DENTAL STATISTICS AND RESEARCH SERIES
Number 46

The National Survey of Adult Oral Health 2004–06

Western Australia

2008

Australian Institute of Health and Welfare
Canberra
Cat. No DEN 182

This publication is part of the Australian Institute of Health and Welfare's Dental statistics and research series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISSN 1321-0254

ISBN 978 1 74024 788 7

Suggested citation

AIHW Dental Statistics and Research Unit 2008. The National Survey of Adult Oral Health 2004–06: Western Australia. Cat. no. DEN 182. Dental Statistics and Research Series no. 46. Canberra: Australian Institute of Health and Welfare.

Published by the Australian Institute of Health and Welfare

Printed by

Contents

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
DMFT	number of decayed, missing and filled permanent teeth
DSRU	Dental Statistics and Research Unit
IRSAD	Index of Relative Socioeconomic Advantage/Disadvantage
NCHS	US National Center for Health Statistics
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

Acknowledgments

This publication was prepared by the following authors at the Australian Research Centre for Population Oral Health (ARCPOH):

Authors

Loc Do

Anne Ellershaw

Jane Harford

Liana Luzzi

Kaye Roberts-Thomson

Gary Slade

John Spencer

Editorial team

Alison McLean and Lorna Lucas (ARCPOH) contributed to the editing of this publication and proofreading was by Jo Mason. All three worked to improve the consistency, layout and readability of the text.

WA Survey personnel

Survey manager	Mr Peter Jarman
Appointment coordinator	Ms Lynette Dominkovich
Dentist examiners	Dr Lou Bogdanich Dr Graham Cawsey, Dr Brian Sacks
Dental recorders	Ms Lynette Dominkovich, Ms Virginia Knox, Ms Heather Pryce

Scientific Advisory Committee members

Dr Peter Barnard, Australian Dental Association

Professor Mike Morgan, The University of Melbourne

Mr Gary Niedorfer, Australian Bureau of Statistics

Professor Brian Oldenburg, Monash University

Professor Eric Reynolds, The University of Melbourne

Dr Ken Tallis, Australian Institute of Health and Welfare

Community and Professional Advisory Committee members

Dr Louise Brown, Australian and New Zealand Academy of Periodontists

Ms Samantha Edmonds, Council of Social Service of NSW (NCOSS)

Mr Errol Evans, Oral Health Unit, Queensland Health (alternate Dr Paul Wood)

Ms Chris Morris, South Australian Dental Service

Dr David Neesham, Dental Health Services, Western Australia (alternate Dr Martin Glick)

Dr Bill O'Reilly, Australian Dental Association Federal Executive

Ms Lindsay Simmons, Council of the Ageing

Ms Tracey Slater, Department of Human Services, Victoria

Funding sources for the 2004–06 National Survey of Adult Oral Health

National Health and Medical Research Council, Project Grant #299060

National Health and Medical Research Council, Project Grant #349514

National Health and Medical Research Council, Capacity Building Grant #349537

Australian Government Department of Health and Ageing, Population Health Division

Australian Institute of Health and Welfare

Colgate Oral Care

Australian Dental Association

US Centers for Disease Control and Prevention, Research Participation Program

ARCPOH interviewers

CATI supervisors	Scott Crowley, Meredith Morgan
CATI interviewers	Jan Anderson, Olivia Baker, Jenny Cates, Debra Flack, Susie Garner, Alex Holland, Jessica Holder, Dora Jankumas, Claire Leske, Peter Monaghan, Patricia Moyle, Grant Noble, Alison Packer, Mary Porter, Jenny Proeve, Verity Proeve, Edmund Redgrove, Joanne Rogers, Joy Simmons, Kaye Sparrow, Lachlan Spencer, Michelle Storan, Sue Tanner, Zoe Taylor, Theodora Trovas, Jenny Venn, Tammy White

Overview of results

This report describes levels of oral health in the adult population of Western Australia (WA) at the beginning of the twenty-first century. The findings are from the 2004–06 National Survey of Adult Oral Health (NSAOH). In WA, 1,290 people were interviewed and 470 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

- 5.6% of people had no natural teeth and among dentate people, an average of 5.0 teeth per person were missing. These and two other indicators of tooth loss were more frequent among government health cardholders compared with non-cardholders and among people with no dental insurance compared with the insured.
- 19.6% of people had untreated dental decay and an average of 13.1 teeth per person were decayed, missing or filled. There was relatively little variation among sociodemographic groups in indicators of dental decay experience.
- 10.0% of people had inflamed gums and 12.6% had moderate or severe gum disease. Four indicators of gum disease displayed relatively little variation among sociodemographic groups.

Oral health care

- 60.3% of people had visited a dentist within the preceding 12 months, and 56.1% said they usually did so. These and two other measures of dental attendance varied according to socioeconomic status and dental insurance status.
- 75.7% of people had a dentist that they usually attended, although 30.9% said that they avoided or delayed dental care due to its cost. Barriers to dental care were most strongly associated with low socioeconomic status and a lack of dental insurance.

Oral health perceptions

- 14.7% of people said they had avoided some foods due to dental problems, and 12.9% had experienced toothache, in the preceding 12 months. Perceptions of poor oral health were more likely among the uninsured than the insured.
- 32.0% of people felt they needed an extraction or filling, although only 5.1% said they needed dentures. People without dental insurance were more likely to report dental treatment needs than the insured.

Age-standardised analysis revealed that government health cardholders had poorer outcomes for 13 of the 29 indicators reported, while the uninsured had poorer outcomes for 17 of the 30 indicators.

1 Introduction

This report presents findings from the WA 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 WA 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 WA 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
- 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 WA. The findings are intended to provide up-to-date evidence that can contribute to the development of oral health policies and programs in WA.

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.arcpoh.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)
- 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
- 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 ≥15 years who most recently had had a birthday and the name of the person aged ≥15 years who would next have a birthday. A computer algorithm then selected one of those two people at random.

Sampled postcodes

In WA the following postcodes were sampled: 6006, 6010, 6015, 6018, 6021, 6025, 6027, 6030, 6052, 6055, 6058, 6061, 6062, 6065, 6076, 6081, 6103, 6107, 6110, 6147, 6150, 6152, 6155, 6159, 6163, 6167, 6169, 6210, 6225, 6233, 6304, 6330, 6401, 6442, 6536, 6603, 6707.

Computer-assisted telephone interview

Self-reported information about oral health and characteristics associated with it was obtained though 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

			No. of examinations per examiner		
State	No. of examiners	No. of people examined	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
All states	**30**	**5,505**	**32**	**585**	**184**

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

	Dates of interviews		Dates of examinations	
State/territory	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[(a)]

	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
Australia	**28,812**	**14,123**	**49.0**	**12,606**	**5,505**	**43.7**
State/territory						
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 WA 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 WA 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 WA 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.[1] Means and their associated 95% CIs were generated using SUDAAN software release 9.0.0.[2] 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.

[1] SAS Institute Inc. 100 SAS Campus Drive, Cary, NC 27513–2414, USA.

[2] 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 WA population was female, with little variation in the proportion among age groups (Table 4). Three-quarters lived in the capital city, a proportion that was quite consistent among age groups. By design, people of all ages were approximately evenly distributed among tertiles of postcode socioeconomic status, a pattern that was also observed within the three age groups. Approximately one-quarter of the population were government health cardholders, although the proportion was noticeably greater for people aged 55 years or more. People who had a government health card were less likely to have last attended a public dental clinic than other dental care providers, most noticeably in the oldest age group. A majority of people in the WA population had dental insurance, with older people more likely than younger people to be insured.

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

		Age group (years)		
	All ages	15–34	35–54	>=55
Sex				
Males	50.0	51.0	49.8	48.7
Females	50.0	49.0	50.2	51.3
Residential location				
Capital city	74.7	75.8	73.7	74.5
Other places	25.3	24.2	26.3	25.5
Postcode socioeconomic status				
Lowest	32.6	33.1	31.4	33.7
Middle	33.9	39.7	28.1	34.0
Highest	33.6	27.3	40.6	32.3
Government health card				
Health care card or pensioner concession card	23.0	12.5	15.7	50.6
Neither card	77.0	87.5	84.3	49.4
Place of last dental visit				
Cardholder/Public	7.8	4.4	7.0	14.3
Cardholder/Non-public	15.2	8.1	8.7	36.3
Non-cardholder/Non-public	77.0	87.5	84.3	49.4
Dental insurance				
Insured	59.1	49.3	61.4	69.7
Uninsured	40.9	50.7	38.6	30.3

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 WA, edentulous people represented 5.6% of the population aged 15 years or more (Table 5), which was similar to 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 17.5% of WA adults aged 55 years or more.
- Prevalence of complete tooth loss did not vary to a statistically significant degree between males and females, or between those living in Perth compared with the rest of the state.
- While prevalence was more than twice as high among people living in postcodes with low socioeconomic status (8.4% for all ages) than high socioeconomic status (3.4% for all ages), there was overlap of the 95% CIs. A similar gradient was also observed in the oldest age group although, again, it was statistically non-significant.
- Among all ages, people who had a government health card were nine times more likely to be edentulous (16.7%) than people who did not (1.8%). Within age groups, government health cardholder status was statistically significantly associated with edentulism only among people aged 55 years or more.
- Within the population of cardholders, there was no clear pattern of variation in prevalence of edentulism 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. Among 15–34-year-olds, prevalence estimates were all zero, and therefore did not reveal any differences between population groups.

In summary, complete tooth loss in WA 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 in people who had a government health card or who did not have dental insurance.

Table 5: Percentage of adults with complete tooth loss

		Population: all people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**5.6**	**0.0**	**1.8**	**17.5**
	95% CI[(a)]	*4.3–7.2*	—	*1.0–3.3*	*14.0–21.7*
Sex					
Males	% of people	5.3	0.0	2.2	16.5
	95% CI	*3.7–7.5*	—	*1.0–5.1*	*11.8–22.7*
Females	% of people	5.8	0.0	1.3	18.4
	95% CI	*4.4–7.7*	—	*0.5–3.5*	*14.5–23.1*
Residential location					
Capital city	% of people	5.0	0.0	1.3	16.5
	95% CI	*3.6–7.0*	—	*0.4–3.4*	*12.4–21.7*
Other places	% of people	7.0	0.0	3.2	20.2
	95% CI	*4.9–10.0*	—	*1.8–5.8*	*14.4–27.6*
Postcode socioeconomic status					
Lowest	% of people	8.4	0.0	2.3	23.5
	95% CI	*6.3–11.2*	—	*1.0–5.0*	*18.6–29.2*
Middle	% of people	5.1	0.0	2.9	16.7
	95% CI	*3.5–7.4*	—	*1.2–6.8*	*13.3–20.7*
Highest	% of people	3.4	0.0	0.3	11.9
	95% CI	*1.8–6.4*	—	*0.0–2.2*	*6.1–21.9*
Government health card					
Health care card or pensioner concession card	% of people	16.7	0.0	3.2	26.9
	95% CI	*13.6–20.4*	—	*1.0–9.6*	*22.2–32.2*
Neither card	% of people	1.8	0.0	1.6	6.6
	95% CI	*1.2–2.8*	—	*0.8–3.3*	*3.9–11.0*
Place of last dental visit					
Cardholder/Public	% of people	14.9	0.0	6.0	26.8
	95% CI	*9.7–22.1*	—	*1.0–28.4*	*17.7–38.3*
Cardholder/Non-public	% of people	17.5	0.0	2.1	27.0
	95% CI	*13.5–22.4*	—	*0.6–7.7*	*21.3–33.6*
Non-cardholder/Non-public	% of people	1.8	0.0	1.6	6.6
	95% CI	*1.2–2.8*	—	*0.8–3.3*	*3.9–11.0*
Dental insurance					
Insured	% of people	3.3	0.0	1.2	10.3
	95% CI	*2.2–5.0*	—	*0.4–3.2*	*6.8–15.2*
Uninsured	% of people	8.8	0.0	2.8	26.6
	95% CI	*6.7–11.5*	—	*1.1–6.6*	*21.2–32.8*

(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 WA, 11.0% 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 approximately one-third of dentate people aged 55 years or more.
- Differences between males and females were small and statistically non-significant, both for the population as a whole and within the three age groups.
- Similarly, differences between people living in Perth and those in the rest of the state were small and statistically non-significant.
- Among all ages combined, prevalence of an inadequate natural dentition was twice as high for people living in postcodes with low socioeconomic status (14.6%) compared with postcodes of high socioeconomic status (7.3%). Those living in postcodes with middle socioeconomic status had prevalence rates that were intermediate between the other two groups. The gradient was more pronounced among 35–54-year-olds, and the differences were statistically significant in that age group.
- The most pronounced differences in prevalence were associated with government health cardholder status, where an approximate four-fold difference was observed between people who had a government health card (27.1% for all ages) compared with people who did not (6.4%). The relative difference was smaller, though statistically significant, in the oldest age group.
- Within the population of government health cardholders, there was no clear pattern of variation according to place of last dental visit.
- Prevalence of an inadequate natural dentition was approximately two times greater among people with dental insurance than the uninsured, and the differences were statistically significant for all ages combined and for the oldest age group.

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 postcode socioeconomic status, government health cardholder status and dental insurance status.

Table 6: Percentage of people with fewer than 21 teeth

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**11.0**	**0.8**	**4.8**	**36.2**
	95% CI[(a)]	*9.0–13.4*	*0.2–3.7*	*2.9–7.9*	*30.8–42.0*
Sex					
Males	% of people	10.3	0.0	4.6	35.9
	95% CI	*8.2–13.0*	—	*2.2–9.7*	*27.1–45.8*
Females	% of people	11.6	1.6	5.0	36.5
	95% CI	*9.0–14.9*	*0.3–6.9*	*2.6–9.3*	*30.1–43.5*
Residential location					
Capital city	% of people	10.5	0.8	3.8	36.1
	95% CI	*8.1–13.5*	*0.1–5.3*	*1.9–7.4*	*29.2–43.7*
Other places	% of people	12.4	0.8	7.8	36.6
	95% CI	*9.1–16.6*	*0.1–6.0*	*3.8–15.4*	*31.6–41.9*
Postcode socioeconomic status					
Lowest	% of people	14.6	0.6	8.4	41.9
	95% CI	*11.9–17.8*	*0.1–4.7*	*4.9–14.1*	*37.0–46.9*
Middle	% of people	11.7	1.6	4.8	43.4
	95% CI	*8.4–16.1*	*0.2–10.3*	*2.0–11.1*	*36.2–50.7*
Highest	% of people	7.3	0.0	2.3	25.2
	95% CI	*4.5–11.5*	—	*0.5–9.1*	*16.1–37.2*
Government health card					
Health care card or pensioner concession card	% of people	27.1	1.2	2.2	50.0
	95% CI	*22.1–32.8*	*0.2–8.3*	*0.7–6.7*	*42.8–57.3*
Neither card	% of people	6.4	0.7	5.2	23.6
	95% CI	*4.9–8.4*	*0.1–4.8*	*3.1–8.6*	*17.5–31.0*
Place of last dental visit					
Cardholder/Public	% of people	22.8	2.8	0.0	48.5
	95% CI	*15.9–31.5*	*0.4–18.6*	—	*32.7–64.6*
Cardholder/Non-public	% of people	29.1	0.0	3.1	50.6
	95% CI	*22.2–37.0*	—	*1.0–8.8*	*40.3–60.8*
Non-cardholder/Non-public	% of people	6.4	0.7	5.2	23.6
	95% CI	*4.9–8.4*	*0.1–4.8*	*3.1–8.6*	*17.5–31.0*
Dental insurance					
Insured	% of people	8.6	0.0	3.5	28.0
	95% CI	*6.8–10.8*	—	*1.7–7.0*	*22.4–34.4*
Uninsured	% of people	14.6	1.7	6.6	48.4
	95% CI	*11.6–18.2*	*0.4–8.0*	*3.7–11.7*	*40.0–56.8*

(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 13.0% of dentate adults in WA who reported wearing one or two dentures (Table 7), a figure that was similar to the 14.9% reported nationally (Slade et al. 2007).

Key findings

- The frequency of denture wearing was strongly associated with age, ranging from 0.5% among 15–34-year-olds to 40.3% among people aged 55 years or more.
- There were small and statistically non-significant differences between the sexes, and between residents of Perth and the rest of the state.
- There was a socioeconomic gradient in denture wearing that was statistically significant in the oldest age group, with a higher percentage observed among people living in postcodes with low socioeconomic status (47.5%) compared with high socioeconomic status (31.2%). Although the relative difference was similar when all ages were combined (16.2% versus 9.8%), it was not statistically significant.
- Pronounced differences were seen between people who had a government health card (31.3%) and those who did not (7.8%). 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 those who attended the public sector compared with people who attended non-public sources of dental care.
- People without dental insurance were somewhat more likely to wear dentures than the insured, although differences were not statistically significant.

Discussion

The percentage of dentate adults in WA who wore dentures (13.0%) exceeded the percentage with fewer than 21 natural teeth (11.0%), illustrating that the decision to wear dentures is dictated by factors other than the number of missing teeth. The frequency of both denture wearing and an inadequate natural dentition was associated with postcode socioeconomic status and government health cardholder status. In contrast, dental insurance status was not significantly associated with denture wearing, while it was significantly associated with an inadequate natural dentition.

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

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**13.0**	**0.5**	**7.8**	**40.3**
	95% CI[(a)]	*11.0–15.4*	*0.2–1.6*	*6.0–10.1*	*35.0–45.9*
Sex					
Males	% of people	12.1	0.3	6.4	40.1
	95% CI	*9.7–15.0*	*0.0–2.3*	*3.7–10.9*	*31.4–49.5*
Females	% of people	13.9	0.7	9.1	40.5
	95% CI	*11.7–16.5*	*0.2–2.9*	*6.6–12.4*	*35.5–45.8*
Residential location					
Capital city	% of people	12.8	0.5	6.9	41.0
	95% CI	*10.4–15.7*	*0.1–1.9*	*4.7–10.1*	*34.4–48.0*
Other places	% of people	13.7	0.6	10.2	38.2
	95% CI	*10.1–18.2*	*0.1–4.1*	*7.9–13.1*	*30.3–46.8*
Postcode socioeconomic status					
Lowest	% of people	16.2	0.5	8.9	47.5
	95% CI	*13.0–20.0*	*0.1–3.2*	*6.6–11.7*	*40.2–54.9*
Middle	% of people	13.5	0.5	10.6	43.4
	95% CI	*10.1–17.9*	*0.1–3.0*	*7.2–15.5*	*33.5–53.8*
Highest	% of people	9.8	0.6	4.4	31.2
	95% CI	*7.2–13.4*	*0.1–4.5*	*2.5–7.6*	*24.6–38.7*
Government health card					
Health care card or pensioner concession card	% of people	31.3	1.3	9.5	55.1
	95% CI	*25.9–37.2*	*0.2–8.9*	*3.5–23.5*	*47.0–63.0*
Neither card	% of people	7.8	0.4	7.6	26.8
	95% CI	*6.4–9.6*	*0.1–1.5*	*5.7–10.0*	*20.9–33.5*
Place of last dental visit					
Cardholder/Public	% of people	29.7	0.0	5.2	64.2
	95% CI	*22.7–37.7*	—	*1.0–22.3*	*48.5–77.4*
Cardholder/Non-public	% of people	32.0	2.2	11.1	51.9
	95% CI	*25.1–39.7*	*0.3–15.0*	*4.3–25.9*	*42.6–61.1*
Non-cardholder/Non-public	% of people	7.8	0.4	7.6	26.8
	95% CI	*6.4–9.6*	*0.1–1.5*	*5.7–10.0*	*20.9–33.5*
Dental insurance					
Insured	% of people	12.2	0.4	7.0	36.0
	95% CI	*10.1–14.7*	*0.1–2.9*	*4.9–9.8*	*29.4–43.2*
Uninsured	% of people	14.7	0.7	8.8	47.4
	95% CI	*11.5–18.5*	*0.2–2.8*	*5.5–13.8*	*38.0–56.9*

(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 WA, dentate people had an average of 5.0 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 1.8 among 15–34-year-olds to 11.1 among people aged 55 years or more.
- There was little difference between males and females, and the differences were inconsistent among the age groups.
- Similarly, there were small and statistically non-significant differences between residents of Perth and the rest of the state.
- There was no consistent gradient between average number of missing teeth and postcode socioeconomic status. Nor were there any statistically significant differences between categories of socioeconomic status, either for all ages combined or within specific age groups.
- Average levels of tooth loss tended to be higher among people who had a government health card compared with those who did not, and the differences were statistically significant in the oldest age group and among all ages combined.
- Among the group of government health cardholders, there were no statistically significant differences in average number of missing teeth according to place of last dental visit.
- There was little difference in the average number of missing teeth between people with dental insurance and the uninsured, and the pattern of differences was inconsistent among the age groups.

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 in the average number of teeth per person missing due to pathology. Yet there was no significant variation according to dental insurance status, which was associated with complete tooth loss and an inadequate natural dentition.

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

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**mean**	**5.0**	**1.8**	**4.2**	**11.1**
	95% CI[(a)]	*4.3–5.7*	*1.3–2.4*	*3.6–4.9*	*9.8–12.4*
Sex					
Males	mean	4.6	2.0	3.6	10.6
	95% CI	*3.7–5.5*	*1.3–2.7*	*2.6–4.5*	*8.7–12.5*
Females	mean	5.4	1.7	4.9	11.6
	95% CI	*4.4–6.3*	*1.1–2.2*	*4.1–5.7*	*9.9–13.3*
Residential location					
Capital city	mean	5.0	1.9	4.2	11.0
	95% CI	*4.1–5.8*	*1.3–2.5*	*3.3–5.0*	*9.4–12.5*
Other places	mean	5.2	1.7	4.3	11.5
	95% CI	*3.9–6.5*	*0.8–2.6*	*3.8–4.9*	*9.8–13.3*
Postcode socioeconomic status					
Lowest	mean	5.3	2.3	3.9	11.8
	95% CI	*4.4–6.2*	*1.5–3.2*	*3.3–4.5*	*10.1–13.5*
Middle	mean	5.4	1.8	5.0	12.3
	95% CI	*3.7–7.1*	*0.9–2.8*	*3.5–6.6*	*10.6–14.1*
Highest	mean	4.3	1.3	3.9	9.1
	95% CI	*3.6–5.1*	*0.7–1.8*	*3.0–4.9*	*7.0–11.3*
Government health card					
Health care card or pensioner concession card	mean	8.9	2.7	3.8	13.6
	95% CI	*7.0–10.8*	*1.5–4.0*	*2.9–4.7*	*11.9–15.4*
Neither card	mean	3.9	1.7	4.3	8.5
	95% CI	*3.3–4.5*	*1.2–2.3*	*3.6–5.0*	*6.9–10.2*
Place of last dental visit					
Cardholder/Public	mean	7.9	2.3	3.7	13.8
	95% CI	*5.3–10.5*	*0.6–4.1*	*2.8–4.5*	*10.2–17.4*
Cardholder/Non-public	mean	9.3	3.0	3.9	13.5
	95% CI	*7.1–11.6*	*0.6–5.3*	*2.6–5.2*	*11.4–15.7*
Non-cardholder/Non-public	mean	3.9	1.7	4.3	8.5
	95% CI	*3.3–4.5*	*1.2–2.3*	*3.6–5.0*	*6.9–10.2*
Dental insurance					
Insured	mean	5.5	1.6	4.7	10.5
	95% CI	*4.6–6.3*	*0.9–2.2*	*3.9–5.6*	*9.0–12.0*
Uninsured	mean	4.5	2.1	3.4	12.5
	95% CI	*3.7–5.3*	*1.5–2.8*	*2.8–4.1*	*10.5–14.6*

(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 WA was 19.6% (Table 9), which is slightly lower than the national estimate of 25.5% (Slade et al. 2007).

Key findings

- The prevalence of untreated coronal decay was not significantly associated with age.
- The highest prevalence was seen among people who lived outside Perth (29.2%) and the lowest among females (12.4%).
- Prevalence of untreated coronal decay was significantly higher among males (26.7%) compared with females (12.4%).
- Among people aged 35–54 years, significant differences in prevalence of coronal decay were found in relation to sex.

Discussion

Over one-quarter of all people in WA had untreated coronal decay. Prevalence was associated with sex, with more males than females having untreated decay. This may be related to differences in the use of dental services between the sexes.

Table 9: Percentage of people with untreated coronal decay

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**19.6**	**13.3**	**29.4**	**13.9**
	95% CI[(a)]	*14.9–25.2*	*7.7–22.0*	*21.2–39.0*	*8.8–21.3*
Sex					
Males	% of people	26.7	15.3	43.4	18.4
	95% CI	*19.3–35.6*	*7.3–29.2*	*28.8–59.1*	*11.2–28.8*
Females	% of people	12.4	11.2	15.5	9.6
	95% CI	*8.2–18.4*	*5.0–23.2*	*9.4–24.4*	*4.1–21.0*
Residential location					
Capital city	% of people	16.3	10.9	25.4	10.6
	95% CI	*11.2–23.1*	*5.7–19.8*	*16.7–36.6*	*5.4–19.7*
Other places	% of people	29.2	20.8	40.4	23.4
	95% CI	*19.8–40.8*	*7.1–47.5*	*24.8–58.3*	*12.2–40.3*
Postcode socioeconomic status					
Lowest	% of people	24.7	18.0	39.3	13.7
	95% CI	*16.1–35.9*	*6.6–40.4*	*25.5–55.1*	*6.1–28.0*
Middle	% of people	19.7	15.1	29.7	14.9
	95% CI	*11.9–30.7*	*8.5–25.3*	*15.9–48.6*	*7.2–28.4*
Highest	% of people	14.4	5.0	21.4	13.0
	95% CI	*9.0–22.4*	*0.8–26.1*	*11.8–35.6*	*4.9–30.6*
Government health card					
Health care card or pensioner concession card	% of people	16.9	10.5	27.9	14.1
	95% CI	*9.5–28.5*	*1.7–43.9*	*12.6–51.0*	*7.6–24.6*
Neither card	% of people	20.3	13.7	29.6	13.7
	95% CI	*15.1–26.8*	*7.9–22.8*	*20.7–40.4*	*6.8–25.8*
Place of last dental visit					
Cardholder/Public	% of people	14.9	30.0	7.4	13.6
	95% CI	*5.6–34.1*	*5.6–75.5*	*1.3–33.6*	*3.9–37.9*
Cardholder/Non-public	% of people	18.0	0.0	44.6	14.3
	95% CI	*10.3–29.6*	—	*23.7–67.6*	*6.7–27.9*
Non-cardholder/Non-public	% of people	20.3	13.7	29.6	13.7
	95% CI	*15.1–26.8*	*7.9–22.8*	*20.7–40.4*	*6.8–25.8*
Dental insurance					
Insured	% of people	16.4	9.7	26.6	9.3
	95% CI	*11.0–23.8*	*3.7–23.0*	*16.6–39.7*	*4.6–18.0*
Uninsured	% of people	25.3	18.6	33.8	24.5
	95% CI	*17.0–35.8*	*9.3–33.7*	*20.5–50.2*	*13.8–39.7*

(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 WA was 7.1% Table 10, which is slightly higher than the Australian population figure (6.7%) (Slade et al. 2007).

Key findings

- Prevalence of untreated root decay was not significantly associated with age, although a trend was evident.
- Among people of all ages, the highest prevalence was recorded in people who had a government health card and who last visited a non-public provider (15.8%), and the lowest in those who lived in areas with the highest socioeconomic status (3.0%).
- Prevalence of root decay 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 sociodemographic factors. More of those who had a government health card had root decay than non-cardholders (12.9% versus 5.4%), and more cardholders who last visited a non-public dental provider than non-cardholders who visited a non-public provider (15.8% versus 5.4%).

Discussion

There were no associations found between untreated root decay and any of the sociodemographic factors investigated.

Table 10: Percentage of people with untreated root decay

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**7.1**	**2.4**	**8.5**	**12.3**
	95% CI[(a)]	*4.6–10.7*	*0.7–7.3*	*4.5–15.3*	*7.2–20.2*
Sex					
Males	% of people	9.4	4.0	9.2	18.7
	95% CI	*5.7–15.2*	*1.2–12.7*	*3.3–23.3*	*9.3–33.9*
Females	% of people	4.8	0.6	7.8	6.4
	95% CI	*2.6–8.7*	*0.1–4.3*	*3.4–16.6*	*3.5–11.5*
Residential location					
Capital city	% of people	7.2	3.1	8.5	11.7
	95% CI	*4.4–11.6*	*1.0–9.3*	*4.2–16.1*	*6.1–21.3*
Other places	% of people	6.8	0.0	8.5	14.0
	95% CI	*3.0–14.8*	—	*2.0–29.6*	*5.7–30.7*
Postcode socioeconomic status					
Lowest	% of people	7.5	0.0	10.7	14.3
	95% CI	*3.7–14.5*	—	*3.8–27.0*	*5.9–30.7*
Middle	% of people	10.8	6.0	13.3	16.4
	95% CI	*6.4–17.7*	*2.2–15.1*	*6.0–26.9*	*6.9–34.0*
Highest	% of people	3.0	0.0	3.4	6.1
	95% CI	*1.3–6.8*	—	*0.8–13.5*	*3.1–11.5*
Government health card					
Health care card or pensioner concession card	% of people	12.9	2.5	20.8	13.0
	95% CI	*7.0–22.4*	*0.3–19.2*	*8.7–42.1*	*7.0–22.8*
Neither card	% of people	5.4	2.3	6.2	11.7
	95% CI	*3.3–8.8*	*0.6–8.5*	*2.4–14.7*	*5.7–22.4*
Place of last dental visit					
Cardholder/Public	% of people	7.0	7.2	0.0	12.8
	95% CI	*2.4–18.6*	*0.8–42.1*	—	*4.2–33.2*
Cardholder/Non-public	% of people	15.8	0.0	37.8	13.0
	95% CI	*8.2–28.1*	—	*18.6–61.8*	*6.2–25.4*
Non-cardholder/Non-public	% of people	5.4	2.3	6.2	11.7
	95% CI	*3.3–8.8*	*0.6–8.5*	*2.4–14.7*	*5.7–22.4*
Dental insurance					
Insured	% of people	6.1	0.0	6.4	11.7
	95% CI	*3.4–10.5*	—	*2.2–17.7*	*6.0–21.6*
Uninsured	% of people	9.0	5.0	11.7	13.7
	95% CI	*4.6–16.9*	*1.5–14.9*	*5.2–24.3*	*7.2–24.6*

(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 WA was 82.5% (Table 11), which is slightly lower 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 (95.0% and 93.3% versus 63.3% respectively).
- Among people of all ages, the highest prevalence was seen in people who had a government health card and last visited a public dental clinic (94.0%), and the lowest among those living in the middle socioeconomic postcode (78.4%).
- 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 (85.1% versus 79.8%), and more of those who had a government health card and visited a public clinic than a non-public clinic (94.0% versus 80.9%).

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**
All people	**Per cent of people**	**82.5**	**63.3**	**93.3**	**95.0**
	95% CI[(a)]	*75.6–87.7*	*51.1–74.0*	*86.8–96.7*	*88.9–97.8*
Sex					
Males	% of people	79.8	60.7	91.1	92.3
	95% CI	*70.7–86.5*	*46.7–73.2*	*78.6–96.6*	*80.8–97.2*
Females	% of people	85.1	66.0	95.4	97.5
	95% CI	*75.5–91.4*	*46.1–81.5*	*88.8–98.2*	*87.9–99.5*
Residential location					
Capital city	% of people	82.7	65.7	92.3	94.6
	95% CI	*74.9–88.5*	*50.5–78.2*	*83.6–96.6*	*86.9–97.9*
Other places	% of people	81.6	56.0	95.9	95.9
	95% CI	*64.7–91.5*	*39.1–71.6*	*87.4–98.7*	*80.2–99.3*
Postcode socioeconomic status					
Lowest	% of people	84.6	70.2	90.7	97.4
	95% CI	*72.1–92.1*	*46.1–86.6*	*78.5–96.3*	*88.4–99.5*
Middle	% of people	78.4	64.1	90.9	87.7
	95% CI	*66.8–86.7*	*51.3–75.2*	*71.5–97.6*	*73.0–95.0*
Highest	% of people	84.5	53.9	96.9	100.0
	95% CI	*70.1–92.7*	*28.6–77.3*	*88.0–99.2*	—
Government health card					
Health care card or pensioner concession card	% of people	85.3	64.4	92.0	90.0
	95% CI	*70.6–93.4*	*20.7–92.6*	*73.5–98.0*	*78.8–95.6*
Neither card	% of people	81.6	63.2	93.5	100.0
	95% CI	*73.8–87.5*	*52.4–72.8*	*85.3–97.2*	—
Place of last dental visit					
Cardholder/Public	% of people	94.0	100.0	100.0	86.6
	95% CI	*79.8–98.4*	—	—	*58.4–96.8*
Cardholder/Non-public	% of people	80.9	45.3	85.6	91.4
	95% CI	*60.7–92.1*	*7.5–89.4*	*58.3–96.2*	*78.0–96.9*
Non-cardholder/Non-public	% of people	81.6	63.2	93.5	100.0
	95% CI	*73.8–87.5*	*52.4–72.8*	*85.3–97.2*	—
Dental insurance					
Insured	% of people	86.3	63.0	97.1	95.2
	95% CI	*77.8–91.9*	*44.1–78.5*	*91.3–99.1*	*86.9–98.3*
Uninsured	% of people	80.3	68.8	87.1	94.4
	95% CI	*72.1–86.6*	*54.5–80.2*	*72.8–94.5*	*82.3–98.4*

(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 WA was 13.1 (Table 12), which is slightly higher than that for the Australian population (12.8) (Slade et al. 2007).

Key findings

- The average number of affected teeth was significantly associated with age, being highest in people aged 55 years or more (22.7 teeth). This was 1.6 times that of the 35–44-year-olds (14.5 teeth) and five times that of the 15–34 years age group (5.4 teeth).
- Among people of all ages, the highest average was recorded in non-government health cardholders who last attended a non-public clinic (17.7 teeth), and the lowest among people who did not have a government health card and uninsured people (11.2 teeth).
- Government health cardholder status was significantly associated with average DMFT, with cardholders having 1.4 times the number compared with non-cardholders (17.1 versus 11.9 teeth).
- The average DMFT was significantly associated with place of last dental visit, with people who had a government health card who last visited a non-public practitioner having significantly higher scores than non-cardholders whose last visit was at a non-public clinic (17.7 versus 11.9 teeth).
- Private dental insurance was significantly associated with average DMFT, with insured people having 1.3 times the number compared with the uninsured (14.8 versus 11.2 teeth).
- Among people aged 35–54 years, significant differences in prevalence of coronal decay were found in relation to dental insurance.

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.

In summary, the average number of teeth affected by caries varied by age, government health cardholder status, place of last dental visit and dental insurance status.

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

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**mean**	**13.1**	**5.4**	**14.5**	**22.7**
	95% CI[(a)]	*11.6–14.6*	*4.1–6.6*	*13.1–16.0*	*21.8–23.5*
Sex					
Males	mean	12.4	6.0	13.1	21.7
	95% CI	*10.4–14.4*	*4.2–7.9*	*10.8–15.5*	*20.2–23.2*
Females	mean	13.7	4.7	16.0	23.6
	95% CI	*11.8–15.7*	*3.4–5.9*	*14.3–17.7*	*22.8–24.4*
Residential location					
Capital city	mean	12.9	5.1	14.3	22.8
	95% CI	*11.2–14.6*	*3.6–6.5*	*12.5–16.1*	*21.8–23.9*
Other places	mean	13.7	6.2	15.2	22.3
	95% CI	*10.6–16.9*	*3.4–9.0*	*13.1–17.3*	*20.9–23.7*
Postcode socioeconomic status					
Lowest	mean	13.6	7.8	13.0	23.1
	95% CI	*11.5–15.7*	*5.4–10.1*	*10.7–15.4*	*22.2–24.0*
Middle	mean	12.2	4.5	14.6	22.9
	95% CI	*9.1–15.3*	*3.2–5.9*	*11.7–17.4*	*21.4–24.4*
Highest	mean	13.5	3.6	15.7	22.0
	95% CI	*11.2–15.8*	*1.9–5.3*	*14.0–17.4*	*20.4–23.6*
Government health card					
Health care card or pensioner concession card	mean	17.1	6.3	12.1	23.5
	95% CI	*14.1–20.0*	*1.9–10.7*	*9.3–14.8*	*22.3–24.8*
Neither card	mean	11.9	5.2	15.0	21.8
	95% CI	*10.2–13.6*	*4.0–6.5*	*13.6–16.5*	*20.7–23.0*
Place of last dental visit					
Cardholder/Public	mean	15.7	5.1	11.6	23.9
	95% CI	*11.0–20.4*	*2.1–8.0*	*6.7–16.4*	*22.1–25.7*
Cardholder/Non-public	mean	17.7	7.0	12.5	23.4
	95% CI	*14.4–21.1*	*<0–15.0*	*9.6–15.4*	*21.7–25.1*
Non-cardholder/Non-public	mean	11.9	5.2	15.0	21.8
	95% CI	*10.2–13.6*	*4.0–6.5*	*13.6–16.5*	*20.7–23.0*
Dental insurance					
Insured	mean	14.8	5.0	16.3	22.8
	95% CI	*13.0–16.6*	*3.6–6.4*	*14.7–18.0*	*21.7–23.8*
Uninsured	mean	11.2	6.1	11.7	22.5
	95% CI	*9.7–12.7*	*4.5–7.8*	*9.8–13.7*	*21.2–23.8*

(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 WA, a total of 12.6% of the dentate population had moderate or severe periodontitis (Table 13), which was significantly lower 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 1.8% in 15–34-year-olds but affecting 15.2% of the middle-aged group and 29% of WA adults aged 55 years or more. The differences between the youngest age group and the other two groups were statistically significant.
- People who had a government health card were more than twice as likely to have periodontitis. However, the difference was borderline non-significant.

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.

In summary, moderate or severe periodontitis affected one-tenth of the WA adult population, with the highest proportion of those affected being in the older age group. The disease was more likely to be observed in the socioeconomically disadvantaged groups.

Table 13: Percentage of people with moderate or severe periodontitis

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**12.6**	**1.8**	**15.2**	**29.0**
	95% CI[(a)]	*9.7–16.3*	*0.4–7.6*	*10.0–22.5*	*21.2–38.2*
Sex					
Males	% of people	14.0	2.6	19.2	27.8
	95% CI	*9.4–20.4*	*0.4–14.0*	*10.0–33.7*	*17.3–41.4*
Females	% of people	11.3	0.9	11.5	30.1
	95% CI	*8.0–15.7*	*0.1–6.0*	*6.3–19.9*	*20.5–41.9*
Residential location					
Capital city	% of people	13.3	1.8	14.8	33.2
	95% CI	*9.9–17.8*	*0.3–10.7*	*8.9–23.5*	*24.2–43.7*
Other places	% of people	10.6	1.7	16.5	16.4
	95% CI	*6.1–17.9*	*0.2–13.1*	*7.6–32.2*	*4.9–42.8*
Postcode socioeconomic status					
Lowest	% of people	12.8	1.3	21.5	21.5
	95% CI	*8.3–19.2*	*0.2–9.5*	*11.6–36.4*	*10.0–40.4*
Middle	% of people	12.4	3.4	12.6	32.4
	95% CI	*7.3–20.3*	*0.6–17.1*	*4.7–29.8*	*20.7–46.8*
Highest	% of people	12.8	0.0	12.8	32.9
	95% CI	*8.5–18.8*	—	*7.0–22.2*	*19.1–50.5*
Government health card					
Health care card or pensioner concession card	% of people	22.3	3.3	22.9	31.7
	95% CI	*14.2–33.1*	*0.4–22.8*	*8.4–49.1*	*21.2–44.4*
Neither card	% of people	10.2	1.5	14.1	26.5
	95% CI	*7.2–14.3*	*0.2–9.4*	*8.8–21.8*	*17.1–38.7*
Place of last dental visit					
Cardholder/Public	% of people	19.0	0.0	40.6	20.7
	95% CI	*7.5–40.3*	—	*7.0–86.1*	*7.6–45.4*
Cardholder/Non-public	% of people	23.6	5.0	15.6	35.5
	95% CI	*13.8–37.4*	*0.6–33.5*	*4.3–43.1*	*23.0–50.4*
Non-cardholder/Non-public	% of people	10.2	1.5	14.1	26.5
	95% CI	*7.2–14.3*	*0.2–9.4*	*8.8–21.8*	*17.1–38.7*
Dental insurance					
Insured	% of people	13.3	0.0	15.3	26.9
	95% CI	*9.5–18.4*	—	*8.4–26.3*	*18.4–37.6*
Uninsured	% of people	12.5	3.7	15.1	34.0
	95% CI	*7.8–19.6*	*0.8–16.0*	*8.0–26.6*	*19.9–51.6*

(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 WA, a total of 13.9% of the dentate adult population had at least one site with periodontal pocket depth of 4 mm or more (Table 14), which was lower, but not significantly, than the national estimate of 19.8% (Slade et al. 2007).

Key findings

- There was a tendency that people with lower socioeconomic status had higher prevalence of deep periodontal pocket. However, the differences were not 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 just over one-tenth of the WA dentate population. The tendency of higher prevalence of deep periodontal pocket 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**
All people	**Per cent of people**	**13.9**	**10.0**	**17.1**	**15.7**
	95% CI[(a)]	*10.1–18.7*	*4.8–19.8*	*10.8–25.9*	*10.3–23.3*
Sex					
Males	% of people	17.6	11.0	23.9	19.6
	95% CI	*11.4–26.0*	*3.5–29.7*	*13.7–38.3*	*10.9–32.8*
Females	% of people	10.2	9.0	10.6	11.9
	95% CI	*6.8–15.1*	*3.8–19.9*	*4.7–22.3*	*6.6–20.4*
Residential location					
Capital city	% of people	14.2	10.9	17.6	14.9
	95% CI	*9.6–20.5*	*4.6–23.5*	*10.3–28.5*	*9.2–23.3*
Other places	% of people	12.9	7.5	15.6	18.1
	95% CI	*8.3–19.6*	*2.1–23.2*	*6.3–33.8*	*7.5–37.5*
Postcode socioeconomic status					
Lowest	% of people	18.1	14.5	23.3	17.0
	95% CI	*11.0–28.3*	*3.9–41.5*	*13.2–37.9*	*7.4–34.7*
Middle	% of people	11.8	13.3	7.1	15.8
	95% CI	*6.7–19.9*	*6.7–24.5*	*2.1–21.1*	*7.3–30.7*
Highest	% of people	12.2	0.0	20.0	14.3
	95% CI	*7.0–20.5*	—	*9.2–38.2*	*7.8–24.7*
Government health card					
Health care card or pensioner concession card	% of people	18.6	27.8	11.8	17.0
	95% CI	*8.8–35.0*	*6.3–68.8*	*1.9–48.2*	*9.1–29.6*
Neither card	% of people	12.7	7.4	17.8	14.5
	95% CI	*8.9–17.8*	*3.7–14.2*	*10.9–27.9*	*8.3–24.0*
Place of last dental visit					
Cardholder/Public	% of people	20.0	0.0	40.6	23.0
	95% CI	*7.8–42.5*	—	*7.0–86.1*	*7.4–52.6*
Cardholder/Non-public	% of people	18.1	42.8	0.0	14.9
	95% CI	*6.7–40.3*	*6.8–88.5*	—	*7.1–28.7*
Non-cardholder/Non-public	% of people	12.7	7.4	17.8	14.5
	95% CI	*8.9–17.8*	*3.7–14.2*	*10.9–27.9*	*8.3–24.0*
Dental insurance					
Insured	% of people	12.4	2.5	19.3	14.1
	95% CI	*8.3–18.0*	*0.4–15.8*	*10.9–31.8*	*9.1–21.1*
Uninsured	% of people	17.0	18.7	13.4	19.7
	95% CI	*10.6–26.1*	*9.0–34.8*	*5.7–28.5*	*9.6–36.1*

(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 WA, a total of 32.8% of dentate adults had at least one site with 4 mm or more CAL (Table 15), which was significantly lower 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 10.0% in 15–34-year-olds adults but affecting 64.4% of WA adults aged 55 years or more.
- There was a tendency that males had higher prevalence of CAL of 4+ mm compared with females. However, the difference was not statistically significant.
- People who had a government health card were significantly more likely to have CAL of 4+ mm compared with non-cardholders. This trend remained significant between cardholders who visited a non-public care service and non-cardholders.

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.

In summary, clinical attachment loss was prevalent in this population, and was more likely to occur in the older population and among 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**
All people	**Per cent of people**	**32.8**	**10.0**	**39.8**	**64.4**
	95% CI[(a)]	*26.6–39.7*	*4.6–20.4*	*30.8–49.5*	*55.6–72.3*
Sex					
Males	% of people	35.6	14.2	38.6	73.1
	95% CI	*25.8–46.7*	*5.4–32.5*	*24.7–54.7*	*56.2–85.2*
Females	% of people	30.1	5.7	40.9	55.9
	95% CI	*24.1–36.9*	*2.2–13.9*	*31.4–51.1*	*41.2–69.7*
Residential location					
Capital city	% of people	32.2	12.2	34.1	67.3
	95% CI	*25.8–39.3*	*5.4–25.2*	*24.0–45.8*	*57.7–75.7*
Other places	% of people	34.9	3.4	55.4	55.7
	95% CI	*20.7–52.4*	*0.4–24.2*	*41.9–68.1*	*34.3–75.1*
Postcode socioeconomic status					
Lowest	% of people	41.0	20.6	54.3	59.6
	95% CI	*28.0–55.4*	*7.5–45.3*	*42.1–66.0*	*42.1–75.0*
Middle	% of people	29.8	6.3	37.3	71.1
	95% CI	*21.3–39.9*	*2.0–18.2*	*23.6–53.4*	*60.5–79.8*
Highest	% of people	28.5	2.8	31.6	62.3
	95% CI	*20.8–37.7*	*0.5–13.7*	*18.4–48.6*	*46.7–75.7*
Government health card					
Health care card or pensioner concession card	% of people	50.3	33.8	43.6	61.9
	95% CI	*38.9–61.7*	*12.3–65.1*	*26.8–62.0*	*47.8–74.3*
Neither card	% of people	28.4	6.6	39.2	66.6
	95% CI	*21.7–36.2*	*2.7–15.3*	*29.6–49.8*	*51.4–79.0*
Place of last dental visit					
Cardholder/Public	% of people	43.0	0.0	62.0	62.6
	95% CI	*22.7–65.9*	—	*20.7–91.1*	*38.9–81.5*
Cardholder/Non-public	% of people	53.4	51.9	36.0	61.7
	95% CI	*37.9–68.2*	*14.9–86.9*	*17.9–59.1*	*44.3–76.5*
Non-cardholder/Non-public	% of people	28.4	6.6	39.2	66.6
	95% CI	*21.7–36.2*	*2.7–15.3*	*29.6–49.8*	*51.4–79.0*
Dental insurance					
Insured	% of people	36.4	4.4	45.7	62.3
	95% CI	*29.0–44.6*	*0.6–25.6*	*33.4–58.6*	*51.9–71.7*
Uninsured	% of people	29.8	17.0	30.1	69.4
	95% CI	*21.7–39.4*	*7.6–33.8*	*20.5–41.8*	*53.9–81.5*

(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 WA, a total of 10.9% of the dentate adult population had at least one site with a gingival score of 2 or more (Table 16), which was significantly lower than the national estimate of 19.7% (Slade et al. 2007).

Key findings

- Males were more likely to have gingival inflammation compared with females.
- There was a tendency that people with lower socioeconomic status were more likely to have gingival inflammation. However, none of the differences were statistically significant.

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, the differences were small and relatively low numbers of people in each population group made the confidence intervals wide, overlapping between groups.

In summary, gingival inflammation was a condition that affected males at a higher rate.

Table 16: Percentage of people with gingival inflammation

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**10.9**	**15.8**	**6.7**	**8.9**
	95% CI[(a)]	*7.2–16.1*	*9.1–25.8*	*3.3–13.1*	*4.7–16.3*
Sex					
Males	% of people	16.5	26.1	9.5	9.4
	95% CI	*9.9–26.2*	*13.3–44.8*	*3.6–22.6*	*4.0–20.4*
Females	% of people	5.3	4.8	4.0	8.5
	95% CI	*2.8–9.7*	*1.6–13.4*	*1.8–8.8*	*3.4–19.5*
Residential location					
Capital city	% of people	10.5	15.9	6.5	6.8
	95% CI	*6.5–16.5*	*8.2–28.6*	*2.7–15.1*	*3.2–13.8*
Other places	% of people	12.0	15.2	7.0	15.2
	95% CI	*5.4–24.6*	*6.2–32.9*	*2.3–19.8*	*4.3–41.5*
Postcode socioeconomic status					
Lowest	% of people	12.7	19.3	6.6	9.2
	95% CI	*5.9–25.1*	*7.1–42.9*	*2.2–18.6*	*2.5–28.5*
Middle	% of people	11.3	16.6	5.7	7.9
	95% CI	*5.6–21.5*	*7.3–33.4*	*1.8–16.9*	*2.5–22.5*
Highest	% of people	8.8	10.3	7.4	9.6
	95% CI	*4.8–15.8*	*3.9–24.6*	*2.1–22.7*	*3.8–22.4*
Government health card					
Health care card or pensioner concession card	% of people	5.3	0.0	6.9	7.4
	95% CI	*2.5–10.8*	—	*2.0–21.2*	*2.9–17.4*
Neither card	% of people	12.3	18.1	6.7	10.3
	95% CI	*8.0–18.4*	*10.7–28.9*	*3.0–14.1*	*4.3–22.9*
Place of last dental visit					
Cardholder/Public	% of people	7.3	0.0	11.5	10.0
	95% CI	*2.1–22.3*	—	*1.3–55.8*	*2.3–34.6*
Cardholder/Non-public	% of people	4.5	0.0	4.9	6.4
	95% CI	*1.9–10.4*	—	*1.3–16.6*	*1.9–19.2*
Non-cardholder/Non-public	% of people	12.3	18.1	6.7	10.3
	95% CI	*8.0–18.4*	*10.7–28.9*	*3.0–14.1*	*4.3–22.9*
Dental insurance					
Insured	% of people	8.7	12.3	7.1	6.6
	95% CI	*4.9–15.1*	*5.4–25.5*	*3.2–14.9*	*2.3–17.5*
Uninsured	% of people	14.7	21.3	6.0	14.3
	95% CI	*7.7–26.2*	*9.6–40.7*	*2.0–16.5*	*6.2–29.9*

(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 WA, 60.3% of people aged 15 years or more had visited a dentist within the last 12 months (Table 17). This estimate was not significantly different from the national estimate of 59.4% (Slade et al. 2007).

Key findings

- The percentage of adults visiting a dentist within the last 12 months varied from 57.0% for young adults to 63.2% for adults aged 55 years or more.
- A similar percentage of males and females reported visiting a dentist within the last 12 months (56.9% versus 63.7%). Differences by gender were largest in the 55 years or more age group (57.8% versus 68.2%), although this was not statistically significant.
- The percentage was higher among Perth residents than those living in the rest of WA (62.4% versus 54.2%). Similar results were observed within each age group.
- There was some variation by socioeconomic status although differences were not statistically significant. The largest difference between high and low socioeconomic postcodes occurred in the 55 years or more age group (70.9% versus 54.9%).
- People with a government health card were equally likely to have visited a dentist in the last 12 months as those without (59.9% versus 60.4%). There was some variation between cardholders and non-cardholders within the older age groups but no consistent pattern emerged.
- Among people who had a government health card, those who attended a public practice at their last dental visit were more likely to have attended within the preceding year than those who attended a private practice (64.3% versus 58.1%). This was mainly due to cardholders aged 35–54 years (89.8% versus 61.4%).
- Insured people were more likely to have recently visited a dentist than uninsured persons (68.7% versus 50.8%). This difference was mainly attributable to adults aged 15–34 years (71.0% versus 44.8%).

Discussion

Six out of 10 WA residents aged 15 years or more visited a dentist within the preceding 12 months. Dental insurance was the only sociodemographic characteristic associated with recent dental visiting. Differences between insured and uninsured groups were most evident for young adults.

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

		Population: all people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**60.3**	**57.0**	**61.4**	**63.2**
	95% CI[(a)]	*56.8–63.8*	*50.9–62.8*	*56.0–66.5*	*57.9–68.2*
Sex					
Males	% of people	56.9	56.0	57.0	57.8
	95% CI	*53.1–60.6*	*47.3–64.5*	*49.6–64.1*	*50.0–65.2*
Females	% of people	63.7	57.9	65.7	68.2
	95% CI	*58.9–68.4*	*50.4–65.0*	*59.0–71.9*	*62.0–73.9*
Residential location					
Capital city	% of people	62.4	59.2	63.0	66.0
	95% CI	*58.6–66.2*	*52.6–65.5*	*57.1–68.6*	*59.3–72.0*
Other places	% of people	54.2	50.0	56.9	55.5
	95% CI	*45.9–62.2*	*36.3–63.6*	*45.1–67.9*	*47.6–63.2*
Postcode socioeconomic status					
Lowest	% of people	53.7	51.3	55.1	54.9
	95% CI	*46.4–60.9*	*39.9–62.5*	*43.6–66.1*	*49.1–60.5*
Middle	% of people	60.2	55.4	62.3	64.6
	95% CI	*55.8–64.4*	*44.9–65.4*	*53.6–70.2*	*58.4–70.3*
Highest	% of people	66.4	64.0	65.2	70.9
	95% CI	*60.7–71.6*	*55.2–72.0*	*57.4–72.2*	*58.1–81.0*
Government health card					
Health care card or pensioner concession card	% of people	59.9	58.1	69.3	57.9
	95% CI	*53.5–66.1*	*43.7–71.3*	*56.0–80.1*	*51.5–64.1*
Neither card	% of people	60.4	56.5	60.3	69.4
	95% CI	*56.3–64.4*	*50.1–62.8*	*54.6–65.7*	*60.5–77.0*
Place of last dental visit					
Cardholder/Public	% of people	64.3	52.5	89.8	63.7
	95% CI	*53.7–73.7*	*28.3–75.6*	*71.6–96.8*	*50.6–75.0*
Cardholder/Non-public	% of people	58.1	62.2	61.4	55.9
	95% CI	*51.1–64.7*	*40.7–79.8*	*45.6–75.0*	*48.4–63.1*
Non-cardholder/Non-public	% of people	60.4	56.5	60.3	69.4
	95% CI	*56.3–64.4*	*50.1–62.8*	*54.6–65.7*	*60.5–77.0*
Dental insurance					
Insured	% of people	68.7	71.0	67.7	67.4
	95% CI	*63.7–73.3*	*62.9–78.0*	*60.5–74.1*	*59.3–74.6*
Uninsured	% of people	50.8	44.8	51.0	58.2
	95% CI	*45.5–56.0*	*35.0–54.9*	*42.7–59.3*	*50.4–65.5*

(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 NSOAH, 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 WA, 83.2% of people aged 15 years or more attended a private practice at their last dental visit (Table 18). This estimate was not significantly different from the national estimate of 83.1% (Slade et al. 2007).

Key findings

- Adults aged 35–54 years were more likely to have visited a private dental practice at their last dental visit (91.6%) than those aged 15–34 years (75.9%) or 55 years or more (81.5%).
- The percentages of males and females were very similar for all ages combined (81.9% versus 84.5%) and within age groups.
- Perth residents were more likely to have visited a private dentist than those living in the rest of WA (85.6% versus 76.2%) although this difference was not statistically significant. The largest difference was observed in adults aged 15–34 years (80.5% versus 61.2%).
- Residents living in high socioeconomic postcodes were more likely to have visited a private practice than those living in postcodes of low socioeconomic status (91.1% versus 77.8%). This difference was mainly attributable to the 15–34 years age group (90.4% versus 65.7%).
- Despite having a government health card, 67.6% of cardholders reported that they visited a private practice at their last dental visit. The percentage was lower, although not significantly so, for cardholders aged 15–34 years (57.5%) compared to other ages.
- Insured people were more likely to have visited a private practice at their last dental visit than those without dental insurance (91.5% versus 73.4%). Within age groups, the largest difference was observed for those aged 55 years or more (93.2% versus 67.0%).

Discussion

Over eight out of ten WA residents visited a private practice at their last dental visit. Having dental insurance, being aged 35–54 years and living in areas of high socioeconomic status were associated with private visiting. Differences by socioeconomic status were most evident in young adults, whereas differences between insurance groups were largest for adults aged 55 years or more. Despite having a government health card, two-thirds of cardholders attended a private practice at their last dental visit, which is most likely due to 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**
All people	**Per cent of people**	**83.2**	**75.9**	**91.6**	**81.5**
	95% CI[(a)]	*79.5–86.4*	*69.1–81.6*	*85.2–95.3*	*77.3–85.1*
Sex					
Males	% of people	81.9	73.9	90.6	80.7
	95% CI	*77.1–85.9*	*65.3–80.9*	*82.6–95.2*	*74.6–85.5*
Females	% of people	84.5	78.0	92.5	82.4
	95% CI	*80.1–88.2*	*68.5–85.2*	*86.4–96.0*	*76.9–86.8*
Residential location					
Capital city	% of people	85.6	80.5	94.1	81.2
	95% CI	*82.1–88.6*	*73.3–86.2*	*91.0–96.2*	*75.7–85.7*
Other places	% of people	76.2	61.2	84.5	82.5
	95% CI	*65.8–84.3*	*44.7–75.5*	*62.2–94.8*	*76.9–86.9*
Postcode socioeconomic status					
Lowest	% of people	77.8	65.7	90.2	78.3
	95% CI	*73.1–81.8*	*52.6–76.8*	*83.8–94.2*	*71.3–84.0*
Middle	% of people	80.2	71.6	87.9	81.5
	95% CI	*71.7–86.6*	*60.4–80.6*	*69.4–95.9*	*75.2–86.5*
Highest	% of people	91.1	90.4	96.0	85.0
	95% CI	*87.6–93.7*	*81.4–95.3*	*92.8–97.8*	*76.9–90.6*
Government health card					
Health care card or pensioner concession card	% of people	67.6	57.5	70.2	70.7
	95% CI	*62.4–72.4*	*43.0–70.9*	*55.4–81.8*	*64.6–76.1*
Neither card	% of people	88.4	79.3	94.4	94.1
	95% CI	*84.2–91.6*	*72.3–85.0*	*88.0–97.5*	*89.8–96.6*
Dental insurance					
Insured	% of people	91.5	82.3	97.6	93.2
	95% CI	*87.9–94.2*	*74.3–88.2*	*92.6–99.2*	*89.1–95.8*
Uninsured	% of people	73.4	71.5	81.4	67.0
	95% CI	*68.7–77.6*	*61.4–79.8*	*72.2–88.1*	*60.8–72.7*

(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 WA, 90.0% of people aged 15 years or more who had seen a dentist within the preceding 5 years paid for that visit (Table 19). This estimate was not significantly different from the national estimate of 91.4% (Slade et al. 2007).

Key findings

- WA residents aged 55 years or more were less likely to have paid for their last dental visit (78.8%) than those aged 35–54 years (95.5%) or 15–34 years (92.8%).
- The percentage was similar for males and females (91.2% versus 88.8%). Within age groups, variations between the sexes remained small.
- People living outside the metropolitan area were equally likely to have paid for their last dental visit as Perth residents (88.5% versus 90.5%). Within age groups, there was some variation among young adults (86.9% versus 94.7%) but this difference was not statistically significant.
- People living in high socioeconomic postcodes were more likely to have paid for their last dental visit than those living in low socioeconomic postcodes (94.1% versus 84.2%). This difference was mainly attributable to the 55 years or more age group (87.8% versus 73.1%).
- Despite having a government health card, 59.2% of cardholders who visited a dentist within the preceding 5 years paid for their last dental visit.
- Over 96% of people with dental insurance paid for their last dental visit compared with 80.5% of uninsured people. Within the uninsured population, the percentage was lowest for those aged 55 years or more (60.4%).

Discussion

The majority of adults with a government health card 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**
All people	**Per cent of people**	**90.0**	**92.8**	**95.5**	**78.8**
	95% CI[(a)]	*87.3–92.2*	*88.4–95.6*	*92.6–97.3*	*73.3–83.5*
Sex					
Males	% of people	91.2	95.4	96.0	78.6
	95% CI	*87.4–94.0*	*88.9–98.2*	*89.7–98.5*	*72.1–84.0*
Females	% of people	88.8	90.0	95.1	79.0
	95% CI	*85.3–91.5*	*82.7–94.5*	*91.3–97.2*	*71.4–85.0*
Residential location					
Capital city	% of people	90.5	94.7	94.8	79.1
	95% CI	*87.2–93.0*	*90.0–97.2*	*90.9–97.1*	*71.6–85.0*
Other places	% of people	88.5	86.9	97.3	78.1
	95% CI	*83.4–92.2*	*74.9–93.7*	*94.3–98.8*	*74.6–81.2*
Postcode socioeconomic status					
Lowest	% of people	84.2	85.8	92.8	73.1
	95% CI	*78.9–88.3*	*75.4–92.3*	*85.0–96.7*	*66.2–79.0*
Middle	% of people	90.8	95.2	96.6	74.1
	95% CI	*87.6–93.3*	*89.6–97.8*	*92.6–98.4*	*62.0–83.4*
Highest	% of people	94.1	96.6	96.4	87.8
	95% CI	*90.7–96.3*	*88.4–99.1*	*91.0–98.6*	*80.5–92.6*
Government health card					
Health care card or pensioner concession card	% of people	59.2	58.0	62.3	58.8
	95% CI	*53.6–64.7*	*42.0–72.5*	*48.5–74.3*	*51.5–65.7*
Neither card	% of people	100.0	100.0	100.0	100.0
	95% CI	—	—	—	—
Place of last dental visit					
Cardholder/Public	% of people	15.8	19.0	17.2	13.2
	95% CI	*8.7–27.1*	*4.7–52.9*	*5.1–44.4*	*6.3–25.7*
Cardholder/Non-public	% of people	79.5	87.1	81.2	76.4
	95% CI	*73.0–84.8*	*68.6–95.4*	*61.4–92.2*	*67.8–83.3*
Non-cardholder/Non-public	% of people	100.0	100.0	100.0	100.0
	95% CI	—	—	—	—
Dental insurance					
Insured	% of people	96.5	95.6	100.0	92.4
	95% CI	*94.3–97.9*	*88.6–98.4*	—	*89.1–94.8*
Uninsured	% of people	80.5	90.0	87.2	60.4
	95% CI	*75.8–84.4*	*82.0–94.7*	*80.3–92.0*	*51.9–68.2*

(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 WA, 4.3% 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 were more likely than younger people to receive state-subsidised dental care in private practice, although the difference was statistically significant only in comparison with 35-54-year-olds.
- In contrast, the age-related pattern was not significant in the group of people who had a government health card, among whom 17.4% received state-subsidised dental care in private practice.
- The percentage was higher for people living in postcodes with the lowest 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 WA 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**
All people	**Per cent of people**	**4.3**	**3.7**	**1.6**	**8.7**
	95% CI[(a)]	3.0–6.1	1.7–7.8	0.6–3.9	5.9–12.8
Sex					
Males	% of people	4.4	3.7	1.6	9.5
	95% CI	2.6–7.5	1.2–10.6	0.5–5.0	5.4–16.1
Females	% of people	4.2	3.7	1.6	8.1
	95% CI	2.5–6.9	1.3–10.4	0.4–5.9	4.2–15.0
Residential location					
Capital city	% of people	4.1	3.5	2.1	7.6
	95% CI	2.7–6.3	1.4–8.4	0.8–5.2	4.2–13.2
Other places	% of people	4.8	4.2	0.0	12.3
	95% CI	2.4–9.3	1.0–16.9	—	9.0–16.5
Postcode socioeconomic status					
Lowest	% of people	7.1	7.1	1.7	12.7
	95% CI	4.6–10.7	2.7–17.3	0.5–5.8	9.6–16.7
Middle	% of people	4.3	2.5	1.8	11.4
	95% CI	2.3–7.9	0.6–9.7	0.4–7.5	4.9–24.5
Highest	% of people	1.9	1.8	1.3	3.0
	95% CI	0.9–4.2	0.2–12.5	0.2–8.5	1.1–7.8
Government health card					
Health care card or pensioner concession card	% of people	17.4	21.4	13.2	17.0
	95% CI	12.9–23.1	10.0–39.9	5.5–28.5	12.0–23.6
Neither card	% of people	0.0	0.0	0.0	0.0
	95% CI	—	—	—	—
Dental insurance					
Insured	% of people	1.6	1.1	0.0	4.7
	95% CI	0.9–2.9	0.2–8.0	—	2.9–7.5
Uninsured	% of people	7.6	5.7	4.5	13.8
	95% CI	5.1–11.3	2.4–13.0	1.8–10.6	8.9–20.6

(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 WA, 56.1% of people aged 15 years or more usually visit a dentist at least once a year (Table 21). This estimate was not significantly different from the national estimate of 53.1% (Slade et al. 2007).

Key findings

- Among age groups, people aged 55 years or more were most likely to attend one or more times a year (61.0%) but this was not significantly different from younger age groups (54%).
- The percentage was slightly higher for females than males (59.9% versus 52.2%), and similar small differences were observed within each age group.
- Perth residents were far more likely to usually visit one or more times a year than other residents of WA (61.2% versus 40.8%). Large differences by residential location were also evident within each age group.
- Socioeconomic status was strongly associated with dental visiting behaviour, with residents of high socioeconomic postcodes much more likely to usually visit one or more times a year than those in low socioeconomic postcodes (67.0% versus 45.3%). Similar differences between socioeconomic groups were evident in all age groups.
- People holding a government health were less likely to attend annually than non-health cardholders (51.7% versus 57.2%). Within age groups, the largest difference occurred in the 35–54 years age group (42.8% versus 56.2%) although this difference was not significant.
- Among government health cardholders, people who visited a public practice at their last dental visit were nearly as likely to usually visit one or more times a year as those who visited a private practice (49.1% versus 52.9%). A large difference was evident for 35–54-year-olds (29.1% versus 48.0%), although this difference was not statistically significant due to large confidence intervals around these estimates.
- Insured people were far more likely to usually visit a dentist one or more times a year than uninsured people (67.1% versus 40.0%). Large differences by insurance status were evident in all age groups.

Discussion

Over 55% of WA residents aged 15 years or more usually visit the dentist at least once a year. Residing in the metropolitan region, living in areas of high socioeconomic status and having dental insurance were all associated with regular dental visiting. The fact that residents living outside the metropolitan area are less likely to regularly visit the dentist than Perth residents may reflect difficulty in accessing dental services in country areas.

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**
All people	**Per cent of people**	**56.1**	**54.3**	**54.6**	**61.0**
	95% CI[(a)]	*52.5–59.6*	*50.0–58.5*	*48.2–60.9*	*54.3–67.2*
Sex					
Males	% of people	52.2	51.4	50.2	56.7
	95% CI	*48.0–56.3*	*43.6–59.2*	*42.4–57.9*	*46.4–66.4*
Females	% of people	59.9	57.3	59.1	65.0
	95% CI	*54.4–65.2*	*49.2–65.1*	*51.2–66.6*	*57.3–72.0*
Residential location					
Capital city	% of people	61.2	59.5	60.2	65.2
	95% CI	*56.7–65.4*	*54.8–64.1*	*52.5–67.5*	*56.6–73.0*
Other places	% of people	40.8	37.5	39.0	48.5
	95% CI	*35.4–46.5*	*27.9–48.3*	*30.2–48.7*	*40.3–56.8*
Postcode socioeconomic status					
Lowest	% of people	45.3	47.0	42.9	46.1
	95% CI	*39.1–51.6*	*38.2–55.9*	*32.3–54.1*	*39.2–53.2*
Middle	% of people	54.1	53.7	50.2	61.8
	95% CI	*47.9–60.1*	*45.7–61.4*	*38.3–62.1*	*50.4–72.0*
Highest	% of people	67.0	61.7	67.2	74.0
	95% CI	*61.7–71.9*	*54.6–68.4*	*57.8–75.4*	*62.7–82.9*
Government health card					
Health care card or pensioner concession card	% of people	51.7	48.5	42.8	56.8
	95% CI	*46.1–57.3*	*34.7–62.6*	*31.7–54.7*	*48.9–64.4*
Neither card	% of people	57.2	55.2	56.2	64.9
	95% CI	*53.3–61.0*	*50.5–59.9*	*49.4–62.7*	*55.0–73.6*
Place of last dental visit					
Cardholder/Public	% of people	49.1	46.0	29.1	59.8
	95% CI	*38.4–59.9*	*24.9–68.7*	*12.6–53.9*	*45.9–72.2*
Cardholder/Non-public	% of people	52.9	50.4	48.0	55.7
	95% CI	*46.4–59.3*	*33.1–67.5*	*33.8–62.5*	*47.0–64.1*
Non-cardholder/Non-public	% of people	57.2	55.2	56.2	64.9
	95% CI	*53.3–61.0*	*50.5–59.9*	*49.4–62.7*	*55.0–73.6*
Dental insurance					
Insured	% of people	67.1	67.1	66.0	68.9
	95% CI	*62.7–71.2*	*59.7–73.7*	*58.5–72.8*	*61.8–75.2*
Uninsured	% of people	40.0	38.4	35.5	49.1
	95% CI	*35.5–44.6*	*30.4–47.0*	*28.1–43.7*	*39.4–58.9*

(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 WA, 75.7% 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 lower, but not significantly, than 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 lowest for those adults in the 15–34 years age group (71.5%), and increased toward the oldest (55 years or more) age group (81.0%). However, differences between age groups were not statistically significant.
- For all ages combined and across age groups, there were no significant differences by sex or among groups classified by residential location.
- For all ages combined, those 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 (73.7% versus 85.5%). Similarly, the percentage was lower among people living in middle socioeconomic postcodes than those in high socioeconomic postcodes for all ages combined (66.9% versus 85.5%) and for people aged 15–34 years (63.6% versus 82.9%) and 35–54 years (66.0% versus 86.6%).
- Among those aged 35–54 years, government health cardholders recorded significantly lower percentages than non-cardholders (58.6% versus 78.7%).
- Within the population of government health cardholders, people whose last dental visit was to the public sector were less likely to report having a dentist they usually attend than those who visited elsewhere (44.1% versus 78.3%). This difference was mainly attributable to those aged 35–54 years (24.4% versus 72.3%).
- The percentage of adults who reported having a dentist they usually attend was significantly higher among people with dental insurance than those without (85.1% versus 61.5%). Statistically significant differences were observed in the 35–54 years (87.0% versus 56.6%) and 55 years or more (90.2% versus 67.3%) age groups.

Discussion

In summary, just over three-quarters of WA adults reported that they usually visit the same dentist. This type of visiting was more frequent among the older age groups, government health cardholders who last visited non-publicly, those living in high socioeconomic postcodes and the 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**
All people	**Per cent of people**	**75.7**	**71.5**	**76.4**	**81.0**
	95% CI[(a)]	*71.6–79.4*	*65.1–77.1*	*71.1–81.0*	*75.4–85.6*
Sex					
Males	% of people	72.0	66.4	71.3	82.2
	95% CI	*66.0–77.3*	*55.8–75.6*	*63.0–78.3*	*75.2–87.6*
Females	% of people	79.3	76.8	81.1	80.0
	95% CI	*75.0–83.0*	*69.8–82.6*	*74.5–86.3*	*72.2–86.0*
Residential location					
Capital city	% of people	77.4	73.8	78.0	81.9
	95% CI	*72.4–81.8*	*66.4–80.0*	*72.5–82.7*	*75.1–87.2*
Other places	% of people	70.5	64.3	71.5	78.1
	95% CI	*64.1–76.1*	*50.8–75.9*	*58.1–81.9*	*68.1–85.6*
Postcode socioeconomic status					
Lowest	% of people	73.7	67.6	75.5	80.1
	95% CI	*68.5–78.3*	*56.1–77.3*	*68.7–81.3*	*70.5–87.2*
Middle	% of people	66.9	63.6	66.0	74.2
	95% CI	*61.1–72.2*	*53.0–73.1*	*57.8–73.3*	*61.3–83.9*
Highest	% of people	85.5	82.9	86.6	87.0
	95% CI	*80.6–89.3*	*74.7–88.9*	*79.5–91.5*	*80.7–91.5*
Government health card					
Health care card or pensioner concession card	% of people	67.4	57.8	58.6	76.0
	95% CI	*59.8–74.2*	*40.1–73.7*	*42.6–72.9*	*66.9–83.2*
Neither card	% of people	78.1	74.2	78.7	85.5
	95% CI	*73.8–81.9*	*66.3–80.8*	*73.5–83.2*	*79.5–90.0*
Place of last dental visit					
Cardholder/Public	% of people	44.1	34.3	24.4	59.9
	95% CI	*30.0–59.3*	*12.5–65.8*	*8.1–54.1*	*41.6–75.9*
Cardholder/Non-public	% of people	78.3	74.8	72.3	82.1
	95% CI	*70.4–84.5*	*50.9–89.4*	*54.6–85.0*	*72.1–89.1*
Non-cardholder/Non-public	% of people	78.1	74.2	78.7	85.5
	95% CI	*73.8–81.9*	*66.3–80.8*	*73.5–83.2*	*79.5–90.0*
Dental insurance					
Insured	% of people	85.1	79.0	87.0	90.2
	95% CI	*80.9–88.6*	*71.6–84.8*	*81.7–91.0*	*84.3–94.0*
Uninsured	% of people	61.5	62.2	56.6	67.3
	95% CI	*55.5–67.1*	*50.9–72.4*	*47.6–65.1*	*57.4–75.8*

(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 WA, 59.8% of the adult dentate population reported usually visiting a dentist for a check-up (Table 23), which was higher, but not significantly, than the national estimate of 56.2% (Slade et al. 2007).

Key findings

- Although a higher percentage of adults aged 15–34 years reported usually visiting for a check-up (64.9%) compared with those aged 35–54 years (55.1%) and 55 years or more (59.4%), differences between age groups were not statistically significant.
- The percentage was higher among females than males (63.4% versus 56.2%). This pattern was consistent across all age groups although differences within age groups were not statistically significant.
- Adults living in Perth were more likely to report usually visiting a dentist for a check-up than those living in the rest of the state (65.0% versus 44.4%). This difference was mainly attributable to those aged 35–54 years (60.9% versus 38.8%).
- The percentage of adults reporting usually visiting for a check-up was significantly lower for adults living in low socioeconomic postcodes (49.7%) than high socioeconomic postcodes (73.4%). Statistically significant differences were observed in the 35–54 years (43.3% versus 69.0%) and 55 years or more (50.9% versus 71.6%) age groups. The percentage among those living in postcodes with middle socioeconomic status was also significantly lower compared with those living in postcodes with high socioeconomic status, both for all ages combined (54.5% versus 73.4%) and for people aged 35–54 years (49.3% versus 69.0%).
- For all ages combined and across all age groups there was little variation among groups classified by government health cardholder status. Percentages were lower for cardholders compared with non-cardholders (55.7% versus 60.9%).
- Within the population of government health cardholders, people whose last dental visit was to the public sector recorded a lower percentage than those who attended elsewhere. This pattern was consistent across all age groups although differences within age groups were not statistically significant due to large CIs.
- The percentage was significantly higher among adults with dental insurance than for the uninsured (68.0% versus 48.0%). Statistically significant differences were observed in the 15–34 years (77.3% versus 50.2%) and 35–54 years (62.2% versus 43.1%) age groups.

Discussion

In summary, just over half of the adult population usually visit the dentist for a check-up, with this percentage being slightly higher for adults aged 15–34 years. Usually visiting for a check-up was significantly associated with living in Perth, living in high socioeconomic postcodes and having dental insurance. The strongest association was with dental insurance status, with check-up visiting markedly more frequent among those with dental insurance.

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**
All people	**Per cent of people**	**59.8**	**64.9**	**55.1**	**59.4**
	95% CI[(a)]	*55.3–64.2*	*57.6–71.5*	*49.3–60.8*	*53.4–65.1*
Sex					
Males	% of people	56.2	63.7	50.4	53.3
	95% CI	*51.1–61.2*	*53.4–72.8*	*42.8–58.0*	*45.8–60.7*
Females	% of people	63.4	66.1	59.7	65.1
	95% CI	*57.5–69.0*	*57.1–74.1*	*51.2–67.7*	*57.9–71.7*
Residential location					
Capital city	% of people	65.0	70.7	60.9	62.4
	95% CI	*59.5–70.2*	*63.0–77.4*	*54.3–67.1*	*54.8–69.5*
Other places	% of people	44.4	46.6	38.8	50.5
	95% CI	*36.8–52.4*	*30.2–63.7*	*29.2–49.3*	*44.8–56.1*
Postcode socioeconomic status					
Lowest	% of people	49.7	54.8	43.3	50.9
	95% CI	*44.0–55.4*	*41.6–67.4*	*33.7–53.3*	*44.0–57.8*
Middle	% of people	54.5	59.7	49.3	53.9
	95% CI	*47.8–61.0*	*48.7–69.8*	*40.1–58.6*	*45.0–62.6*
Highest	% of people	73.4	80.0	69.0	71.6
	95% CI	*65.1–80.4*	*67.3–88.6*	*59.2–77.4*	*61.3–80.0*
Government health card					
Health care card or pensioner concession card	% of people	55.7	61.5	48.6	55.4
	95% CI	*49.3–61.9*	*42.9–77.2*	*36.3–61.1*	*47.8–62.8*
Neither card	% of people	60.9	65.4	55.9	63.1
	95% CI	*56.1–65.5*	*58.3–71.8*	*49.8–61.9*	*54.6–71.0*
Place of last dental visit					
Cardholder/Public	% of people	46.1	49.8	19.9	53.4
	95% CI	*32.7–60.2*	*24.9–74.9*	*6.9–45.5*	*37.2–69.0*
Cardholder/Non-public	% of people	60.0	70.0	59.4	56.1
	95% CI	*52.4–67.1*	*45.2–86.9*	*44.0–73.1*	*45.3–66.3*
Non-cardholder/Non-public	% of people	60.9	65.4	55.9	63.1
	95% CI	*56.1–65.5*	*58.3–71.8*	*49.8–61.9*	*54.6–71.0*
Dental insurance					
Insured	% of people	68.0	77.3	62.2	65.4
	95% CI	*62.4–73.1*	*68.0–84.5*	*55.0–68.9*	*57.6–72.4*
Uninsured	% of people	48.0	50.2	43.1	51.2
	95% CI	*44.1–52.0*	*41.8–58.6*	*35.3–51.4*	*41.9–60.5*

(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 WA, they represented 30.9% of the population aged 15 years or more (Table 24), which was only slightly higher, but not significantly, 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 (33.7% of adults aged 15–34 years and 36.5% of those aged 35–54 years compared with 20.1% in the 55 years or more age group).
- The percentage was higher among females than males (35.5% versus 26.3%) but this difference and differences within age groups were not statistically significant.
- For all ages combined and across all age groups, there was little variation in the percentages among groups classified by residential location or postcode socioeconomic status.
- For all ages combined and across all age groups, there was little variation in the percentage of people reporting that they had avoided or delayed care due to cost among groups classified by government health cardholder status. The percentage was only slightly lower for cardholders than non-cardholders (31.0% versus 30.7%).
- Within the population of government health cardholders, the percentage reporting that they had avoided or delayed care due to cost was greater for people whose last dental visit was to the public sector compared with those who attended elsewhere. However, 95% CIs were large in these groups, with the consequence that differences were not statistically significant.
- For all ages combined, the percentage was significantly higher among uninsured than insured adults (42.2% versus 23.5%). Statistically significant differences were observed in the 15–34 years (51.1% versus 21.7%) and 35–54 years (47.2% versus 30.0%) age groups.

Discussion

Adults aged 55 years or more were less likely to report that they had avoided or delayed dental care due to cost compared with their younger counterparts. Dental insurance showed a strong association 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**
All people	**Per cent of people**	**30.9**	**33.7**	**36.5**	**20.1**
	95% CI[(a)]	*27.2–34.8*	*28.1–39.7*	*31.2–42.1*	*16.5–24.1*
Sex					
Males	% of people	26.3	27.2	33.1	15.8
	95% CI	*21.7–31.4*	*20.3–35.5*	*26.3–40.6*	*11.2–21.7*
Females	% of people	35.5	40.4	39.9	24.0
	95% CI	*30.8–40.4*	*32.7–48.6*	*32.6–47.7*	*19.5–29.3*
Residential location					
Capital city	% of people	31.3	33.0	37.0	21.9
	95% CI	*26.9–36.1*	*27.3–39.2*	*30.6–43.8*	*17.6–26.8*
Other places	% of people	29.6	35.8	35.2	15.0
	95% CI	*23.7–36.3*	*22.5–51.7*	*26.5–45.0*	*9.7–22.6*
Postcode socioeconomic status					
Lowest	% of people	33.8	38.0	43.6	19.6
	95% CI	*27.5–40.7*	*27.2–50.1*	*36.5–51.0*	*13.1–28.3*
Middle	% of people	28.6	30.4	33.3	18.6
	95% CI	*23.7–34.2*	*23.3–38.6*	*26.0–41.5*	*13.4–25.2*
Highest	% of people	30.4	33.2	34.2	21.8
	95% CI	*23.9–37.9*	*24.1–43.7*	*24.7–45.3*	*16.6–28.2*
Government health card					
Health care card or pensioner concession card	% of people	30.7	40.7	55.5	19.7
	95% CI	*24.7–37.4*	*26.3–56.9*	*39.8–70.1*	*14.3–26.6*
Neither card	% of people	31.0	32.4	33.9	20.2
	95% CI	*27.0–35.2*	*26.9–38.6*	*28.6–39.8*	*15.2–26.4*
Place of last dental visit					
Cardholder/Public	% of people	27.2	38.6	44.0	15.0
	95% CI	*17.7–39.3*	*16.5–66.7*	*19.2–72.1*	*7.2–28.8*
Cardholder/Non-public	% of people	32.2	42.3	60.0	21.4
	95% CI	*25.2–40.0*	*25.8–60.7*	*42.9–75.0*	*15.1–29.5*
Non-cardholder/Non-public	% of people	31.0	32.4	33.9	20.2
	95% CI	*27.0–35.2*	*26.9–38.6*	*28.6–39.8*	*15.2–26.4*
Dental insurance					
Insured	% of people	23.5	21.7	30.0	15.9
	95% CI	*19.9–27.5*	*15.8–29.0*	*23.5–37.4*	*11.6–21.5*
Uninsured	% of people	42.2	51.1	47.2	25.4
	95% CI	*36.3–48.2*	*40.4–61.8*	*38.8–55.7*	*19.4–32.5*

(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 WA, they represented 22.4% of the population aged 15 years or more (Table 25), which was higher, but not significantly, 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 (29.7% of adults aged 35–54 years compared with 16.5% of those aged 55 years or more).
- For all ages combined and across age groups, there were no significant differences by sex or among groups classified by residential location.
- Among adults aged 15–34 years, those living in postcodes with low socioeconomic status were significantly more likely to report forgoing recommended dental treatment due to cost than those in postcodes with middle socioeconomic status (31.3% versus 12.7%).
- For all ages combined and across all age groups, there were no significant differences by government health cardholder status. Note that because 95% CIs were large in some groups, the differences observed were not statistically significant.
- Within the population of government health cardholders, no statistically significant differences were observed among groups classified by place of last dental visit, both for all ages combined and across all age groups. Lack of statistically significant differences was a consequence of large 95% CIs in these groups. Among those aged 15–34 years, the percentage was higher for people whose last dental visit was to the public sector than for those who attended elsewhere (37.7% versus 19.9%). However, among the two older age groups, the percentage was lower for people whose last dental visit was to the public sector than for those who attended elsewhere (25.8% versus 39.4% among those aged 35–54-year-olds; 12.4% versus 13.8% among those aged 55 years or more).
- For all ages combined, the percentage of adults reporting that they had forgone recommended dental care due to cost was significantly higher among people with no dental insurance than for the insured (29.3% versus 18.6%). This difference was mainly attributable to those aged 15–34 years (32.4% versus 10.8%).

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
All people	**Per cent of people**	**22.4**	**19.1**	**29.7**	**16.5**
	95% CI[(a)]	*19.6–25.5*	*14.3–25.0*	*24.6–35.4*	*12.5–21.4*
Sex					
Males	% of people	21.0	16.8	30.3	13.7
	95% CI	*17.5–25.1*	*10.2–26.4*	*23.3–38.2*	*8.6–21.1*
Females	% of people	23.7	21.6	29.2	18.8
	95% CI	*20.1–27.8*	*15.6–29.2*	*22.8–36.6*	*13.4–25.6*
Residential location					
Capital city	% of people	21.2	16.9	29.1	15.9
	95% CI	*17.8–25.1*	*11.9–23.3*	*22.9–36.2*	*11.3–21.9*
Other places	% of people	26.3	26.5	31.6	18.3
	95% CI	*22.6–30.3*	*16.6–39.5*	*23.5–41.0*	*11.9–27.1*
Postcode socioeconomic status					
Lowest	% of people	29.1	31.3	36.1	18.8
	95% CI	*23.0–36.0*	*22.5–41.6*	*25.9–47.8*	*12.7–26.9*
Middle	% of people	19.5	12.7	27.6	16.4
	95% CI	*16.3–23.1*	*7.6–20.3*	*22.1–34.0*	*10.5–24.7*
Highest	% of people	19.7	15.1	27.1	14.3
	95% CI	*16.0–23.9*	*9.5–23.3*	*18.4–38.1*	*8.1–24.2*
Government health card					
Health care card or pensioner concession card	% of people	21.0	28.0	34.9	13.3
	95% CI	*16.2–26.7*	*13.8–48.5*	*22.3–49.9*	*9.1–19.1*
Neither card	% of people	22.9	17.5	29.0	19.5
	95% CI	*19.3–27.0*	*12.4–24.2*	*23.8–34.9*	*13.2–28.0*
Place of last dental visit					
Cardholder/Public	% of people	22.9	37.7	25.8	12.4
	95% CI	*12.3–38.6*	*13.7–69.9*	*6.8–62.5*	*5.4–25.7*
Cardholder/Non-public	% of people	20.0	19.9	39.4	13.8
	95% CI	*15.0–26.1*	*6.8–45.9*	*25.4–55.3*	*8.6–21.4*
Non-cardholder/Non-public	% of people	22.9	17.5	29.0	19.5
	95% CI	*19.3–27.0*	*12.4–24.2*	*23.8–34.9*	*13.2–28.0*
Dental insurance					
Insured	% of people	18.6	10.8	25.8	16.9
	95% CI	*15.1–22.8*	*7.2–16.0*	*19.4–33.4*	*10.9–25.4*
Uninsured	% of people	29.3	32.4	37.7	15.9
	95% CI	*24.0–35.2*	*23.1–43.3*	*29.1–47.1*	*10.1–24.1*

(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 15.4% of the WA population aged 15 years or more (Table 26), which was lower, but not significantly, than the national estimate of 18.2% (Slade et al. 2007).

Key findings

- Across age groups, there was little variation in the percentage of adults who reported difficulty paying a $100 dental bill. There was a higher percentage in the youngest (15–34 years) age group (18.0%) compared with those aged 35–54 years (14.6%) and 55 years or more (13.2%). However, differences between age groups were not statistically significant.
- For all ages combined, a significantly greater percentage of females reported that they would have difficulty paying a $100 dental bill compared with males (19.5% versus 11.3%). This difference was mainly attributable to those aged 55 years or more (18.6% versus 7.4%).
- For people of all ages and across age groups, there was little variation among groups classified by residential location or postcode socioeconomic status.
- Government health cardholder status was associated with some of the largest differences observed between population groups in the percentage of adults reporting that they would have difficulty paying a $100 dental bill. For those aged 15–34 years and 35–54 years, the percentage was almost four-fold greater among people who had a government health card compared with people who did not. For those aged 55 years or more, the percentage was almost five-fold greater among cardholders compared with non-cardholders.
- 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 those who attended elsewhere. However, among cardholders aged 15–34 years, percentages were lower among people who last visited publicly compared with those who attended elsewhere (40.5% versus 50.6%). Note that because 95% CIs were large in these groups, the differences were not statistically significant.
- The percentage of adults reporting that they had would have difficulty paying a $100 dental bill was significantly higher among people with no dental insurance than for the insured (23.4% versus 9.3%). This pattern was consistent across all age groups.

Discussion

In summary, government health cardholder status and dental insurance status were strongly associated with having a lot of difficulty paying a $100 dental bill.

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**
All people	**Per cent of people**	**15.4**	**18.0**	**14.6**	**13.2**
	95% CI[(a)]	*13.3–17.8*	*14.0–22.8*	*11.3–18.8*	*10.4–16.7*
Sex					
Males	% of people	11.3	14.2	11.5	7.4
	95% CI	*8.7–14.7*	*9.8–20.1*	*7.1–18.2*	*4.7–11.6*
Females	% of people	19.5	22.1	17.7	18.6
	95% CI	*16.7–22.6*	*15.9–29.8*	*13.4–23.0*	*14.7–23.3*
Residential location					
Capital city	% of people	15.3	16.4	14.5	14.7
	95% CI	*12.7–18.2*	*12.0–22.1*	*10.5–19.7*	*11.3–19.0*
Other places	% of people	15.9	23.1	15.0	9.0
	95% CI	*12.2–20.4*	*15.6–32.9*	*9.8–22.3*	*5.2–15.1*
Postcode socioeconomic status					
Lowest	% of people	15.9	16.2	18.6	13.0
	95% CI	*13.3–19.0*	*9.3–26.6*	*14.4–23.6*	*8.4–19.5*
Middle	% of people	17.9	22.1	15.0	16.2
	95% CI	*14.0–22.7*	*16.8–28.4*	*8.4–25.3*	*10.9–23.3*
Highest	% of people	12.5	15.2	11.3	11.0
	95% CI	*9.3–16.5*	*8.5–25.5*	*7.7–16.5*	*7.3–16.1*
Government health card					
Health care card or pensioner concession card	% of people	30.1	46.3	42.4	20.6
	95% CI	*25.1–35.7*	*33.8–59.1*	*29.7–56.3*	*15.8–26.4*
Neither card	% of people	10.4	12.6	10.9	4.5
	95% CI	*8.2–13.2*	*8.8–17.7*	*7.6–15.5*	*2.4–8.4*
Place of last dental visit					
Cardholder/Public	% of people	39.1	40.5	58.4	32.2
	95% CI	*28.2–51.1*	*20.1–64.9*	*28.0–83.5*	*21.4–45.4*
Cardholder/Non-public	% of people	26.3	50.6	36.2	16.5
	95% CI	*20.4–33.1*	*32.4–68.7*	*24.5–49.9*	*12.0–22.1*
Non-cardholder/Non-public	% of people	10.4	12.6	10.9	4.5
	95% CI	*8.2–13.2*	*8.8–17.7*	*7.6–15.5*	*2.4–8.4*
Dental insurance					
Insured	% of people	9.3	11.1	9.4	7.0
	95% CI	*7.2–11.9*	*6.8–17.8*	*6.5–13.5*	*4.4–10.9*
Uninsured	% of people	23.4	25.4	23.4	21.1
	95% CI	*20.4–26.8*	*19.2–32.7*	*17.2–31.0*	*15.9–27.3*

(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 14.7% of the WA population aged 15 years or more (Table 27), which was lower than the national estimate of 17.4% (Slade et al. 2007). The difference was not statistically significant.

Key findings

- The percentage who avoiding food was higher among people who had a government health card (20.8%) than non-cardholders (12.7%). The difference was greatest in the youngest age group, and attenuated with age.
- Within the population of government health cardholders, there was no difference in avoiding foods between people who last visited a public dental clinic and those who visited a private dentist. However, those who last visited a public dentist (25.8%) were twice as likely as non-cardholders (12.7%) to avoid food.
- People with no dental insurance were more likely (19.7%) than those with insurance (11.4%) to avoid foods.

Discussion

Residents of Western 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 having a government health card, 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**
All people	**Per cent of people**	**14.7**	**13.4**	**14.7**	**16.2**
	95% CI[(a)]	*12.7–16.9*	*9.8–18.1*	*11.9–18.1*	*13.0–20.1*
Sex					
Males	% of people	11.9	9.7	10.7	16.4
	95% CI	*8.8–16.0*	*5.4–16.9*	*7.0–16.0*	*11.2–23.4*
Females	% of people	17.5	17.3	18.7	16.1
	95% CI	*14.8–20.5*	*11.9–24.6*	*14.2–24.2*	*12.3–20.8*
Residential location					
Capital city	% of people	14.0	11.8	13.5	17.4
	95% CI	*11.9–16.3*	*8.3–16.6*	*10.2–17.7*	*13.2–22.6*
Other places	% of people	16.8	18.6	18.0	13.1
	95% CI	*12.4–22.4*	*10.2–31.5*	*13.0–24.4*	*10.5–16.2*
Postcode socioeconomic status					
Lowest	% of people	18.8	18.1	20.0	18.3
	95% CI	*15.2–23.0*	*11.0–28.4*	*15.9–24.9*	*13.3–24.7*
Middle	% of people	12.4	10.7	13.4	13.5
	95% CI	*9.1–16.7*	*5.9–18.5*	*9.1–19.4*	*8.8–20.2*
Highest	% of people	13.3	12.2	12.0	16.4
	95% CI	*11.3–15.5*	*7.3–19.6*	*7.4–18.7*	*11.1–23.6*
Government health card					
Health care card or pensioner concession card	% of people	20.8	26.2	23.6	18.0
	95% CI	*16.7–25.7*	*14.8–42.2*	*14.2–36.4*	*13.8–23.1*
Neither card	% of people	12.7	11.0	13.5	14.3
	95% CI	*10.2–15.6*	*7.4–16.2*	*10.5–17.3*	*9.8–20.4*
Place of last dental visit					
Cardholder/Public	% of people	25.8	29.2	41.9	18.9
	95% CI	*17.0–37.2*	*11.4–57.0*	*19.3–68.4*	*11.3–29.8*
Cardholder/Non-public	% of people	18.7	24.0	16.4	17.7
	95% CI	*14.8–23.2*	*11.5–43.6*	*7.6–32.0*	*12.8–23.9*
Non-cardholder/Non-public	% of people	12.7	11.0	13.5	14.3
	95% CI	*10.2–15.6*	*7.4–16.2*	*10.5–17.3*	*9.8–20.4*
Dental insurance					
Insured	% of people	11.4	9.6	10.7	14.6
	95% CI	*9.5–13.8*	*6.0–15.0*	*7.4–15.4*	*10.6–19.7*
Uninsured	% of people	19.7	19.3	21.4	18.5
	95% CI	*16.3–23.7*	*12.8–28.1*	*16.2–27.8*	*13.6–24.6*

(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 16.0% of the WA population aged 15 years or more (Table 28), which is very close to the national estimate of 16.4% (Slade et al. 2007). The difference was not statistically significant.

Key findings

- People with no dental insurance were more than twice as likely (24.8%) as those with insurance (10.2%) to report fair or poor oral health.

Discussion

Dentate residents of Western Australia 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 not having dental insurance. While there were large differences in the point estimates for some other comparisons, small numbers in the sample resulted in wide confidence intervals, and no conclusions about differences can be drawn.

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

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**16.0**	**12.5**	**18.6**	**17.1**
	95% CI[(a)]	*13.7–18.5*	*9.0–17.3*	*15.7–21.9*	*12.9–22.4*
Sex					
Males	% of people	16.5	15.8	18.2	14.9
	95% CI	*13.4–20.1*	*10.6–22.9*	*14.2–22.9*	*10.0–21.8*
Females	% of people	15.5	9.1	19.1	19.2
	95% CI	*12.6–18.9*	*5.4–15.1*	*14.9–24.1*	*13.8–26.1*
Residential location					
Capital city	% of people	15.1	11.0	17.1	18.6
	95% CI	*12.6–18.0*	*7.2–16.4*	*13.6–21.3*	*13.9–24.4*
Other places	% of people	18.4	17.3	22.9	12.9
	95% CI	*14.0–24.0*	*9.9–28.6*	*18.5–28.0*	*5.4–27.8*
Postcode socioeconomic status					
Lowest	% of people	19.7	19.6	19.2	20.7
	95% CI	*15.7–24.5*	*13.1–28.2*	*14.2–25.4*	*13.0–31.3*
Middle	% of people	15.4	11.2	20.1	14.7
	95% CI	*12.8–18.3*	*6.9–17.6*	*15.7–25.3*	*8.4–24.4*
Highest	% of people	13.4	7.5	16.9	15.9
	95% CI	*9.5–18.4*	*2.9–18.0*	*12.0–23.2*	*10.1–24.0*
Government health card					
Health care card or pensioner concession card	% of people	19.6	15.2	29.2	18.2
	95% CI	*14.0–26.7*	*6.3–32.7*	*18.9–42.1*	*12.2–26.2*
Neither card	% of people	15.0	12.1	17.2	16.0
	95% CI	*13.1–17.0*	*8.7–16.5*	*14.3–20.7*	*10.6–23.2*
Place of last dental visit					
Cardholder/Public	% of people	27.2	22.9	50.2	21.7
	95% CI	*15.9–42.6*	*6.6–55.7*	*24.5–75.8*	*11.7–36.8*
Cardholder/Non-public	% of people	16.2	9.6	21.3	16.9
	95% CI	*11.6–22.1*	*2.7–28.8*	*11.7–35.7*	*10.7–25.7*
Non-cardholder/Non-public	% of people	15.0	12.1	17.2	16.0
	95% CI	*13.1–17.0*	*8.7–16.5*	*14.3–20.7*	*10.6–23.2*
Dental insurance					
Insured	% of people	10.2	3.8	13.5	13.0
	95% CI	*8.0–12.9*	*1.8–7.8*	*9.8–18.4*	*8.9–18.5*
Uninsured	% of people	24.8	23.8	27.4	22.8
	95% CI	*20.4–29.8*	*16.3–33.3*	*20.9–35.0*	*16.8–30.3*

(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 12.9% of the dentate WA population aged 15 years or more (Table 29), which was lower than the national estimate of 15.1% (Slade et al. 2007). The difference was not statistically significant.

Discussion

Residents of Western Australia were equally as likely as the rest of the Australian population to experience toothache. There were no statistically significant differences between the groups presented in Table 28. In some cases this reflects wide confidence intervals around the estimates, which are due to the small size of the sample in Western Australia.

Table 29: Percentage of people experiencing toothache

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**12.9**	**13.8**	**13.7**	**10.1**
	95% CI[(a)]	*10.7–15.4*	*10.0–18.8*	*11.0–16.9*	*7.5–13.5*
Sex					
Males	% of people	13.9	16.2	14.9	8.5
	95% CI	*10.9–17.5*	*10.2–24.9*	*11.2–19.7*	*4.8–14.4*
Females	% of people	11.8	11.3	12.4	11.7
	95% CI	*9.3–15.0*	*7.3–17.0*	*8.7–17.4*	*8.1–16.6*
Residential location					
Capital city	% of people	12.7	13.6	13.2	10.4
	95% CI	*10.0–16.0*	*9.2–19.7*	*9.9–17.5*	*7.1–15.1*
Other places	% of people	13.3	14.2	14.9	9.4
	95% CI	*10.9–16.1*	*8.1–23.9*	*12.1–18.3*	*7.4–11.7*
Postcode socioeconomic status					
Lowest	% of people	14.2	14.0	16.9	11.0
	95% CI	*10.0–19.7*	*7.8–23.7*	*11.1–24.8*	*7.8–15.2*
Middle	% of people	12.7	14.2	13.3	8.8
	95% CI	*9.0–17.6*	*8.0–23.7*	*9.5–18.4*	*4.9–15.3*
Highest	% of people	11.9	13.2	11.7	10.5
	95% CI	*9.2–15.3*	*7.6–22.0*	*8.1–16.6*	*5.7–18.4*
Government health card					
Health care card or pensioner concession card	% of people	15.0	20.9	19.2	10.4
	95% CI	*10.2–21.6*	*9.8–39.1*	*10.4–32.7*	*6.6–16.0*
Neither card	% of people	12.2	12.5	13.0	9.7
	95% CI	*9.9–15.1*	*8.7–17.6*	*10.1–16.5*	*6.1–15.1*
Place of last dental visit					
Cardholder/Public	% of people	19.5	23.3	20.7	15.9
	95% CI	*10.3–34.0*	*6.6–56.4*	*6.4–50.2*	*7.6–30.1*
Cardholder/Non-public	% of people	13.0	19.1	18.6	8.5
	95% CI	*8.2–20.0*	*7.5–40.9*	*9.2–33.9*	*5.1–13.6*
Non-cardholder/Non-public	% of people	12.2	12.5	13.0	9.7
	95% CI	*9.9–15.1*	*8.7–17.6*	*10.1–16.5*	*6.1–15.1*
Dental insurance					
Insured	% of people	10.7	10.8	10.5	10.9
	95% CI	*8.0–14.2*	*5.6–20.0*	*7.0–15.3*	*7.7–15.1*
Uninsured	% of people	15.9	17.3	18.9	9.2
	95% CI	*12.5–20.0*	*11.7–24.8*	*14.2–24.6*	*5.7–14.4*

(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 21.4% of the WA population aged 15 years or more (Table 30), which was slightly lower than the national estimate of 22.6% (Slade et al. 2007). The difference was not statistically significant.

Discussion

Residents of Western Australia were equally as likely as the rest of the Australian population to experience orofacial pain. There were no statistically significant differences between the groups presented in Table 29. In some cases this reflects wide confidence intervals around the estimates, which are due to the small size of the sample in Western Australia.

Table 30: Percentage of people experiencing orofacial pain

		Population: all people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**21.4**	**22.8**	**22.7**	**17.9**
	95% CI[(a)]	*18.8–24.3*	*17.9–28.7*	*18.5–27.4*	*14.4–22.1*
Sex					
Males	% of people	17.6	19.5	18.9	13.4
	95% CI	*13.8–22.2*	*13.8–26.8*	*14.0–25.2*	*8.8–20.0*
Females	% of people	25.1	26.3	26.4	22.1
	95% CI	*21.7–29.0*	*19.7–34.3*	*20.4–33.4*	*17.5–27.6*
Residential location					
Capital city	% of people	20.3	22.0	20.8	17.5
	95% CI	*17.3–23.7*	*16.4–29.0*	*15.7–27.1*	*13.7–22.1*
Other places	% of people	24.5	25.4	27.8	19.2
	95% CI	*19.2–30.7*	*16.6–36.8*	*22.0–34.3*	*11.9–29.3*
Postcode socioeconomic status					
Lowest	% of people	23.4	17.5	30.2	22.9
	95% CI	*18.7–29.0*	*10.7–27.4*	*25.3–35.7*	*16.6–30.7*
Middle	% of people	19.6	25.8	17.5	13.1
	95% CI	*15.5–24.5*	*18.5–34.8*	*10.6–27.5*	*8.3–20.2*
Highest	% of people	21.3	24.4	21.9	16.8
	95% CI	*16.9–26.6*	*15.6–35.9*	*15.8–29.6*	*12.4–22.4*
Government health card					
Health care card or pensioner concession card	% of people	23.8	27.0	29.6	20.9
	95% CI	*18.1–30.6*	*14.0–45.5*	*19.6–42.1*	*15.6–27.4*
Neither card	% of people	20.7	22.1	21.7	14.6
	95% CI	*17.7–23.9*	*17.1–28.2*	*17.6–26.5*	*11.2–18.7*
Place of last dental visit					
Cardholder/Public	% of people	27.2	24.5	43.8	23.7
	95% CI	*16.9–40.6*	*8.6–52.8*	*20.3–70.5*	*13.6–38.0*
Cardholder/Non-public	% of people	22.3	28.8	24.1	19.9
	95% CI	*16.7–29.2*	*13.1–52.1*	*14.1–38.2*	*14.1–27.4*
Non-cardholder/Non-public	% of people	20.7	22.1	21.7	14.6
	95% CI	*17.7–23.9*	*17.1–28.2*	*17.6–26.5*	*11.2–18.7*
Dental insurance					
Insured	% of people	21.5	25.6	20.9	17.9
	95% CI	*18.5–24.9*	*18.6–34.0*	*15.8–27.0*	*14.0–22.6*
Uninsured	% of people	21.7	20.8	25.9	18.2
	95% CI	*17.3–26.9*	*14.3–29.3*	*19.1–34.0*	*12.7–25.5*

(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 WA, 5.1% 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 0.6% among 15–34-year-olds to 3.7% among adults aged 35–54 years and 12.8% among those aged 55 years or more.
- There were no significant differences in the perceived need for dentures by sex, residential location in the capital city or other places, or socioeconomic status of postcodes.
- The need for a denture was more than three times higher among people who had a government health card (11.3%) compared with those who did not (3.0%).
- Those adults who had a government health card and last visited a public clinic were most likely to report needing a denture (13.9%). The percentage was similar among cardholders who last visited a private dentist (10.2%) and lowest among non-cardholders who last visited a private dentist (3.0%).
- Uninsured people were more likely to need dentures (8.1%), but among those with dental insurance the figure was lower (3.1%).
- The age-relatedness of the need for dentures was evident within subgroups of adults formed by socioeconomic characteristics. For instance, among adults without dental insurance, the percentage rose from 0.7% in the 15–34 years age group to 5.5% in 35–54-year-olds and 20.6% in those aged 55 years or more.

Discussion

The percentage of people who said they needed 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**
All people	**Per cent of people**	**5.1**	**0.6**	**3.7**	**12.8**
	95% CI[(a)]	*3.9–6.7*	*0.2–1.7*	*2.1–6.3*	*9.8–16.6*
Sex					
Males	% of people	5.2	0.3	4.5	12.9
	95% CI	*3.5–7.8*	*0.0–2.3*	*1.9–10.3*	*8.2–19.6*
Females	% of people	5.0	0.8	2.9	12.8
	95% CI	*3.8–6.7*	*0.2–3.0*	*1.8–4.7*	*9.3–17.4*
Residential location					
Capital city	% of people	4.6	0.2	2.7	12.7
	95% CI	*3.1–6.6*	*0.0–1.5*	*1.1–6.8*	*9.1–17.5*
Other places	% of people	6.7	1.6	6.4	13.2
	95% CI	*4.8–9.3*	*0.4–6.0*	*3.8–10.4*	*8.7–19.4*
Postcode socioeconomic status					
Lowest	% of people	6.6	0.5	5.8	14.2
	95% CI	*4.5–9.6*	*0.1–3.2*	*3.6–9.1*	*8.9–21.7*
Middle	% of people	5.8	1.1	5.3	13.9
	95% CI	*3.5–9.3*	*0.3–4.1*	*2.2–12.4*	*9.5–20.0*
Highest	% of people	3.1	0.0	0.7	10.5
	95% CI	*2.0–4.9*	—	*0.1–4.4*	*6.2–17.1*
Government health card					
Health care card or pensioner concession card	% of people	11.3	0.0	2.3	18.2
	95% CI	*8.5–14.9*	—	*0.8–6.7*	*13.7–23.9*
Neither card	% of people	3.0	0.7	3.9	6.4
	95% CI	*2.0–4.5*	*0.2–2.0*	*2.2–6.9*	*3.8–10.4*
Place of last dental visit					
Cardholder/Public	% of people	13.9	0.0	0.0	27.0
	95% CI	*8.2–22.7*	—	—	*16.5–40.9*
Cardholder/Non-public	% of people	10.2	0.0	3.2	15.2
	95% CI	*7.1–14.4*	—	*1.1–9.1*	*10.5–21.5*
Non-cardholder/Non-public	% of people	3.0	0.7	3.9	6.4
	95% CI	*2.0–4.5*	*0.2–2.0*	*2.2–6.9*	*3.8–10.4*
Dental insurance					
Insured	% of people	3.1	0.5	2.7	6.7
	95% CI	*2.1–4.6*	*0.1–3.4*	*1.3–5.4*	*4.3–10.2*
Uninsured	% of people	8.1	0.7	5.5	20.6
	95% CI	*6.1–10.7*	*0.2–2.8*	*3.0–9.8*	*15.7–26.6*

(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 WA, 32.0% of dentate adults perceived a need for an extraction or filling (Table 32), which was 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 similar among the youngest and oldest age groups (29.3 and 27.8%) but higher among people aged 35–54 years (37.4%). However, these differences were not statistically significant.
- There were no significant differences by sex, residential location in a capital city or other place, government health cardholder status or place of last dental visit.
- The percentage of dentate adults who thought they needed an extraction or filling was significantly lower among those living in the highest socioeconomic status postcodes compared with the middle and lowest socioeconomic status postcodes (24.6% compared with 34.7% and 37.6% respectively).
- Those adults who did not have dental insurance were more likely to report a need for extractions or fillings (39.9%) than those who were insured (27.2%).
- The lack of an age-related pattern was repeated within nearly all subgroups of adults formed by socioeconomic characteristics. Two exceptions occurred where the oldest age group within a subgroup defined by a socioeconomic characteristic had a significantly lower percentage.

Discussion

Just under one-third of dentate adults perceived a need for an extraction or filling. This percentage was similar among the three age groups, and showed few socioeconomic characteristic variations. Perceived need for an extraction or filling was lower among those dentate adults who lived in the highest socioeconomic status postcodes compared with the middle and lower socioeconomic status postcodes, and higher among those who were uninsured compared with the insured.

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

		Population: dentate people Age (years)			
		All ages	**15–34**	**35–54**	**≥55**
All people	**Per cent of people**	**32.0**	**29.3**	**37.4**	**27.8**
	95% CI[(a)]	*29.0–35.2*	*24.2–35.0*	*32.9–42.1*	*22.7–33.5*
Sex					
Males	% of people	32.4	26.7	39.0	30.9
	95% CI	*28.0–37.0*	*19.8–35.0*	*33.2–45.1*	*23.9–38.9*
Females	% of people	31.6	32.0	35.7	24.9
	95% CI	*27.1–36.5*	*24.3–40.8*	*28.7–43.5*	*19.1–31.8*
Residential location					
Capital city	% of people	30.3	27.2	35.6	26.8
	95% CI	*26.8–34.0*	*21.9–33.2*	*30.3–41.4*	*20.9–33.6*
Other places	% of people	37.1	35.7	42.2	30.8
	95% CI	*30.9–43.7*	*23.0–50.8*	*35.0–49.8*	*21.9–41.5*
Postcode socioeconomic status					
Lowest	% of people	37.6	37.0	41.8	33.1
	95% CI	*32.3–43.3*	*27.1–48.2*	*34.9–49.1*	*24.6–42.9*
Middle	% of people	34.7	32.3	42.3	25.4
	95% CI	*30.1–39.6*	*24.8–40.9*	*39.1–45.7*	*16.2–37.4*
Highest	% of people	24.6	18.5	29.5	24.9
	95% CI	*21.0–28.5*	*12.0–27.5*	*21.2–39.5*	*17.9–33.6*
Government health card					
Health care card or pensioner concession card	% of people	29.1	27.7	42.6	24.7
	95% CI	*23.0–36.0*	*15.6–44.2*	*30.4–55.8*	*17.9–33.1*
Neither card	% of people	32.8	29.7	36.7	30.4
	95% CI	*28.9–37.1*	*24.3–35.8*	*31.6–42.1*	*22.2–40.1*
Place of last dental visit					
Cardholder/Public	% of people	35.5	36.5	57.0	26.3
	95% CI	*24.5–48.3*	*16.2–63.0*	*31.6–79.2*	*15.6–40.7*
Cardholder/Non-public	% of people	26.1	21.2	37.1	24.1
	95% CI	*20.4–32.8*	*9.1–42.0*	*23.7–52.7*	*16.9–33.3*
Non-cardholder/Non-public	% of people	32.8	29.7	36.7	30.4
	95% CI	*28.9–37.1*	*24.3–35.8*	*31.6–42.1*	*22.2–40.1*
Dental insurance					
Insured	% of people	27.2	19.7	33.4	26.6
	95% CI	*23.7–31.0*	*14.6–26.0*	*26.8–40.7*	*20.4–33.9*
Uninsured	% of people	39.9	41.9	44.4	30.0
	95% CI	*35.4–44.7*	*33.6–50.7*	*37.8–51.2*	*23.0–38.1*

(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 WA, 61.0% of 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 (65.8% and 64.1%) and lower among people 55 years old or more (48.9%).
- There were no significant differences among dentate adults by sex, residential location, postcode socioeconomic status, government health cardholder status or place of last dental visit.
- The percentage of dentate adults who thought they needed a check-up was significantly higher among those who were uninsured (66.1%) than the insured (56.5%).
- The age-related pattern of perceived need for a check-up was repeated within subgroups of adults formed by most of the socioeconomic characteristics. The percentage was significantly lower among people aged 55 years or more. For instance, among dentate adults with dental insurance, percentages were lower in the 55 years or more age group (44.8%) compared with 35–54-year-olds (61.9%) and those aged 15–34 years (58.7%).

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. There was 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**
All people	**Per cent of people**	**61.0**	**65.8**	**64.1**	**48.9**
	95% CI[(a)]	*57.6–64.4*	*60.2–71.0*	*58.3–69.5*	*42.8–55.1*
Sex					
Males	% of people	63.5	66.9	67.9	51.1
	95% CI	*58.6–68.2*	*57.7–75.1*	*59.8–75.0*	*43.0–59.0*
Females	% of people	58.5	64.7	60.3	46.9
	95% CI	*53.9–63.0*	*57.7–71.1*	*53.0–67.1*	*39.7–54.2*
Residential location					
Capital city	% of people	61.0	68.2	62.0	48.2
	95% CI	*57.1–64.8*	*62.2–73.7*	*54.8–68.7*	*41.6–54.9*
Other places	% of people	61.1	58.3	69.8	51.1
	95% CI	*53.6–68.0*	*46.6–69.1*	*60.5–77.7*	*37.0–65.0*
Postcode socioeconomic status					
Lowest	% of people	62.2	61.9	70.4	52.3
	95% CI	*55.2–68.8*	*51.7–71.1*	*61.2–78.2*	*39.4–64.9*
Middle	% of people	62.9	71.6	63.0	46.6
	95% CI	*58.3–67.4*	*63.1–78.8*	*52.5–72.3*	*38.9–54.5*
Highest	% of people	58.2	63.1	60.5	47.7
	95% CI	*52.1–64.0*	*52.8–72.3*	*50.4–69.8*	*38.4–57.1*
Government health card					
Health care card or pensioner concession card	% of people	54.3	66.6	67.4	42.7
	95% CI	*45.7–62.6*	*49.2–80.4*	*51.7–80.1*	*33.9–52.0*
Neither card	% of people	62.9	65.5	63.6	54.3
	95% CI	*58.8–66.8*	*59.5–71.1*	*57.0–69.8*	*47.1–61.4*
Place of last dental visit					
Cardholder/Public	% of people	53.0	60.4	56.4	45.5
	95% CI	*38.1–67.4*	*31.9–83.3*	*30.7–79.1*	*27.3–65.0*
Cardholder/Non-public	% of people	54.8	71.2	71.6	41.7
	95% CI	*44.4–64.9*	*48.4–86.7*	*51.2–85.8*	*31.5–52.7*
Non-cardholder/Non-public	% of people	62.9	65.5	63.6	54.3
	95% CI	*58.8–66.8*	*59.5–71.1*	*57.0–69.8*	*47.1–61.4*
Dental insurance					
Insured	% of people	56.5	58.7	61.9	44.8
	95% CI	*51.9–61.0*	*50.8–66.2*	*54.2–69.1*	*36.7–53.2*
Uninsured	% of people	66.1	71.2	68.1	54.4
	95% CI	*61.3–70.6*	*61.5–79.3*	*60.7–74.7*	*45.5–63.0*

(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 WA, 73.4% 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, but not significantly different from, 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 trend by age group. The percentage varied only from 69.8% to 78.1% across the three age groups.
- There were no significant differences among subgroups formed by any social characteristic.

Discussion

Just over 7 out of 10 dentate adults who needed an extraction or filling perceived a need for dental treatment within 3 months. The percentage was not significantly different across the three age groups, and there was no significant variation by socioeconomic characteristics. This 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
All people	**Per cent of people**	**73.4**	**78.1**	**69.8**	**73.4**
	95% CI[(a)]	*68.5–77.8*	*66.8–86.3*	*60.8–77.5*	*64.2–81.0*
Sex					
Males	% of people	70.7	75.7	66.6	71.7
	95% CI	*63.3–77.1*	*56.0–88.4*	*55.0–76.4*	*53.9–84.6*
Females	% of people	76.2	80.2	73.3	75.4
	95% CI	*69.2–82.0*	*68.4–88.4*	*61.8–82.3*	*60.5–85.9*
Residential location					
Capital city	% of people	74.4	79.7	69.9	75.0
	95% CI	*68.0–79.9*	*65.2–89.1*	*58.3–79.4*	*63.5–83.8*
Other places	% of people	70.9	73.7	69.6	69.3
	95% CI	*63.7–77.2*	*53.9–87.0*	*56.1–80.4*	*52.2–82.3*
Postcode socioeconomic status					
Lowest	% of people	75.5	84.0	72.2	68.3
	95% CI	*66.9–82.5*	*67.3–93.0*	*54.5–84.9*	*53.0–80.4*
Middle	% of people	70.3	73.5	66.4	75.7
	95% CI	*62.2–77.3*	*52.7–87.4*	*51.6–78.6*	*57.4–87.8*
Highest	% of people	74.8	76.5	72.2	77.9
	95% CI	*65.6–82.3*	*59.5–87.8*	*56.0–84.1*	*60.6–89.0*
Government health card					
Health care card or pensioner concession card	% of people	69.4	74.7	59.4	72.9
	95% CI	*54.7–81.0*	*51.7–89.0*	*32.7–81.5*	*56.7–84.7*
Neither card	% of people	74.4	78.7	71.4	73.5
	95% CI	*69.3–78.9*	*67.1–87.0*	*62.9–78.7*	*60.4–83.5*
Place of last dental visit					
Cardholder/Public	% of people	79.9	88.8	54.3	94.4
	95% CI	*54.4–92.9*	*58.5–97.8*	*16.5–87.7*	*69.9–99.2*
Cardholder/Non-public	% of people	63.3	56.8	62.5	66.1
	95% CI	*47.6–76.7*	*23.3–85.1*	*33.3–84.8*	*46.9–81.2*
Non-cardholder/Non-public	% of people	74.4	78.7	71.4	73.5
	95% CI	*69.3–78.9*	*67.1–87.0*	*62.9–78.7*	*60.4–83.5*
Dental insurance					
Insured	% of people	71.0	77.6	67.1	72.5
	95% CI	*63.8–77.3*	*63.1–87.6*	*55.8–76.8*	*58.5–83.2*
Uninsured	% of people	76.3	79.7	73.2	74.6
	95% CI	*68.8–82.4*	*65.2–89.2*	*60.7–82.8*	*59.0–85.7*

(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, much smaller percentages of people in the two younger age groups 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 13 indicators 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, 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 9.1 when all ages were contrasted in Table 5 (16.7% for health cardholders compared with 1.8% 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.
- Marked attenuation of the difference between the two groups also occurred for average number of DMF teeth per person and for periodontal attachment loss.
- In contrast, the relative difference between the two groups was amplified in the age-standardised result compared with the unstandardised result for the percentage who avoided dental care because of cost.
- However, for most other indicators, the 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 attenuated differences between the two groups.

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

	Cardholders	Non-cardholders
Variable	**Estimate (95%CI)**	**Estimate (95%CI)**
% of people with complete tooth loss	9.8 (7.6–12.0)	4.0 (2.0–6.0)
% of people with fewer than 21 teeth	15.1 (12.3–18.0)	9.2 (6.6–11.9)
% of dentate people who wear denture(s)	19.6 (15.5–23.7)	11.1 (8.9–13.4)
Average number of missing teeth per person	6.2 (5.5–6.8)	4.7 (4.1–5.2)
% of people with untreated coronal decay	20.6 (11.0–30.1)	20.9 (15.7–26.1)
% of people with untreated root decay	11.6 (6.0–17.2)	6.8 (3.2–10.5)
% of people with one or more filled teeth	83.4 (73.8–93.1)	84.8 (81.4–88.2)
Average number of DMF teeth per person	13.7 (12.7–14.8)	13.9 (13.1–14.6)
% of people with moderate or severe periodontitis	20.7 (14.6–26.7)	13.4 (9.8–17.1)
% of people with 4+ mm periodontal pocket depth	15.9 (10.3–21.4)	12.5 (8.8–16.1)
% of people with 4+ mm clinical attachment loss	45.5 (37.9–53.1)	37.5 (31.9–43.2)
% of people with gingival inflammation	4.7 (1.0–8.4)	11.6 (6.9–16.4)
% of people visiting dentist within last 12 months	59.8 (53.1–66.5)	62.6 (58.6–66.6)
% of people who attended a private dental practice at last dental visit	66.0 (59.6–72.4)	89.4 (86.0–92.7)
% of people who paid for their last dental visit	62.6 (57.0–68.2)	100.0 (100.0–100.0)
% of people who usually visit a dental professional at least once a year	47.6 (41.7–53.6)	60.8 (57.3–64.4)
% of people who have a dentist they usually attend	63.9 (56.2–71.5)	80.1 (76.4–83.9)
% of people who usually visit a dentist for a check up	52.2 (44.3–60.1)	63.6 (59.3–67.8)
% of people who avoided or delayed dental care	43.2 (35.8–50.6)	27.6 (24.2–30.9)
% of people who reported that cost had prevented recommended dental treatment	29.9 (21.0–38.7)	21.2 (17.8–24.5)
% of people who would have a lot of difficulty paying a $100 dental bill	38.9 (33.4–44.4)	9.3 (7.2–11.3)
% of people avoiding foods due to dental problems	23.9 (18.4–29.5)	13.0 (10.1–15.9)
% of people rating their oral health fair or poor	24.5 (16.5–32.6)	14.1 (12.3–15.8)
% of people experiencing toothache	19.2 (11.2–27.2)	11.2 (8.7–13.7)
% of people experiencing orofacial pain	26.5 (18.6–34.4)	19.2 (16.4–22.1)
% of people who need dentures	6.6 (4.7–8.5)	4.0 (2.7–5.4)
% of people who need an extraction or filling	34.0 (26.2–41.8)	32.1 (27.7–36.6)
% of people perceiving a need for a check up	61.4 (52.3–70.5)	61.0 (56.9–65.1)
% of people perceiving a need for treatment within 3 months	68.7 (57.8–79.6)	76.5 (71.7–81.2)

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 17 of the 30 indicators. For those 17 indicators, statistically significant differences were also observed in the preceding tables.
- Conversely, the 12 indicators that did not differ to a statistically significantly 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

	Uninsured	Insured
Variable	**Estimate (95%CI)**	**Estimate (95%CI)**
% of people with complete tooth loss	3.8 (2.4–5.2)	8.6 (6.2–11.0)
% of people with fewer than 21 teeth	10.4 (8.6–12.3)	17.6 (14.3–21.0)
% of dentate people who wear denture(s)	14.5 (12.4–16.7)	17.9 (14.2–21.6)
Average number of missing teeth per person	5.3 (4.7–5.9)	5.8 (5.0–6.5)
% of people with untreated coronal decay	17.0 (10.5–23.4)	23.9 (16.0–31.8)
% of people with untreated root decay	5.8 (2.7–8.8)	10.1 (4.8–15.4)
% of people with one or more filled teeth	86.4 (82.4–90.4)	84.8 (81.0–88.5)
Average number of DMF teeth per person	14.2 (13.5–14.8)	13.4 (12.5–14.3)
% of people with moderate or severe periodontitis	13.9 (10.1–17.8)	21.5 (16.6–26.3)
% of people with 4+ mm periodontal pocket depth	11.8 (7.4–16.2)	17.5 (12.4–22.6)
% of people with 4+ mm clinical attachment loss	37.7 (31.2–44.1)	40.3 (33.9–46.6)
% of people with gingival inflammation	9.5 (4.1–14.9)	13.9 (6.6–21.2)
% of people visiting dentist within last 12 months	67.9 (63.3–72.5)	51.5 (46.4–56.7)
% of people who attended a private dental practice at last dental visit	91.0 (87.6–94.4)	72.8 (68.6–77.1)
% of people who paid for their last dental visit	96.0 (94.2–97.7)	80.5 (76.3–84.8)
% of people who received government-subsidised dental care in private sector	1.9 (1.0–2.8)	7.6 (4.7–10.4)
% of people who usually visit a dental professional at least once a year	66.6 (62.9–70.3)	42.1 (37.7–46.6)
% of people who have a dentist they usually attend	84.3 (80.5–88.2)	62.6 (57.1–68.1)
% of people who usually visit a dentist for a check up	68.5 (63.3–73.7)	49.7 (45.9–53.5)
% of people who avoided or delayed dental care	23.1 (19.5–26.7)	41.5 (35.7–47.3)
% of people who reported that cost had prevented recommended dental treatment	18.0 (14.3–21.7)	29.7 (24.5–34.8)
% of people who would have a lot of difficulty paying a $100 dental bill	9.3 (6.9–11.7)	23.4 (20.2–26.7)
% of people avoiding foods due to dental problems	11.2 (9.0–13.3)	20.0 (16.3–23.7)
% of people rating their oral health fair or poor	9.7 (7.5–11.9)	24.7 (20.6–28.8)
% of people experiencing toothache	10.3 (7.3–13.4)	15.5 (11.9–19.1)
% of people experiencing orofacial pain	21.5 (18.1–24.9)	21.9 (17.0–26.7)
% of people who need dentures	3.2 (1.9–4.6)	8.6 (6.3–10.9)
% of people who need an extraction or filling	25.5 (22.0–29.1)	39.1 (34.7–43.6)
% of people perceiving a need for a check up	54.9 (50.4–59.3)	64.8 (60.5–69.1)
% of people perceiving a need for treatment within 3 months	73.2 (66.9–79.4)	74.3 (66.2–82.4)

Appendix

Sample counts

Table A.1: Table counts of interviewed people

	Age group (years)			
	All ages	**15–34**	**35–54**	**≥55**
All people	**1,290**	**306**	**496**	**488**
Sex				
Males	539	134	209	196
Females	751	172	287	292
Residential location				
Capital city	843	217	302	324
Other places	447	89	194	164
Postcode socioeconomic status				
Lowest	470	99	170	201
Middle	412	113	169	130
Highest	408	94	157	157
Government health card				
Blank but applicable	2	1	—	1
Health care card or pensioner concession card	398	51	69	278
Neither card	890	254	427	209
Place of last dental visit				
Cardholder/Public	113	22	17	74
Cardholder/Non-public	285	29	52	204
Dental insurance				
Blank but applicable	16	12	2	2
Insured	714	159	296	259
Uninsured	560	135	198	227

Table A.2: Sample counts of examined people

	Age group (years)			
	All ages	**15–34**	**35–54**	**≥55**
All people	**470**	**98**	**179**	**193**
Sex				
Males	170	37	58	75
Females	300	61	121	118
Residential location				
Capital city	310	65	114	131
Other places	160	33	65	62
Postcode socioeconomic status				
Lowest	168	35	62	71
Middle	150	40	51	59
Highest	152	23	66	63
Government health card				
Blank but applicable	0	0	—	0
Cardholder/Public	153	12	30	111
Cardholder/Non-public	317	86	149	82
Place of last dental visit				
Cardholder/Public	42	5	10	27
Cardholder/Non-public	111	7	20	84
Dental insurance				
Blank but applicable	3	3	0	0
Insured	282	47	110	125
Uninsured	185	48	69	68

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.

References

AHMAC (Australian Health Ministers' Advisory Council) 2001. Steering Committee for National Planning for Oral Health. Oral health of Australians: National planning for oral health improvement. Adelaide: SA Department of Human Services.

AIHW (Australian Institute of Health and Welfare) 2000. Australia's health 2000: The seventh biennial health report of the Australian Institute of Health and Welfare. Canberra: AIHW.

AIHW 2007. Health expenditure Australia 2005–06. Health and Welfare Expenditure Series no. 30. Cat. no. HWE 37. Canberra: AIHW.

Barnard PD 1993. National Oral Health Survey Australia 1987–1988. Canberra: Australian Government Publishing Service.

Benyamini Y, Leventhal H & Leventhal EA 2004. Self-rated oral health as an independent predictor of self-rated general health, self-esteem and life satisfaction. Social Science & Medicine 59(5):1109–16.

Bergman JD, Wright FA & Hammond RH 1991. The oral health of the elderly in Melbourne. Australian Dental Journal 36(4):280–5.

Brennan DS & Spencer AJ 2004. Changes in caries experience among Australian public dental patients between 1995/96 and 2001/02. Australian and New Zealand Journal of Public Health 28(6):542–8.

Brennan DS, Spencer AJ & Roberts-Thomson KF 2007. Caries experience among 45–54-year-olds in Adelaide, South Australia. Australian Dental Journal 52(2):122–7.

Brennan DS, Spencer AJ & Slade GD 2000. Caries experience among publicly-funded dental patients in Australia, 1995–96: type of care and geographic location. Australian Dental Journal 45(1):37–45.

Brennan DS, Spencer AJ & Slade GD 2001. Prevalence of periodontal conditions among public-funded dental patients in Australia. Australian Dental Journal 46(2):114–21.

Chalmers JM, Carter KD, Fuss JM, Spencer AJ & Hodge CP 2002. Caries experience in existing and new nursing home residents in Adelaide, Australia. Gerodontology 19(1):30–40.

Chalmers JM, Carter KD & Spencer AJ 2002. Caries incidence and increments in community-living older adults with and without dementia. Gerodontology 19(2):80–94.

Chalmers JM, Carter KD & Spencer AJ 2005. Caries incidence and increments in Adelaide nursing home residents. Special Care Dentistry 25(2):96–105.

Chalmers JM, Hodge C, Fuss JM, Spencer AJ & Carter KD 2002. The prevalence and experience of oral diseases in Adelaide nursing home residents. Australian Dental Journal 47(2):123–30.

Coates E, Slade GD, Goss AN & Gorkic E 1996. Oral conditions and their social impact among HIV dental patients. Australian Dental Journal 41(1):33–6.

Coates EA, Brennan D, Logan RM, Goss AN, Scopacasa B, Spencer AJ et al. 2000. Hepatitis C infection and associated oral health problems. Australian Dental Journal 45(2):108–14.

Dawson AS & Smales RJ 1994. Dental health changes in an Australian Defence Force population. Australian Dental Journal 39(4):242–6.

Dillman DA 2000. Mail and internet surveys: The tailored design method, 2nd edn. New York: John Wiley Company.

Elias AC & Sheiham A 1998. The relationship between satisfaction with mouth and number of position of teeth. Journal of Oral Rehabilitation 25:649–61.

Endean C, Roberts-Thomson K & Wooley S 2004. Anangu oral health: The status of the Indigenous population of the Anangu Pitjantjatjara lands. Australian Journal of Rural Health 12(3):99–103.

Hopcraft M & Morgan MV 2003a. Dental caries experience in a young adult military population. Australian Dental Journal 48(2):125–9.

Hopcraft MS & Morgan MV 2003b. Exposure to fluoridated drinking water and dental caries experience in Australian army recruits, 1996. Community Dentistry and Oral Epidemiology 31(1):68–74.

Hopcraft M & Morgan MV 2005. Dental caries experience in Australian Army recruits 2002–2003. Australian Dental Journal 50(1):16–20.

Hopcraft MS & Morgan MV 2006. Pattern of dental caries experience on tooth surfaces in an adult population. Community Dentistry and Oral Epidemiology 34(3):174–83.

Kingsford Smith D & Szuster F 2000. Aspects of tooth decay in recently arrived refugees. Australian and New Zealand Journal of Public Health 24(6):623–6.

Loe H & Silness J 1963. Periodontal disease in pregnancy: 1. Prevalence and severity. Acta Odontologica Scandinavica 21:533–51.

Marino R, Calache H, Wright C, Morgan M, Schofield SM & Minichiello V 2007. Profile of the oral health among ambulant older Greek and Italian migrants living in Melbourne. Australian Dental Journal 52(3):198–204.

Marino R, Wright FA & Minas IH 2001. Oral health among Vietnamese using a community health centre in Richmond, Victoria. Australian Dental Journal 46(3):208–15.

McGrath C & Bedi R 2002. Population based norming of the UK oral health related quality of life measure (OHQoL–UK). British Dental Journal 193:521–4

Morgan MV, Stonnill A & Laslett AM 1992. Dental caries amongst Royal Australian Navy recruits, 1988. Australian Dental Journal 37(3):201–4.

NHANES (National Health and Nutrition Examination Survey). Dental examiners' procedures manual. Hyattsville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. Viewed 14 February 2007 <http://www.cdc.gov/nchs/data/nhanes/nhanes_03_04/DentalExaminers-2004.pdf>.

Osborn M, Butler T & Barnard PD 2003. Oral health status of prison inmates–New South Wales, Australia. Australian Dental Journal 48(1):34–8.

Saub R & Evans RW 2001. Dental needs of elderly hostel residents in inner Melbourne. Australian Dental Journal 46(3):198–202.

Sheiham A, Steele JG, Marcenes W, Finch S & Walls AW 2002. The relationship between oral health status and body mass index among older people: a national survey of older people in Great Britain. British Dental Journal 192:703–6.

Slade GD & Spencer AJ 1995. Periodontal attachment loss among adults aged 60+ in South Australia. Community Dentistry and Oral Epidemiology 23(4):237–42.

Slade GD & Spencer AJ 1997. Distribution of coronal and root caries experience among persons aged 60+ in South Australia. Australian Dental Journal 42(3):178–84.

Slade GD, Spencer AJ, Gorkic E & Andrews G 1993. Oral health status and treatment needs of non-institutionalized persons aged 60+ in Adelaide, South Australia. Australian Dental Journal 38(5):373–80.

Slade GD, Spencer AJ & Roberts-Thomson KF (eds) 2007. Australia's dental generations: The National Survey of Adult Oral Health 2004–06. AIHW cat. no. DEN 165. Canberra: Australian Institute of Health and Welfare (Dental Statistics and Research Series No. 34).

Smith K, Kruger E, Dyson K & Tennant M 2007. Oral health in rural and remote Western Australian indigenous communities: a two-year retrospective analysis of 999 people. International Dental Journal 57(2):93–9.

Surgeon General 2000. The health consequences of smoking: A report of the Surgeon General. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Thomson WM, Slade GD & Spencer AJ 1995. Dental caries experience and use of prescription medications among people aged 60+ in South Australia. Gerodontology 12(12):104–10.

Wright FA, Hammond RH & Lewis JM 1994. Changes in periodontal conditions of adults from Melbourne, Australia. International Dental Journal 44(3):207–14.

List of tables