4% versus 11.7%). The difference was greatest among those in the 35–54 years age group (24.9% versus 6.6%).
- The largest difference according to government cardholder status occurred in the 35–54 years age group, where the percentage was over five-fold greater among cardholders compared with non-cardholders (45.9% versus 8.6%).
- For people of all ages and within the population of government health cardholders, people whose last dental visit was to the public sector were significantly more likely to have difficulty paying a \$100 dental bill than those who attended elsewhere (43.8% versus 24.3%). This difference was mainly attributable to those aged 55 years or more, (37.1% versus 16.4%).
- The percentage was significantly higher among adults with no dental insurance than for those insured (24.7% versus 9.4%). Statistically significant differences were observed in the two oldest age groups, 35–54 years (25.2% versus 8.3%) and 55 years or more (25.8% versus 8.7%).

### Discussion

In summary, government health cardholder status was associated with a markedly higher percentage of people facing difficulty paying a \$100 dental bill, and being uninsured also showed an association.

**Table 26: Percentage of people who would have a lot of difficulty paying a \$100 dental bill**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>16.5</b>	<b>17.1</b>	<b>15.9</b>	<b>16.6</b>
	95% CI <sup>(a)</sup>	13.5–20.0	13.5–21.5	11.3–22.0	13.2–20.5
<b>Sex</b>					
Males	% of people	13.3	16.5	14.5	8.5
	95% CI	9.4–18.4	11.3–23.4	7.5–26.1	5.4–13.2
Females	% of people	19.7	17.8	17.4	23.6
	95% CI	15.9–24.0	12.0–25.6	11.9–24.8	18.2–29.9
<b>Residential location</b>					
Capital city	% of people	18.1	18.1	19.1	17.2
	95% CI	14.2–22.8	13.8–23.4	13.4–26.4	13.0–22.3
Other places	% of people	12.0	14.1	7.5	14.9
	95% CI	9.1–15.6	8.2–23.2	2.2–22.5	10.5–20.6
<b>Postcode socioeconomic status</b>					
Lowest	% of people	21.4	19.7	24.9	19.2
	95% CI	15.6–28.8	12.0–30.7	15.5–37.3	12.9–27.6
Middle	% of people	16.7	17.1	16.3	16.9
	95% CI	12.3–22.3	11.4–24.9	9.8–25.8	12.5–22.4
Highest	% of people	11.7	15.1	6.6	13.5
	95% CI	9.0–15.2	11.5–19.6	4.3–10.2	8.4–21.1
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	31.8	44.7	45.9	22.8
	95% CI	25.9–38.4	33.6–56.3	33.5–58.8	18.0–28.5
Neither card	% of people	9.4	11.0	8.6	8.0
	95% CI	6.9–12.7	7.9–15.3	5.0–14.3	4.6–13.6
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	43.8	41.3	60.7	37.1
	95% CI	35.2–52.8	29.0–54.8	42.4–76.4	27.8–47.5
Cardholder/Non-public	% of people	24.3	50.8	36.1	16.4
	95% CI	18.6–31.0	28.5–72.7	23.7–50.7	11.7–22.6
Non-cardholder/Non-public	% of people	9.4	11.0	8.6	8.0
	95% CI	6.9–12.7	7.9–15.3	5.0–14.3	4.6–13.6
<b>Dental insurance</b>					
Insured	% of people	9.4	11.5	8.3	8.7
	95% CI	7.6–11.6	7.4–17.4	4.9–13.7	5.9–12.7
Uninsured	% of people	24.7	23.1	25.2	25.8
	95% CI	19.7–30.4	16.0–32.1	17.9–34.3	20.4–31.9

(a) 95% CI = 95% confidence interval for estimated percentage.

# Percentage of people avoiding foods due to dental problems

Avoiding food due to dental problems is a sign of poor oral health and may reflect an inability to eat properly. This reduces enjoyment of food and could affect the ability to maintain a healthy nutritional status.

In NSAOH, avoiding food was assessed in the interview by asking people 'How often have you had to avoid eating some foods because of problems with your teeth, mouth or dentures during the last 12 months? Was it: very often, often, sometimes, hardly ever, never during the last 12 months, don't know?'. People who answered 'very often', 'often' or 'sometimes' were classified as having avoided certain foods. They represented 17.7% of the SA population aged 15 years or more (Table 27), which did not differ significantly from the national estimate of 17.4% (Slade et al. 2007).

## Key findings

- The percentage who avoided food increased with age, from 12.5% in 15–34-year-olds to 22.1% in those aged 55 years or more.
- The percentage who avoided food decreased as the socioeconomic status of the postcode increased. It was highest in the lowest socioeconomic postcode at 21.4% and lowest in the highest socioeconomic postcode at 13.1%.
- The percentage was more than twice as high among people who had a government health card (30.3%) than among non-cardholders (11.9%). The difference was greatest in the youngest age group and attenuated with age.
- Those who last visited a public dental clinic were three times as likely (35.6%) as non-government health cardholders (11.9%) to avoid foods.
- People with no dental insurance were more likely (21.6%) than those with insurance (14.1%) to avoid foods.

## Discussion

Residents of South Australia were equally as likely as the rest of the Australian population to avoid some foods because of problems with their teeth, mouth or gums. Avoiding some foods because of dental problems was associated with older age, living in a low socioeconomic postcode, having last visited a public clinic and not having dental insurance.

**Table 27: Percentage of people avoiding foods due to dental problems**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>17.7</b>	<b>12.5</b>	<b>18.3</b>	<b>22.1</b>
	<i>95% CI<sup>(a)</sup></i>	<i>15.2–20.5</i>	<i>9.1–16.9</i>	<i>14.2–23.3</i>	<i>18.4–26.3</i>
<b>Sex</b>					
Males	% of people	15.1	8.6	17.6	19.3
	<i>95% CI</i>	<i>11.2–20.0</i>	<i>4.5–16.0</i>	<i>11.7–25.6</i>	<i>12.7–28.2</i>
Females	% of people	20.2	16.5	19.0	24.5
	<i>95% CI</i>	<i>17.2–23.4</i>	<i>11.4–23.4</i>	<i>13.4–26.3</i>	<i>20.0–29.7</i>
<b>Residential location</b>					
Capital city	% of people	18.0	12.9	17.6	23.7
	<i>95% CI</i>	<i>14.8–21.7</i>	<i>8.7–18.6</i>	<i>12.6–24.0</i>	<i>19.0–29.1</i>
Other places	% of people	16.8	11.1	20.3	17.8
	<i>95% CI</i>	<i>14.1–19.8</i>	<i>7.2–16.8</i>	<i>14.6–27.6</i>	<i>12.8–24.2</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	21.4	19.2	21.8	23.1
	<i>95% CI</i>	<i>17.9–25.4</i>	<i>12.2–28.9</i>	<i>15.1–30.4</i>	<i>18.5–28.4</i>
Middle	% of people	18.8	13.0	21.6	20.9
	<i>95% CI</i>	<i>15.0–23.4</i>	<i>8.4–19.7</i>	<i>14.1–31.6</i>	<i>15.0–28.4</i>
Highest	% of people	13.1	6.6	11.5	22.3
	<i>95% CI</i>	<i>9.6–17.6</i>	<i>3.4–12.5</i>	<i>7.4–17.7</i>	<i>14.8–32.3</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	30.3	26.5	36.7	29.1
	<i>95% CI</i>	<i>25.8–35.3</i>	<i>15.8–41.0</i>	<i>25.9–49.1</i>	<i>24.3–34.3</i>
Neither card	% of people	11.9	9.3	13.8	13.1
	<i>95% CI</i>	<i>9.9–14.3</i>	<i>6.5–13.0</i>	<i>10.5–18.0</i>	<i>8.9–18.9</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	35.6	25.9	46.8	36.3
	<i>95% CI</i>	<i>27.2–45.0</i>	<i>13.5–43.8</i>	<i>27.7–66.8</i>	<i>28.2–45.2</i>
Cardholder/Non-public	% of people	27.0	27.8	30.1	25.9
	<i>95% CI</i>	<i>22.3–32.2</i>	<i>14.3–47.0</i>	<i>17.7–46.3</i>	<i>20.6–32.0</i>
Non-cardholder/Non-public	% of people	11.9	9.3	13.8	13.1
	<i>95% CI</i>	<i>9.9–14.3</i>	<i>6.5–13.0</i>	<i>10.5–18.0</i>	<i>8.9–18.9</i>
<b>Dental insurance</b>					
Insured	% of people	14.1	10.5	14.4	17.0
	<i>95% CI</i>	<i>11.5–17.2</i>	<i>6.4–16.6</i>	<i>10.3–19.9</i>	<i>12.6–22.5</i>
Uninsured	% of people	21.6	14.8	22.3	27.9
	<i>95% CI</i>	<i>17.9–25.8</i>	<i>9.4–22.4</i>	<i>16.6–29.2</i>	<i>22.7–33.9</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## 5 Oral health perceptions

### Percentage of people rating their oral health fair or poor

Self-reported global measures of oral health reflect an individual's own experience of their oral health. Single-item, self-rated oral health measures are associated with functional impairment and discomfort as well as clinical measures of dental health. They are used widely in research and provide a summary measure of oral symptoms and functioning (Benyamini et al. 2004).

In NSAOH, self-rated oral health was assessed in the interview by asking people 'And how would you rate your own DENTAL health. Would you say that it is: excellent, very good, good, fair, poor, don't know?'. People who answered 'fair' or 'poor' were classified as having fair or poor self-rated oral health. They represented 19.4% of the SA population aged 15 years or more (Table 28), which is higher than the national estimate of 16.4% (Slade et al. 2007). This difference was not statistically significant.

#### Key findings

- The percentage who reported fair or poor oral health decreased as the socioeconomic status of the postcode increased. It was highest in the lowest socioeconomic postcode at 25.4% and lowest in the highest socioeconomic postcode at 15.3%.
- The percentage was higher in people who had a government health card (27.4%) than among non-cardholders (16.5%).
- Those who last visited a public dental clinic were almost twice as likely (31.8%) as people who visited a private dentist (16.5%) to report fair or poor oral health.
- People with no dental insurance were more likely (25.2%) than those with insurance (15.1%) to report fair or poor oral health.

#### Discussion

Dentate residents of SA were equally as likely as other Australians to report that their oral health was 'fair' or 'poor.' Reporting fair or poor oral health was associated with living in a low socioeconomic postcode, being a government health cardholder, having last visited a public dental service and not having dental insurance.

**Table 28: Percentage of people rating their oral health fair or poor**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>19.4</b>	<b>15.4</b>	<b>22.0</b>	<b>21.1</b>
	95% CI <sup>(a)</sup>	16.8–22.4	11.5–20.3	18.7–25.8	16.8–26.2
<b>Sex</b>					
Males	% of people	22.4	16.8	25.9	25.1
	95% CI	18.9–26.4	11.5–23.7	20.2–32.5	18.5–33.1
Females	% of people	16.4	13.9	18.2	17.1
	95% CI	12.7–20.9	8.8–21.2	13.5–24.1	12.5–22.9
<b>Residential location</b>					
Capital city	% of people	19.6	15.1	23.2	20.7
	95% CI	16.2–23.6	10.5–21.2	19.1–27.8	15.6–27.1
Other places	% of people	18.9	16.2	18.9	22.2
	95% CI	16.5–21.6	10.4–24.3	13.7–25.4	15.8–30.3
<b>Postcode socioeconomic status</b>					
Lowest	% of people	25.4	24.0	25.4	27.1
	95% CI	21.3–30.0	17.2–32.5	19.8–32.1	20.3–35.2
Middle	% of people	18.4	16.6	20.3	17.9
	95% CI	15.1–22.2	10.8–24.6	14.5–27.8	14.6–21.7
Highest	% of people	15.3	7.6	20.4	19.3
	95% CI	11.5–20.1	4.4–12.8	16.0–25.8	11.0–31.4
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	27.4	30.1	28.2	25.9
	95% CI	22.8–32.6	20.9–41.4	18.1–41.0	19.7–33.1
Neither card	% of people	16.5	12.4	20.6	16.3
	95% CI	13.4–20.3	8.4–18.0	16.4–25.6	10.4–24.4
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	31.8	29.3	39.3	29.3
	95% CI	23.0–42.2	16.4–46.6	17.9–65.7	19.2–41.9
Cardholder/Non-public	% of people	24.3	31.7	21.0	24.2
	95% CI	19.1–30.4	16.8–51.7	12.6–32.9	16.6–33.8
Non-cardholder/Non-public	% of people	16.5	12.4	20.6	16.3
	95% CI	13.4–20.3	8.4–18.0	16.4–25.6	10.4–24.4
<b>Dental insurance</b>					
Insured	% of people	15.1	8.6	16.6	19.7
	95% CI	12.0–18.7	4.6–15.5	12.6–21.5	13.8–27.4
Uninsured	% of people	25.2	22.7	28.9	23.3
	95% CI	20.8–30.2	16.8–30.0	22.5–36.3	18.0–29.6

(a) 95% CI = 95% confidence interval for estimated percentage.

## Percentage of people experiencing toothache

Toothache is caused when the nerve root of a tooth is irritated. It is most commonly caused by infection, decay, injury or loss of a tooth. However, pain sometimes originates from other areas, most commonly the jaw joint and the ear, and radiates to the jaw, thus appearing to be tooth pain.

In NSAOH, experience of toothache was assessed in the interview by asking dentate people 'During the last 12 months how often have you had toothache? Was it: very often, often, sometimes, hardly ever, never during the last 12 months, don't know?'. People who answered 'very often', 'often' or 'sometimes' were classified as having experienced toothache. They represented 15.2% of the dentate SA population aged 15 years or more (Table 29), which was the same as the national estimate of 15.1% (Slade et al. 2007). This difference was not statistically significant.

### Key findings

- Experience of toothache was higher among people who had a government health card (21.9%) than those who did not (12.8%).
- Those who last visited a public dental clinic were more than twice as likely (29.8%) than non-government health cardholders (12.8%) to report experience of toothache.
- People with no dental insurance were more likely (20.9%) than those with insurance (10.9%) to experience toothache.

### Discussion

Residents of South Australia were equally as likely as the rest of the Australian population to experience toothache. Experience of toothache was associated with having a government health card, having last visited a public dental clinic and not having dental insurance.



**Table 29: Percentage of people experiencing toothache**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>15.2</b>	<b>15.9</b>	<b>17.8</b>	<b>10.7</b>
	<i>95% CI<sup>(a)</sup></i>	<i>12.7–18.1</i>	<i>11.8–21.0</i>	<i>13.9–22.4</i>	<i>8.2–14.0</i>
<b>Sex</b>					
Males	% of people	13.9	11.4	19.9	9.0
	<i>95% CI</i>	<i>10.2–18.7</i>	<i>6.4–19.3</i>	<i>13.3–28.8</i>	<i>5.6–14.2</i>
Females	% of people	16.5	20.6	15.6	12.5
	<i>95% CI</i>	<i>13.8–19.6</i>	<i>15.2–27.3</i>	<i>11.4–21.0</i>	<i>8.8–17.4</i>
<b>Residential location</b>					
Capital city	% of people	16.3	17.1	18.4	12.1
	<i>95% CI</i>	<i>13.1–19.9</i>	<i>12.0–23.8</i>	<i>13.7–24.3</i>	<i>8.8–16.3</i>
Other places	% of people	12.0	11.7	15.9	7.0
	<i>95% CI</i>	<i>8.5–16.7</i>	<i>7.8–17.2</i>	<i>10.5–23.2</i>	<i>4.6–10.6</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	17.8	22.2	20.1	8.5
	<i>95% CI</i>	<i>12.8–24.2</i>	<i>13.4–34.5</i>	<i>12.3–31.1</i>	<i>6.1–11.9</i>
Middle	% of people	15.8	15.4	17.5	13.7
	<i>95% CI</i>	<i>11.9–20.6</i>	<i>10.1–22.9</i>	<i>12.0–24.8</i>	<i>9.0–20.3</i>
Highest	% of people	12.4	11.2	15.7	9.8
	<i>95% CI</i>	<i>9.4–16.1</i>	<i>6.9–17.8</i>	<i>11.1–21.7</i>	<i>5.7–16.3</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	21.9	27.3	33.8	13.3
	<i>95% CI</i>	<i>16.4–28.7</i>	<i>14.4–45.6</i>	<i>22.8–46.9</i>	<i>9.3–18.7</i>
Neither card	% of people	12.8	13.6	13.9	8.3
	<i>95% CI</i>	<i>10.3–15.8</i>	<i>10.0–18.3</i>	<i>10.4–18.4</i>	<i>5.2–13.1</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	29.8	27.5	49.3	19.5
	<i>95% CI</i>	<i>18.3–44.6</i>	<i>10.8–54.4</i>	<i>26.8–72.1</i>	<i>11.9–30.3</i>
Cardholder/Non-public	% of people	16.3	27.0	23.8	10.2
	<i>95% CI</i>	<i>11.8–22.1</i>	<i>13.4–46.8</i>	<i>13.0–39.4</i>	<i>5.6–17.9</i>
Non-cardholder/Non-public	% of people	12.8	13.6	13.9	8.3
	<i>95% CI</i>	<i>10.3–15.8</i>	<i>10.0–18.3</i>	<i>10.4–18.4</i>	<i>5.2–13.1</i>
<b>Dental insurance</b>					
Insured	% of people	10.9	11.2	12.6	8.5
	<i>95% CI</i>	<i>8.0–14.6</i>	<i>7.0–17.6</i>	<i>8.3–18.5</i>	<i>5.6–12.8</i>
Uninsured	% of people	20.9	21.7	24.3	14.2
	<i>95% CI</i>	<i>16.4–26.1</i>	<i>15.4–29.5</i>	<i>17.5–32.6</i>	<i>9.9–20.0</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Percentage of people experiencing orofacial pain

Orofacial pain can be debilitating and indicates temporomandibular joint dysfunction.

In NSAOH, orofacial pain was assessed in the interview by asking people 'During the last month, have you had pain in the face, jaw, temple, in front of the ear or in the ear?'. People who answered 'yes' were classified as having orofacial pain. They represented 24.1% of the SA population aged 15 years or more (Table 30), which was slightly higher than the national estimate of 22.6% (Slade et al. 2007). This difference was not statistically significant.

### Key findings

- Those aged 35–54 years (28.2%) were more likely than those aged 55 years or more (17.3%) to report that they had experienced orofacial pain.
- Females were more likely to report that they had experienced orofacial pain (28.3%) than males (19.7%).

### Discussion

Residents of SA were equally as likely to experience orofacial pain as the rest of the Australian population. Experience of orofacial pain was associated with being young and being female.

**Table 30: Percentage of people experiencing orofacial pain**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>24.1</b>	<b>26.5</b>	<b>28.2</b>	<b>17.3</b>
	95% CI <sup>(a)</sup>	21.1–27.3	20.5–33.5	23.1–33.8	13.9–21.3
<b>Sex</b>					
Males	% of people	19.7	20.6	24.4	13.4
	95% CI	15.8–24.3	14.2–29.0	17.9–32.3	8.4–20.7
Females	% of people	28.3	32.7	31.9	20.6
	95% CI	24.5–32.4	24.7–41.9	26.0–38.5	16.2–25.9
<b>Residential location</b>					
Capital city	% of people	25.6	30.1	29.0	17.3
	95% CI	21.8–29.9	22.6–38.8	22.4–36.7	13.1–22.4
Other places	% of people	19.7	15.0	25.8	17.3
	95% CI	17.2–22.5	10.1–21.5	21.6–30.6	12.2–23.9
<b>Postcode socioeconomic status</b>					
Lowest	% of people	22.8	20.4	29.8	17.3
	95% CI	19.5–26.5	13.8–29.1	21.3–39.8	12.2–24.0
Middle	% of people	24.7	26.6	30.9	16.6
	95% CI	18.6–32.0	16.3–40.3	22.5–40.7	10.6–24.9
Highest	% of people	24.7	31.2	23.8	18.0
	95% CI	19.4–30.8	20.3–44.7	16.7–32.8	12.6–24.9
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	28.3	37.1	39.5	21.6
	95% CI	23.3–34.0	25.3–50.7	26.6–54.0	16.3–27.9
Neither card	% of people	22.3	24.5	25.4	11.8
	95% CI	19.0–26.1	18.0–32.4	21.0–30.5	8.3–16.4
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	28.5	37.5	33.0	20.8
	95% CI	20.6–38.1	23.1–54.5	14.9–58.1	14.2–29.3
Cardholder/Non-public	% of people	28.2	36.4	43.8	21.9
	95% CI	21.2–36.4	20.0–56.6	27.2–61.8	15.5–30.0
Non-cardholder/Non-public	% of people	22.3	24.5	25.4	11.8
	95% CI	19.0–26.1	18.0–32.4	21.0–30.5	8.3–16.4
<b>Dental insurance</b>					
Insured	% of people	23.6	24.1	28.0	18.6
	95% CI	20.0–27.7	16.9–33.1	21.9–35.0	14.3–23.8
Uninsured	% of people	24.9	29.7	28.8	15.8
	95% CI	20.7–29.6	22.2–38.5	22.1–36.5	11.0–22.1

(a) 95% CI = 95% confidence interval for estimated percentage.

## Perceived need for dentures

In NSAOH, people were asked at the time of the interview, 'Currently which of the following dental treatments do you think you need to have?'. The possible responses varied for dentate and edentulous people. All people were asked if they felt they needed dentures. In SA, 7.1% of people thought they needed dentures (Table 31), which was very similar to the national estimate of 7.2% (Slade et al. 2007).

### Key findings

- The percentage of adults who thought they needed dentures was strongly age-related, increasing from 0.8% among 15–34-year-olds to 4.7% among adults aged 35–54 years and 17.8% among adults aged 55 years or more.
- There were no significant differences according to sex or residential location in the capital city or other places.
- The need for a denture was significantly higher among people who lived in the lowest socioeconomic status postcodes (10.9%) compared with the highest socioeconomic status postcodes (4.2%).
- The percentage was more than five times higher among adults who had a government health card (17.9%) compared with those who did not (3.2%).
- Those adults who had a government health card and who last visited a public clinic were most likely to need a denture (18.5%). The percentage was similar among cardholders who last visited a private dentist (17.6%) and lowest among non-cardholders who last visited a private dentist (3.2%).
- A considerably higher percentage of adults who were uninsured reported needing dentures (12.2%) compared with those with dental insurance (3.9%).
- The age-relatedness of the need for dentures was evident within subgroups of adults formed by socioeconomic characteristics. For instance, among adults who resided in areas outside Adelaide, the percentage increased from 0.9% among 15–34-year-olds to 4.5% among those aged 35–54 years and 18.6% among those aged 55 years or more.
- Occasionally, significant differences were seen across subgroups defined by socioeconomic characteristics within an age group. For instance, among people aged 55 years or more, the percentage was higher among government health cardholders (25.8%) than non-cardholders (7.5%).

### Discussion

The percentage of people reporting need for dentures was low. It is related to the observed pattern for complete tooth loss and numbers of missing teeth. However, the level of need for dentures was considerably lower than the percentage of people with either complete tooth loss or reasonable numbers of missing teeth. The relationship between perceived need and professional judgement of the need for dentures is complex, but people generally express a lower need than is assessed by dentists.

**Table 31: Percentage of people who need dentures**

		Population: all people Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>7.7</b>	<b>0.8</b>	<b>4.7</b>	<b>17.8</b>
	<i>95% CI<sup>(a)</sup></i>	<i>6.4–9.3</i>	<i>0.3–2.7</i>	<i>3.0–7.4</i>	<i>14.7–21.4</i>
<b>Sex</b>					
Males	% of people	7.2	0.8	4.9	16.9
	<i>95% CI</i>	<i>5.3–9.7</i>	<i>0.1–5.3</i>	<i>2.5–9.5</i>	<i>12.4–22.7</i>
Females	% of people	8.2	0.9	4.5	18.6
	<i>95% CI</i>	<i>6.6–10.2</i>	<i>0.2–3.8</i>	<i>2.2–9.1</i>	<i>15.0–22.9</i>
<b>Residential location</b>					
Capital city	% of people	7.0	0.3	4.1	17.2
	<i>95% CI</i>	<i>5.4–9.1</i>	<i>0.0–2.5</i>	<i>2.2–7.7</i>	<i>13.2–22.2</i>
Other places	% of people	9.7	2.4	6.4	19.4
	<i>95% CI</i>	<i>7.7–12.3</i>	<i>0.5–10.2</i>	<i>3.6–11.2</i>	<i>17.2–21.8</i>
<b>Postcode socioeconomic status</b>					
Lowest	% of people	10.9	1.9	5.7	24.7
	<i>95% CI</i>	<i>9.1–13.0</i>	<i>0.4–7.7</i>	<i>2.7–11.7</i>	<i>20.3–29.8</i>
Middle	% of people	8.4	0.8	5.4	18.2
	<i>95% CI</i>	<i>6.1–11.3</i>	<i>0.1–6.2</i>	<i>2.8–10.1</i>	<i>13.1–24.7</i>
Highest	% of people	4.2	0.0	3.1	10.3
	<i>95% CI</i>	<i>2.7–6.4</i>	—	<i>1.1–8.7</i>	<i>6.8–15.3</i>
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	17.9	1.0	10.5	25.8
	<i>95% CI</i>	<i>14.8–21.5</i>	<i>0.1–6.9</i>	<i>5.5–19.3</i>	<i>21.0–31.2</i>
Neither card	% of people	3.2	0.8	3.3	7.5
	<i>95% CI</i>	<i>2.1–4.7</i>	<i>0.2–3.3</i>	<i>1.6–6.6</i>	<i>4.4–12.5</i>
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	18.5	1.6	11.2	32.8
	<i>95% CI</i>	<i>14.0–24.1</i>	<i>0.2–10.4</i>	<i>3.8–29.0</i>	<i>23.2–43.9</i>
Cardholder/Non-public	% of people	17.6	0.0	10.1	22.7
	<i>95% CI</i>	<i>13.8–22.1</i>	—	<i>3.9–23.4</i>	<i>18.0–28.2</i>
Non-cardholder/Non-public	% of people	3.2	0.8	3.3	7.5
	<i>95% CI</i>	<i>2.1–4.7</i>	<i>0.2–3.3</i>	<i>1.6–6.6</i>	<i>4.4–12.5</i>
<b>Dental insurance</b>					
Insured	% of people	3.9	0.0	1.6	9.9
	<i>95% CI</i>	<i>2.9–5.3</i>	—	<i>0.5–5.0</i>	<i>6.9–13.9</i>
Uninsured	% of people	12.2	1.7	8.5	27.0
	<i>95% CI</i>	<i>9.9–14.9</i>	<i>0.5–5.5</i>	<i>5.4–13.3</i>	<i>21.8–32.9</i>

(a) 95% CI = 95% confidence interval for estimated percentage.

## Perceived need for dental extraction or filling

Dentate adults were asked about other dental services, including extractions or fillings that they might need. The responses to the options 'Any extractions' or 'Any fillings' have been combined so that the response indicates a perceived dental problem for which one or other of these two aspects of routine dental care is thought to be required, most likely as a sequelae for dental caries. Which of these two dental services was provided would be determined by a process of negotiation between patient and provider, influenced by both provider and patient circumstances. In SA, 32.8% of dentate adults perceived a need for an extraction or filling (Table 32), which was very similar to the national estimate of 32.9% (Slade et al. 2007).

### Key findings

- The percentage of dentate adults who thought they needed extractions or fillings was highest among the 35–54 years age group (39.0%) and lowest among the 55 years or more age group (26.3%). However, these differences were not statistically significant.
- There were no significant differences by sex, residential location in a capital city or other place, or postcode socioeconomic status.
- The percentage of dentate adults who thought they needed an extraction or filling was significantly higher among government health cardholders (41.0%) than among non-cardholders (29.8%).
- Those dentate adults who were government health cardholders and last visited a public dental clinic showed the highest percentage (50.3%) compared with those who last visited a private dentist regardless of their cardholder status (34.5% among cardholders and 29.8% among non-cardholders).
- Those adults who were uninsured were more likely to report needing extractions or fillings (43.7%) than the insured (24.2%).
- An age-related pattern of need for an extraction or filling was seen within a number of subgroups of adults formed by socioeconomic characteristics. For instance, the percentage was higher among dentate adults in the 35–54 years age group and significantly lower among those aged 55 years or more; and among government health cardholders, the percentage was high among 35–54-year-olds (57.6%) and significantly lower in the 55 years or more age group (28.5%).

### Discussion

Just under one-third of dentate adults perceived a need for an extraction or filling. This percentage was not significantly different across the three age groups, but showed some socioeconomic characteristic variations. Perceived need for an extraction or filling was higher among those dentate adults who had a government health card than those who did not, among cardholders who last visited a public dental clinic compared with non-cardholders, and among the uninsured compared with those who were insured.

**Table 32: Percentage of people who need an extraction or filling**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>32.8</b>	<b>31.1</b>	<b>39.0</b>	<b>26.3</b>
	<i>95% CI<sup>(a)</sup></i>	29.5–36.3	25.0–38.0	34.9–43.2	22.0–31.2
<b>Sex</b>					
Males	% of people	34.3	33.0	42.2	25.2
	<i>95% CI</i>	29.5–39.4	23.8–43.7	34.9–49.8	18.1–33.9
Females	% of people	31.2	29.2	35.8	27.5
	<i>95% CI</i>	26.7–36.1	21.0–38.9	30.7–41.1	22.6–33.0
<b>Residential location</b>					
Capital city	% of people	32.3	30.7	38.3	26.3
	<i>95% CI</i>	28.2–36.7	23.6–38.9	33.1–43.8	21.2–32.1
Other places	% of people	34.1	32.6	40.9	26.4
	<i>95% CI</i>	29.6–38.9	21.8–45.6	36.1–45.8	18.7–36.0
<b>Postcode socioeconomic status</b>					
Lowest	% of people	40.1	39.6	44.7	33.9
	<i>95% CI</i>	33.3–47.4	25.4–55.7	38.4–51.1	26.1–42.7
Middle	% of people	29.3	26.4	33.6	27.0
	<i>95% CI</i>	25.5–33.4	20.6–33.1	27.2–40.6	19.2–36.4
Highest	% of people	29.6	28.5	38.8	19.6
	<i>95% CI</i>	26.0–33.6	20.2–38.6	31.9–46.2	16.0–23.7
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	41.0	49.7	57.6	28.5
	<i>95% CI</i>	34.7–47.6	39.1–60.3	45.6–68.9	22.4–35.5
Neither card	% of people	29.8	27.7	34.5	23.4
	<i>95% CI</i>	26.2–33.6	21.5–35.0	30.1–39.3	18.1–29.8
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	50.3	48.5	69.5	39.6
	<i>95% CI</i>	41.0–59.6	32.7–64.6	50.4–83.6	28.5–51.9
Cardholder/Non-public	% of people	34.5	51.6	50.0	23.1
	<i>95% CI</i>	27.7–41.9	35.2–67.6	35.3–64.6	16.9–30.8
Non-cardholder/Non-public	% of people	29.8	27.7	34.5	23.4
	<i>95% CI</i>	26.2–33.6	21.5–35.0	30.1–39.3	18.1–29.8
<b>Dental insurance</b>					
Insured	% of people	24.2	23.6	28.7	19.5
	<i>95% CI</i>	20.4–28.6	16.1–33.0	22.9–35.2	14.5–25.6
Uninsured	% of people	43.7	40.4	51.0	37.0
	<i>95% CI</i>	38.4–49.0	31.8–49.6	44.9–57.1	27.7–47.4

(a) 95% CI = 95% confidence interval for estimated percentage.

## Perceived need for a dental check-up

Dentate adults were asked about their perceived need for a check-up. This is regarded as an indicator of compliance with the recommendation of dentists to visit regularly when asymptomatic so as to detect disease earlier and receive prompt treatment for any dental problems. A check-up also provides an opportunity for preventive services to be received. In SA, 61.0% of dentate adults perceived a need for a check-up (Table 33), which was very similar to the national estimate of 59.6% (Slade et al. 2007).

### Key findings

- The percentage of dentate adults who thought they needed a check-up was similar across the two younger age groups (68.1% and 64.9%) but was lower among people aged 55 years or more (46.4%).
- There were no significant differences among dentate adults people by sex, residential location, postcode socioeconomic status, government health cardholder status and dental insurance.
- The percentage of dentate adults who thought they needed a check-up was significantly lower among government health cardholders who last visited a private dentist (49.6%) than among non-cardholders who also last visited a private dentist (63.2%).
- The age-related pattern of perceived need for a check-up was repeated within subgroups of adults formed by most of the socioeconomic characteristics, particularly among people aged 55 years or more. For instance, the percentage who perceived need for a check-up was significantly lower for dentate adults with dental insurance among the 55 years or more age group (44.3%) compared with those aged 35–54 years (59.6%).

### Discussion

About 6 out of 10 dentate adults perceived a need for a check-up. The percentage was similar for the two younger age groups but significantly lower among those adults aged 55 years or more. Percentages showed little variation by socioeconomic characteristics, which might reflect a confounding of perceived need for a check-up by time since last dental visit. Those dentate adults with a higher likelihood of compliance with the recommendation for a regular check-up visit may have last visited more recently, and hence not perceive a need for a further check-up at the time of the interview.



**Table 33: Percentage of people perceiving a need for a check up**

		Population: dentate people			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>61.0</b>	<b>68.1</b>	<b>64.9</b>	<b>46.4</b>
	95% CI <sup>(a)</sup>	57.6–64.3	61.1–74.3	60.0–69.5	40.0–52.8
<b>Sex</b>					
Males	% of people	63.4	73.3	67.3	44.9
	95% CI	59.5–67.0	65.7–79.7	59.9–73.9	35.3–54.9
Females	% of people	58.5	62.6	62.6	47.9
	95% CI	53.3–63.6	51.7–72.3	55.9–68.8	39.9–55.9
<b>Residential location</b>					
Capital city	% of people	61.3	66.8	66.9	46.5
	95% CI	57.5–65.0	58.7–74.0	61.0–72.3	38.7–54.5
Other places	% of people	59.9	72.2	59.4	46.0
	95% CI	52.2–67.1	58.0–83.1	50.1–68.1	36.3–56.1
<b>Postcode socioeconomic status</b>					
Lowest	% of people	60.6	66.9	60.2	53.0
	95% CI	54.2–66.7	55.2–76.8	53.1–67.0	44.0–61.8
Middle	% of people	62.0	68.9	67.5	46.2
	95% CI	56.7–67.0	51.7–82.1	60.7–73.6	36.2–56.5
Highest	% of people	60.4	68.3	67.0	41.2
	95% CI	54.7–65.7	60.0–75.6	56.0–76.4	30.3–53.0
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	54.6	63.8	71.4	41.6
	95% CI	48.9–60.2	51.5–74.5	59.0–81.3	33.8–49.8
Neither card	% of people	63.2	68.7	63.3	51.0
	95% CI	59.0–67.2	61.1–75.5	57.7–68.5	41.4–60.4
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	61.5	60.1	71.4	56.6
	95% CI	52.8–69.6	43.4–74.7	50.9–85.7	45.8–66.8
Cardholder/Non-public	% of people	49.6	70.5	71.5	34.2
	95% CI	42.1–57.1	49.0–85.7	55.1–83.7	25.2–44.5
Non-cardholder/Non-public	% of people	63.2	68.7	63.3	51.0
	95% CI	59.0–67.2	61.1–75.5	57.7–68.5	41.4–60.4
<b>Dental insurance</b>					
Insured	% of people	58.0	69.5	59.6	44.3
	95% CI	53.3–62.5	59.0–78.3	52.9–65.9	37.4–51.5
Uninsured	% of people	65.1	68.5	71.4	49.6
	95% CI	60.5–69.4	59.3–76.5	64.8–77.3	39.9–59.2

(a) 95% CI = 95% confidence interval for estimated percentage.

## Perceived urgency of dental treatment needs

Dentate adults who perceived a need for an extraction or filling were asked about their perceived urgency of needed dental treatment. Dental problems vary from truly urgent problems like dental trauma, swelling in or around the jaws, or bleeding (usually as a complication of dental treatment); through situations where treatment is highly desirable in a short period of time (usually associated with pain); to problems that can wait reasonable periods of time to be treated. In NSAOH, dentate adults who perceived a need for an extraction or filling were asked at the time of the interview, 'How soon do you think you need this dental treatment?'. The possible responses included a wide range of time periods. These have been collapsed to perceiving a need for treatment within 3 months or longer than 3 months.

In SA, 66.0% of dentate adults needing an extraction or filling perceived a need for dental treatment within 3 months (Table 34), which was a little higher than the national estimate of 69.3% (Slade et al. 2007).

### Key findings

- The percentage of dentate adults needing an extraction or filling who thought they needed treatment within 3 months showed no significant trend by age, varying from 59.9% to 76.2% across the three age groups.
- There were no significant differences among subgroups formed by any social characteristic.

### Discussion

Over 6 out of 10 dentate adults who needed an extraction or filling perceived a need for dental treatment within 3 months. The percentage of people who perceived a need for more urgent treatment was not significantly different across the three age groups. There was also no significant variation by socioeconomic characteristics, which might reflect a confounding of perceived need for dental treatment within 3 months by time since last dental visit.

**Table 34: Percentage of people perceiving a need for treatment within 3 months**

		Population: dentate people who need an extraction or filling			
		Age (years)			
		All ages	15–34	35–54	≥55
<b>All people</b>	<b>Per cent of people</b>	<b>66.0</b>	<b>59.9</b>	<b>65.8</b>	<b>76.2</b>
	95% CI <sup>(a)</sup>	60.5–71.2	47.6–71.1	57.3–73.5	67.2–83.4
<b>Sex</b>					
Males	% of people	63.1	53.6	64.9	76.2
	95% CI	54.1–71.2	36.4–70.1	51.4–76.3	62.0–86.2
Females	% of people	69.1	67.1	66.9	76.2
	95% CI	62.6–75.0	52.9–78.8	57.2–75.3	64.1–85.2
<b>Residential location</b>					
Capital city	% of people	68.1	62.6	67.2	79.0
	95% CI	60.9–74.6	47.0–75.9	56.1–76.7	66.9–87.5
Other places	% of people	60.3	52.0	62.4	68.5
	95% CI	52.2–67.9	33.2–70.1	51.4–72.2	58.5–77.0
<b>Postcode socioeconomic status</b>					
Lowest	% of people	63.7	58.3	63.9	71.9
	95% CI	54.2–72.3	42.2–72.9	49.2–76.4	60.1–81.3
Middle	% of people	60.2	45.2	65.7	68.8
	95% CI	51.3–68.4	24.4–67.7	50.8–78.1	51.9–81.9
Highest	% of people	74.1	72.9	68.0	91.9
	95% CI	64.1–82.0	49.9–87.9	52.3–80.4	76.4–97.6
<b>Government health card</b>					
Health care card or pensioner concession card	% of people	73.1	67.6	72.8	77.9
	95% CI	60.3–83.0	41.5–86.0	50.4–87.5	63.1–87.9
Neither card	% of people	62.4	57.2	63.4	73.0
	95% CI	55.2–69.1	44.0–69.4	53.7–72.1	53.5–86.4
<b>Place of last dental visit</b>					
Cardholder/Public	% of people	68.7	70.8	59.0	74.0
	95% CI	52.4–81.4	39.0–90.2	25.4–85.9	54.0–87.4
Cardholder/Non-public	% of people	77.3	62.6	81.1	81.6
	95% CI	61.7–87.8	31.1–86.1	61.5–92.1	61.9–92.4
Non-cardholder/Non-public	% of people	62.4	57.2	63.4	73.0
	95% CI	55.2–69.1	44.0–69.4	53.7–72.1	53.5–86.4
<b>Dental insurance</b>					
Insured	% of people	65.2	52.6	67.5	77.0
	95% CI	56.9–72.6	34.5–70.1	54.5–78.2	63.6–86.5
Uninsured	% of people	66.1	63.6	63.9	75.5
	95% CI	58.2–73.2	48.1–76.6	52.0–74.3	60.8–86.0

(a) 95% CI = 95% confidence interval for estimated percentage.

## Age-standardised comparison between government health cardholders and non-health cardholders

Findings from 29 of the preceding tables are summarised in Table 35, to compare oral health indicators between people with a government health card and non-cardholders. Percentages and means for the two groups are age-standardised, a statistical procedure that aims to remove any effects of age that might account for differences between the two groups in each oral health indicator. As noted in Table 4, a much smaller percentage of people in the youngest age group had a health care card or pensioner concession card than in the oldest age group. Age standardisation seeks to compensate for that difference in age distribution, so that differences in any single indicator between the two groups are not confounded by age.

- For 17 outcomes reported in Table 35, health cardholders had significantly poorer oral health status, oral health care and perceived oral health.
- For measures relating to tooth loss and some markers of periodontal disease, the magnitude of difference in age-standardised estimates between the two groups was noticeably smaller than the difference between the same two groups noted in preceding tables where there was no adjustment for age. For example, health cardholders had a 2.5-fold greater prevalence of complete tooth loss when the comparison was adjusted for age (Table 35), whereas prevalence differed by a factor of 8.1 when all ages were contrasted in Table 5 (20.6% for health cardholders compare with 2.5% for non-cardholders). This degree of attenuation indicates that age was an important confounder of the relationship between health card status and complete tooth loss.
- In contrast, the relative differences between the two groups were amplified in the age-standardised results compared with the un-standardised results for two indicators: avoidance of dental care because of cost and orofacial pain.
- However, for most other indicators in Table 35, relative differences in age-standardised results between the two groups were similar in magnitude to the preceding tables. This is because there was only a weak association between age and indicators such as dental attendance, with the consequence that there was little confounding of the difference between the two groups by age.

In summary, the findings in Table 35 confirm that health cardholders are disadvantaged with respect to several indicators of oral health status, oral health care and perceived oral health, and that the disadvantage is not due to the older age profile of health cardholders compared to non-cardholders. Exceptions occurred for some indicators relating to tooth loss and periodontal disease, where adjustment by age produced statistically non-significant differences between the two groups.

**Table 35: Age-standardised comparison of health cardholders and non-health cardholders**

Variable	Insured	Uninsured
	Estimate (95%CI)	Estimate (95%CI)
% of people with complete tooth loss	9.9 (7.8–12.0)	4.0 (2.8–5.1)
% of people with fewer than 21 teeth	15.5 (11.4–19.7)	9.5 (7.0–11.9)
% of dentate people who wear denture(s)	15.1 (12.0–18.2)	10.9 (8.2–13.5)
Average number of missing teeth per person	4.9 (4.2–5.5)	3.9 (3.6–4.1)
% of people with untreated coronal decay	43.8 (34.7–52.8)	19.2 (14.7–23.7)
% of people with untreated root decay	7.1 (4.5–9.7)	9.0 (6.3–11.7)
% of people with one or more filled teeth	84.3 (76.7–91.8)	87.9 (84.4–91.5)
Average number of DMF teeth per person	12.9 (12.2–13.7)	13.0 (12.5–13.5)
% of people with moderate or severe periodontitis	25.7 (19.5–31.9)	18.7 (13.8–23.7)
% of people with 4+ mm periodontal pocket depth	26.0 (17.1–34.8)	19.6 (14.5–24.7)
% of people with 4+ mm clinical attachment loss	40.8 (35.1–46.5)	42.2 (37.1–47.2)
% of people with gingival inflammation	20.4 (12.1–28.6)	16.9 (12.1–21.8)
% of people visiting dentist within last 12 months	55.4 (48.9–61.8)	60.7 (57.1–64.2)
% of people who attended a private dental practice at last dental visit	51.8 (44.7–58.9)	86.2 (83.2–89.1)
% of people who paid for their last dental visit	56.7 (49.7–63.7)	100.0 (100.0–100.0)
% of people who usually visit a dental professional at least once a year	43.9 (37.3–50.5)	56.6 (53.1–60.1)
% of people who have a dentist they usually attend	64.7 (54.3–75.1)	82.9 (79.8–85.9)
% of people who usually visit a dentist for a check up	45.3 (38.5–52.2)	60.4 (56.2–64.6)
% of people who avoided or delayed dental care	41.4 (34.3–48.4)	22.7 (19.0–26.4)
% of people who reported that cost had prevented recommended dental treatment	30.6 (22.5–38.6)	16.2 (12.9–19.4)
% of people who would have a lot of difficulty paying a \$100 dental bill	40.0 (32.9–47.0)	9.7 (6.9–12.4)
% of people avoiding foods due to dental problems	30.8 (24.0–37.7)	12.0 (9.8–14.1)
% of people rating their oral health fair or poor	28.2 (22.3–34.0)	15.7 (12.6–18.9)
% of people experiencing toothache	25.7 (17.9–33.4)	12.5 (9.8–15.2)
% of people experiencing orofacial pain	33.4 (27.6–39.1)	20.4 (17.1–23.8)
% of people who need dentures	11.2 (8.3–14.0)	4.0 (2.4–5.6)
% of people who need an extraction or filling	46.7 (39.9–53.4)	29.0 (25.6–32.5)
% of people perceiving a need for a check up	60.5 (55.2–65.8)	60.7 (56.6–64.7)
% of people perceiving a need for treatment within 3 months	71.3 (61.0–81.6)	64.3 (57.0–71.6)

## Age-standardised comparison between the dentally insured and the uninsured

Age standardisation has been used in Table 36 to make comparisons between dentally insured and uninsured people in each of the 30 oral health indicators presented in Tables 5–34. These comparisons are based on the same principles noted for Table 35. That is, age standardisation aims to compare insured and uninsured people after adjusting for potential differences in the age distribution between the two groups. In principle, however, there should be little confounding of these effects because there were only small differences in dental insurance coverage among the three age groups (Table 4).

- The results in Table 36 show statistically significantly poorer outcomes for uninsured people on 20 of the 30 indicators. For 19 of those 20 indicators, statistically significant differences were also observed in the preceding tables.
- Conversely, the 10 indicators that did not differ to a statistically significant degree between insured and uninsured people in Table 36 were similarly non-significant when contrasted between the two groups in previous tables that did not use age standardisation.
- Overall, age standardisation produced very little attenuation of the relative difference between the two groups.

In summary, the findings in Table 36 confirm generally poorer oral health outcomes for uninsured people compared to insured people. Age standardisation did not appreciably alter the relationship between insurance status and any of the indicators, inferring that there was very little confounding of the effects of insurance due to age.

**Table 36: Age-standardised comparison of the dentally insured and the uninsured**

Variable	Cardholders	Non-cardholders
	Estimate (95%CI)	Estimate (95%CI)
% of people with complete tooth loss	4.6 (3.1–6.1)	9.8 (8.1–11.5)
% of people with fewer than 21 teeth	8.9 (6.9–10.9)	14.8 (11.8–17.8)
% of dentate people who wear denture(s)	12.1 (9.7–14.5)	14.4 (11.8–17.0)
Average number of missing teeth per person	4.0 (3.6–4.4)	4.8 (4.2–5.3)
% of people with untreated coronal decay	20.9 (14.9–26.9)	33.2 (27.1–39.3)
% of people with untreated root decay	6.3 (3.9–8.7)	11.2 (7.2–15.2)
% of people with one or more filled teeth	84.9 (80.0–89.8)	88.2 (84.0–92.4)
Average number of DMF teeth per person	13.0 (12.3–13.7)	12.7 (12.1–13.3)
% of people with moderate or severe periodontitis	16.7 (12.6–20.9)	27.5 (22.5–32.6)
% of people with 4+ mm periodontal pocket depth	19.1 (15.0–23.3)	25.4 (18.8–32.0)
% of people with 4+ mm clinical attachment loss	39.9 (34.9–44.8)	44.6 (38.7–50.5)
% of people with gingival inflammation	12.7 (8.2–17.2)	23.6 (18.2–29.0)
% of people visiting dentist within last 12 months	65.9 (62.1–69.7)	48.1 (43.4–52.9)
% of people who attended a private dental practice at last dental visit	89.4 (86.4–92.3)	61.8 (56.5–67.0)
% of people who paid for their last dental visit	97.5 (96.2–98.8)	75.7 (70.9–80.4)
% of people who received government-subsidised dental care in private sector	0.5 (<0–1.0)	5.0 (3.1–6.9)
% of people who usually visit a dental professional at least once a year	62.7 (59.0–66.3)	38.2 (32.3–44.1)
% of people who have a dentist they usually attend	87.8 (83.9–91.7)	65.7 (60.0–71.5)
% of people who usually visit a dentist for a check up	66.6 (62.5–70.7)	40.4 (35.7–45.1)
% of people who avoided or delayed dental care	18.8 (15.3–22.2)	40.0 (34.8–45.1)
% of people who reported that cost had prevented recommended dental treatment	14.2 (11.4–17.1)	26.4 (20.4–32.3)
% of people who would have a lot of difficulty paying a \$100 dental bill	10.0 (7.9–12.1)	26.3 (21.4–31.3)
% of people avoiding foods due to dental problems	14.5 (11.8–17.1)	21.9 (18.3–25.5)
% of people rating their oral health fair or poor	14.1 (11.0–17.1)	25.4 (21.2–29.6)
% of people experiencing toothache	10.8 (7.6–14.1)	20.6 (16.4–24.8)
% of people experiencing orofacial pain	23.6 (19.9–27.3)	25.7 (21.1–30.2)
% of people who need dentures	4.0 (2.7–5.2)	11.6 (9.0–14.2)
% of people who need an extraction or filling	24.7 (20.9–28.4)	42.8 (37.9–47.6)
% of people perceiving a need for a check up	58.3 (54.0–62.6)	64.3 (60.7–68.0)
% of people perceiving a need for treatment within 3 months	65.8 (57.4–74.2)	67.8 (59.7–75.9)

# Appendix

## Sample counts

Table A.1: Table counts of interviewed people

	Age group (years)			
	All ages	15–34	35–54	≥55
<b>All people</b>	<b>1,335</b>	<b>295</b>	<b>462</b>	<b>578</b>
<b>Sex</b>				
Males	546	130	198	218
Females	789	165	264	360
<b>Residential location</b>				
Capital city	861	203	290	368
Other places	474	92	172	210
<b>Postcode socioeconomic status</b>				
Lowest	472	93	165	214
Middle	439	92	149	198
Highest	424	110	148	166
<b>Government health card</b>				
Blank but applicable	8	2	1	5
Health care card or pensioner concession card	512	58	95	359
Neither card	815	235	366	214
<b>Place of last dental visit</b>				
Cardholder/Public	174	33	32	109
Cardholder/Non-public	338	25	63	250
<b>Dental insurance</b>				
Blank but applicable	12	9	2	1
Insured	670	139	247	284
Uninsured	653	147	213	293



**Table A.2: Sample counts of examined people**

	Age group (years)			
	All ages	15–34	35–54	≥55
<b>All people</b>	<b>629</b>	<b>141</b>	<b>236</b>	<b>252</b>
<b>Sex</b>				
Males	252	54	96	102
Females	377	87	140	150
<b>Residential location</b>				
Capital city	452	111	162	179
Other places	177	30	74	73
<b>Postcode socioeconomic status</b>				
Lowest	229	44	94	91
Middle	180	34	68	78
Highest	220	63	74	83
<b>Government health card</b>				
Blank but applicable	2	1	0	1
Health care card or pensioner concession card	223	24	51	148
Neither card	404	116	185	103
<b>Place of last dental visit</b>				
Cardholder/Public	89	12	19	58
Cardholder/Non-public	134	12	32	90
<b>Dental insurance</b>				
Blank but applicable	4	4	0	0
Insured	340	71	124	145
Uninsured	285	66	112	107

# Glossary

**95% confidence interval** Defines the uncertainty around an estimated value—there is a 95% probability that the true value falls within the range of the upper and lower limits.

**Attachment loss** The distance in millimetres measured from the edge of the enamel of a tooth to the gum tissue that is adherent to its root.

**Calibration** A procedure to promote standardisation between examiners performing the oral examinations.

**Canine** One of four ‘eye teeth’ positioned next to the incisors and used for tearing food.

**Capital city** The administrative seat of government of each of Australia’s six states and two territories—each capital city also represents the most populous location of its respective state or territory.

**Cemento-enamel junction** Point on a tooth surface where the tooth crown joins the tooth root.

**Census** The Census of Population and Housing conducted every 5 years by the Australian Bureau of Statistics.

**Complete tooth loss** Loss of all natural teeth (also referred to as edentulism).

**Coronal** Pertaining to the crown of a tooth.

**Crown** The portion of tooth covered by white enamel that usually is visible in the mouth.

**Dental attendance** Behaviour related to the use of dental services.

**Dental caries** The process in which tooth structure is destroyed by acid produced by bacteria in the mouth—see dental decay.

**Dental caries experience** The cumulative effect of the caries process through a person’s lifetime, manifesting as teeth that are decayed, missing or filled.

**Dental decay** Cavity resulting from dental caries.

**Dental insurance** Dental care is not covered under Australia’s universal public health insurance vehicle, Medicare, and consequently people seeking cover can elect to carry private dental insurance.

**Dentate** Having one or more natural teeth.

**Dentition** The set of teeth—a complete dentition comprises 32 adult teeth.

**Denture** A removable dental prosthesis that substitutes for missing natural teeth and adjacent tissues.

**DMFT** An index of dental caries experience measured by counting the number of decayed (D), missing (M) and filled (F) teeth (T).

**Edentulous** A state of complete loss of all natural teeth.

**Enamel** Hard white mineralised tissue covering the crown of a tooth.

**Epidemiology** The study of the distribution and causes of health and disease in populations.

**Examination protocol** Methods and guidelines for conducting standardised oral examinations in a survey.

**Extraction** Removal of a natural tooth.

**Generation** A group of people born during a defined period of time (also referred to as a birth cohort).

**Gingiva** Gum tissue.

**Gingivitis** Redness, swelling or bleeding of the gums caused by inflammation.

**Government health card** A concession card issued by the Australian Government that entitles the holder to services including public dental care.

**Incisor** One of eight front teeth used during eating for cutting food.

**Index of Relative Socioeconomic Advantage/Disadvantage (IRSAD)** One of four indices measuring area-level disadvantage derived by the Australian Bureau of Statistics – the IRSAD is derived from attributes such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

**Indigenous identity** A person who states that they are of Aboriginal and/or Torres Strait Islander descent is an Indigenous Australian.

**Mean** The arithmetic average of a set of values.

**Molar** One of 12 back teeth used in grinding food.

**Natural teeth** Refers to a person's own teeth as opposed to artificial teeth.

**Orofacial pain** Pain located in the face, jaw, temple, in front of the ear or in the ear.

**Participation rate** The proportion of people from whom survey information is collected from among the total number of people selected as intended study participants.

**Periodontal disease** Disease of the gums and other tissues that attach to and anchor teeth to the jaws.

**Periodontal pocket** A space below the gum line that exists between the root of a tooth and the gum surrounding that tooth.

**Periodontitis** Disease of the gums caused by bacteria, characterised by swelling and bleeding of the gums and loss of tissue that attaches the tooth to the jaw.

**Permanent teeth** Adult teeth (secondary teeth).

**Plaque** A film composed of bacteria and food debris that adheres to the tooth surface.

**Prevalence** The proportion of people with a defined disease within a defined population.

**Probing pocket depth** The measured depth of the periodontal pocket.

**Recorder** A person, usually a dental assistant, who recorded the results of an oral examination onto a laptop computer.

**Relative difference** The difference between two values calculated as a ratio of one value divided by another.

**Restoration** A filling to repair a tooth damaged by decay or injury.

**Root** That part of the tooth below the crown which is anchored to the jaw.

**Root surface** The surface of the root of a tooth.

**Socioeconomic Indices for Areas (SEIFA)** A set of four indices derived by the Australian Bureau of Statistics from population census data to measure aspects of socioeconomic position for geographic areas.

**Socioeconomic position** Descriptive term for a position in society and usually measured by attributes such as income, education, occupation or characteristics of residential area.

**State/territory** Geographic regions of Australia – the nation has six states and two territories.

**Statistical significance** An indication from a statistical test that an observed association is unlikely (usually less than 5% probability) to be due to chance created when a random sample of people is selected from a population.

**Trend** The general direction in which change over time is observed.

**Weights** Numbers applied to groups of study participants to correct for differences in probability of selection and in participation.

**Wisdom tooth** One of four molars, each positioned at the back of the mouth.

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