Australian Government
Australian Institute of Health and Welfare

RESEARCH REPORT 56 • OCTOBER 2012

Chronic conditions and oral health

research report 56

Summary

This report provides information on the impact of oral conditions on people with a chronic condition including asthma, cancer, heart disease, diabetes, arthritis, stroke, kidney disease, high blood pressure and depression. Data are presented on:

- the experience of toothache
- feeling uncomfortable with the appearance of teeth, mouth or dentures
- avoiding some foods due to problems with teeth, mouth or dentures
- experience of a broken or chipped natural tooth
- experience of pain in the face, jaw, temple, in front of the ear or in the ear (orofacial pain).

In addition, oral conditions can result in impairment, particularly loss of teeth. Two measures of tooth loss are also reported on here:

- average number of missing teeth
- inadequate dentition (fewer than 21 teeth).

Main findings

People with a chronic condition were more likely to experience toothache, be uncomfortable with their oral appearance, to avoid certain foods due to oral problems and to experience orofacial pain. They were also more likely to have inadequate dentition (fewer than 21 teeth, which makes it difficult to chew food) than people with no chronic condition.

Among people with a chronic condition, those who had experienced a stroke had the highest average number of missing teeth, were more likely to have inadequate dentition and to have avoided some foods due to oral problems than those who had not experienced a stroke. This higher likelihood of experiencing negative impacts of oral conditions was related to having less frequent and problem-oriented dental visiting.

Contents

Introduction

Oral conditions and chronic conditions are both influenced by the conditions in which people are born, grow, live and work, and frequently occur together. Overall, people with a chronic condition were less likely than those without a chronic condition to report that their oral health was good, very good or excellent (74.7% compared to 86.9%, respectively) and around 11% of people with a chronic condition reported that it impacted on their general health (Spencer & Ellershaw 2011). Overall, there was no difference between those with and without a chronic condition having visited a dentist in the previous 12 months. However, people who had experienced a stroke and those with diabetes were less likely than people with any other chronic condition to make a dental visit. People with a chronic condition were less likely to have made their last dental visit for a check-up and less likely to visit a private dental practice (Spencer & Ellershaw 2011).

A person's reason for seeking dental care influenced the type of care they were likely to receive and the level of untreated problems they may have at any time. Individuals who visit a dental professional for the purpose of a routine check-up are most likely to benefit from early detection and treatment, and to receive preventive services. Conversely, those who usually seek care when they are experiencing a dental problem may receive less complete treatment, and are less likely to receive preventive services (Ellershaw & Spencer 2011). A consequence of this may be that they are more likely to experience negative impacts from their oral condition.

This publication reports on the experience of oral health impacts among people who have a chronic condition, compares the experience of oral health impacts of people with chronic conditions to those without a chronic condition and compares the experience of oral health impacts across chronic condition categories.

Results

Prevalence of chronic conditions

Overall, 46.9% of people reported that they had one or more chronic conditions (Table 1). The most commonly reported chronic conditions were high blood pressure (19.7%) and arthritis/osteoporosis (17.4%). The least commonly reported chronic conditions were stroke (0.7%) and kidney disease (0.9%). These prevalence estimates are consistent with population estimates published by the Australian Bureau of Statistics (Spencer & Ellershaw 2011).

Table 1: Prevalence of chronic conditions

Chronic condition	Per cent	95% CI
Asthma	11.0	9.8, 12.3
Cancer	2.5	2.0, 3.1
Heart disease	4.9	4.2, 5.6
Diabetes	6.4	5.6, 7.2
Arthritis/osteoporosis	17.4	16.4,18.5
Stroke	0.7	0.5, 1.1
High blood pressure	19.7	18.5, 20.9
Kidney disease	0.9	0.7, 1.2
Depression	11.1	10.0, 12.2
Other	3.1	2.3, 4.3
Any chronic condition	46.9	45.1, 48.8
No chronic condition	53.1	51.2, 54.9

Note: CI denotes confidence interval.

Average age of people with a chronic condition

Overall, people with a chronic condition were older than people without a chronic condition (Figure 1). This is consistent with the prevalence of many chronic conditions increasing with age (AIHW 2006). This was generally the case for each individual chronic condition. The higher than average age was uniform across all conditions, except for people with asthma, depression and 'other' chronic conditions. People who had experienced a stroke had the highest average age, followed by heart disease, arthritis/osteoporosis and diabetes.

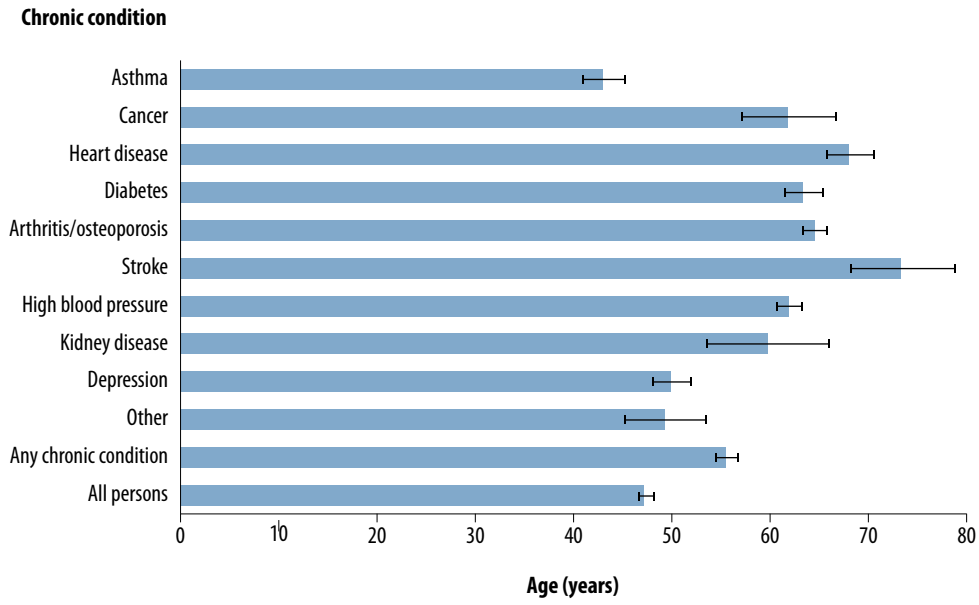

Figure 1: Age of people by chronic condition status (average)

Prevalence of oral health impacts

Oral conditions can result in a number of impacts on everyday life. This publication reports on five oral health impacts:

- experience of toothache
- feeling uncomfortable with the appearance of teeth, mouth or dentures
- avoiding some foods due to problems with teeth, mouth or dentures
- experience of a broken or chipped natural tooth
- experience of pain in the face, jaw, temple, in front of the ear or in the ear.

In addition, oral conditions can result in impairment, particularly loss of teeth. Two measures of tooth loss are also reported on here:

- average number of missing teeth
- inadequate dentition (fewer than 21 teeth).

Experience of toothache

Overall, 8.5% of people with a chronic condition reported that they had experienced toothache often or very often in the previous 12 months (Table 2). This is almost twice the proportion of people with no chronic condition (4.3%). Experience of toothache was highest in people with heart disease (18.0%) and 'other' chronic conditions (17.3%), followed by arthritis (14.3%) and stroke (11.3%). People with cancer (0.7%) were least likely to report experiencing toothache and the only chronic condition group to report less toothache than people without a chronic condition.

Table 2: Frequency of toothache (often or very often) in the previous 12 months by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	7.4	4.1, 12.8
Cancer	0.7	0.2, 3.2
Heart disease	18.0	14.6, 21.9
Diabetes	6.0	3.2, 11.3
Arthritis/osteoporosis	14.3	8.9, 22.2
Stroke	11.3	2.8, 35.8
High blood pressure	10.1	5.3, 18.3
Kidney disease	8.0	6.4, 9.8
Depression	10.5	7.1, 15.1
Other	17.3	7.9, 33.7
Any chronic condition	8.5	6.2, 11.5
No chronic condition	4.3	3.3, 5.5

Note: CI denotes confidence interval.

Feeling uncomfortable with the appearance of teeth, mouth or dentures

Overall, 17.3% of people with a chronic condition reported that they had experienced discomfort with their oral appearance often or very often in the previous 12 months (Table 3). This was twice the prevalence reported for people with no chronic condition (8.5%). Across chronic condition groups, people with 'other' chronic conditions (34.5%) were more likely to report feeling uncomfortable with their oral appearance than those with asthma (15.7%), cancer (16.1%), heart disease (18.2%), diabetes (12.5%), arthritis/osteoporosis (19.1%) and kidney disease (13.4%)

Table 3: Frequency of discomfort with appearance of teeth, mouth or dentures (often or very often) in the previous 12 months by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	15.7	11.8, 20.5
Cancer	16.1	12.2, 20.9
Heart disease	18.2	14.3, 22.9
Diabetes	12.5	8.9, 17.2
Arthritis/osteoporosis	19.1	14.9, 24.0
Stroke	19.5	8.4, 39.1
High blood pressure	20.6	14.7, 28.1
Kidney disease	13.4	6.9, 24.5
Depression	23.3	18.9, 28.5
Other	34.5	27.1, 42.8
Any chronic condition	17.3	14.8,20.2
No chronic condition	8.5	6.9, 10.4

Note: CI denotes confidence interval.

Avoiding some foods due to problems with teeth, mouth or dentures

Overall, 12.2% of people with a chronic condition reported that they had avoided some foods due to problems with their teeth, mouth or dentures often or very often in the previous 12 months (Table 4). This is more than twice the prevalence reported for people with no chronic condition (5.4%). Prevalence of avoiding food was highest among people who had experienced a stroke (25.9%). However, there were no statistically significant differences between chronic condition groups.

Table 4: Frequency of food avoidance due to problems with teeth, mouth or dentures (often or very often) in the previous 12 months by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	12.4	9.3, 16.3
Cancer	9.3	5.8, 14.5
Heart disease	10.5	7.0, 15.4
Diabetes	14.2	9.5, 20.6
Arthritis/osteoporosis	11.7	9.0, 15.2
Stroke	25.9	13.2, 44.6
High blood pressure	16.2	10.7, 23.9
Kidney disease	9.7	5.4, 16.9
Depression	14.8	11.3, 19.1
Other	15.7	9.3, 25.4
Any chronic condition	12.2	10.0, 14.7
No chronic condition	5.4	4.3, 6.8

Note: CI denotes confidence interval.

Broken or chipped natural teeth

Overall, 10.1% of people with a chronic condition reported that they had experienced a broken or chipped natural tooth in the previous 12 months (Table 5). This is consistent with the prevalence for people with no chronic condition (7.3%). There were no significant variations between chronic condition groups in experience of a broken or chipped natural tooth.

Table 5: Experience of a broken or chipped natural tooth in the previous 12 months by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	11.8	8.0, 17.1
Cancer	11.2	8.5, 14.7
Heart disease	5.0	2.9, 8.6
Diabetes	10.0	5.9, 16.4
Arthritis/osteoporosis	10.4	7.1, 14.8
Stroke	6.8	2.1, 20.5
High blood pressure	10.0	6.7, 14.6
Kidney disease	13.6	5.1, 31.6
Depression	12.2	8.9, 16.3
Other	9.0	4.0, 18.7
Any chronic condition	10.1	7.9, 12.8
No chronic condition	7.3	6.0, 9.0

Note: CI denotes confidence interval.

Pain in the face, jaw, temple, in front of the ear or in the ear

Overall, 25.9% of people with a chronic condition reported that they had experienced pain in the face, jaw, temple, in front of the ear or in the ear in the previous month (Table 6). This compares unfavourably with people with no chronic condition (16.4%). Only people with depression (31.6%) and those with cancer (19.2%) showed a statistically significant difference in experience of this impact.

Table 6: Experience of pain in the face, jaw, temple, in front of the ear or in the ear in the previous month by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	26.9	21.9, 32.6
Cancer	19.2	14.6, 24.9
Heart disease	20.9	11.6, 34.9
Diabetes	22.9	14.3,34.7
Arthritis/osteoporosis	28.7	21.8,36.7
Stroke	34.9	20.6, 52.7
High blood pressure	29.8	21.9, 37.0
Kidney disease	28.1	16.2, 44.3
Depression	31.6	26.2, 37.6
Other	36.5	24.3, 50.7
Any chronic condition	25.9	22.9, 29.3
No chronic condition	16.4	14.5, 18.4

Note: CI denotes confidence interval.

Any oral impact

Overall, 45.3% of people with a chronic condition reported that they had experienced any oral health impact (Table 7). This is around one-and-a-half times the proportion of people with no chronic condition (30.6%). People in all chronic condition groups other than cancer and kidney disease were more likely to experience an impact than people without a chronic condition. However, there were no statistically significant differences in experience of any impact across chronic condition groups.

Table 7: Experience of any oral impact in the period reported by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	46.5	40.5, 52.5
Cancer	33.0	26.9, 39.7
Heart disease	50.4	38.6, 62.1
Diabetes	46.7	37.2, 56.4
Arthritis/osteoporosis	51.0	44.4, 57.6
Stroke	66.4	45.6, 82.3
High blood pressure	46.3	38.4, 54.3
Kidney disease	43.5	29.0, 59.1
Depression	54.9	48.8, 60.9
Other	61.7	52.2, 70.3
Any chronic condition	45.3	41.9, 48.8
No chronic condition	30.6	28.1, 33.3

Note: CI denotes confidence interval.

Missing teeth

Overall, people with a chronic condition reported that they had an average of 5.62 missing teeth (Table 8). This is consistent with that for people with no chronic condition (5.12). The highest average number of missing teeth was reported by people who had experienced a stroke (13.62). This was more than for any other chronic condition group and more than for people with no chronic condition.

Table 8: Missing teeth by presence of chronic condition

Chronic condition	Average number	95% CI
Asthma	5.48	4.94, 6.01
Cancer	7.14	6.10, 8.18
Heart disease	5.36	4.67, 6.05
Diabetes	6.43	5.72, 7.13
Arthritis/osteoporosis	6.16	5.57,6.76
Stroke	13.62	11.40, 15.85
High blood pressure	5.96	5.26, 6.67
Kidney disease	5.63	4.35, 6.91
Depression	5.93	5.43, 6.43
Other	6.72	4.63, 8.81
Any chronic condition	5.62	5.35, 5.89
No chronic condition	5.12	4.76, 5.48

Note: CI denotes confidence interval.

Inadequate dentition

A full set of permanent teeth has 32 teeth. The concept of an inadequate dentition has been reported variously as adults with fewer than 20 remaining teeth or fewer than 21 remaining teeth, based on measures of impaired nutrition, chewing function and oral health–related quality of life (Kelly et al. 2000; Roberts-Thomson & Do 2007; Singh & Brennan 2012). In this report, the threshold of fewer than 21 remaining teeth has been selected as designating an inadequate dentition.

Overall, 17.8% of people with a chronic condition reported that they had fewer than 21 teeth (Table 9). This is more than the proportion reported by people with no chronic condition (13.9%). Inadequate dentition was most frequently reported by people who had experienced a stroke (74.0%), who were more than 3 times as likely as any other chronic condition group and over 5 times as likely as people with no chronic condition to have this problem.

Table 9: Inadequate dentition by presence of chronic condition

Chronic condition	Prevalence (per cent)	95% CI
Asthma	16.3	13.4,19.6
Cancer	21.8	17.2, 27.3
Heart disease	20.3	16.8, 24.2
Diabetes	20.0	16.8, 23.5
Arthritis/osteoporosis	21.1	18.4, 24.1
Stroke	74.0	55.3, 86.8
High blood pressure	19.4	16.5, 22.7
Kidney disease	18.4	12.2, 26.7
Depression	20.3	17.8, 23.0
Other	23.8	12.9, 39.8
Any chronic condition	17.8	16.5, 19.2
No chronic condition	13.9	12.0, 16.1

Note: CI denotes confidence interval.

Dental visiting pattern

Overall, 24.8% of people with a chronic condition reported that they usually made a dental visit at least once a year and usually for a check-up; that is, they were regular attenders (referred to as 'usual' in Figure 2). At the same time, 32.2% reported that they had visited for a check-up in the previous 12 months; that is, they were recent attenders ('current' in Figure 2). This is similar to the proportions reported by people with no chronic condition (26.5% and 36.6%, respectively) (Figure 2).

Across chronic condition groups, people with heart disease were most likely to be both current (53.9%) and usual (39.2%) attenders. People who had experienced a stroke were least likely to be both current (8.9%) and usual (11.9%) attenders.

More respondents were current attenders than were regular attenders and this was so for both people with any chronic condition and those with no chronic condition. Within chronic condition groups, there were no significant differences in rates of regular and current attendance, with the exception of people with kidney disease who were more likely to report that they were usual attenders (35.0%) than current attenders (14.6%).

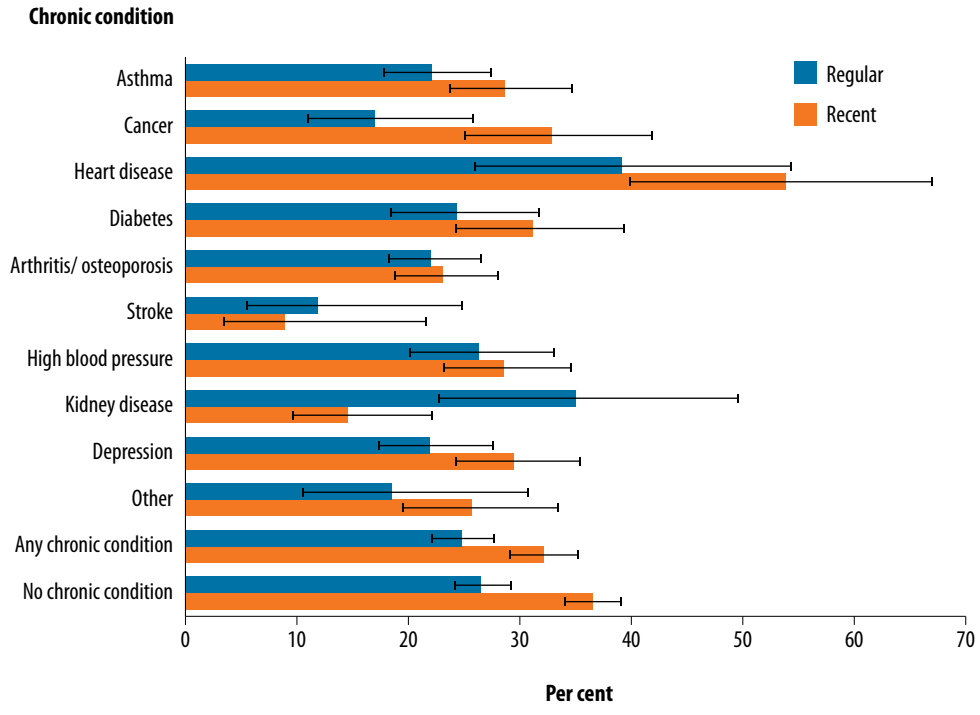

Figure 2: Usual and current visiting pattern by presence of chronic condition

Conclusions

Comparisons between those with and those without a chronic condition

Overall, people with a chronic condition were around twice as likely as those without a chronic condition to report that they experienced toothache, discomfort with their oral appearance or had avoided some foods due to oral problems often or very often in the previous 12 months. Those with a chronic condition were also more likely to experience orofacial pain and have inadequate dentition. However, they had a similar prevalence of having a broken or chipped natural tooth and a similar number of missing teeth as those without a chronic condition.

Comparisons between chronic condition groups

While experience of four of the five oral health impacts was greater among people with a chronic condition than amongst people without a chronic condition, certain groups were more likely to experience these impacts.

People who had experienced a stroke had the highest average number of missing teeth, were most likely to have inadequate dentition and to have avoided some foods due to oral problems.

Previous work showed that people who had experienced a stroke were least likely of all chronic condition groups to rate both their oral health and their general health as excellent, good or very good (Spencer & Ellershaw 2011). They were also most likely to report that their oral health impacted on their general health. However, they were least likely to be both recent and regular attendees than both the general population and people without a chronic condition overall.

These findings suggest that among people with a chronic condition, people who have experienced a stroke are likely to be living with a double disadvantage of poor general health and poor oral health, with significant impacts on their oral health–related quality of life. Of particular note is the high number of missing teeth and subsequent high prevalence of inadequate dentition, which is likely to be exacerbated by their dental visiting pattern (Thomson et al. 2010).

Data source and methodology

Data presented in this report were sourced from the National Dental Telephone Interview Survey (NDTIS) 2010. The NDTIS is an interview survey of a random sample of Australian residents aged 2 years and over in all states and territories. A total of 10,237 people aged 2 or more years were interviewed and asked a range of questions relating to their oral health, access to dental care, dental treatment received and affordability of dental care. Further details about sampling and recruitment of subjects are available elsewhere (Chrisopoulos et al. 2011).

Data were weighted to account for the different probabilities of selection to reflect the 2009 estimated resident population (ABS 2009). To account for the different age and sex distributions within each chronic condition, estimates of population prevalences have been age and sex-standardised. Age and sex standardisation is a statistical procedure that aims to remove any effects of age and sex that might account for differences between two comparison groups. In this report, the direct method of standardisation was used, with the reference population defined as the 2009 estimated resident population.

This report presents findings from 6,284 adults aged 18 years or older who were directly interviewed, and excludes 481 adults whose information was obtained by proxy (or third party) interview. The telephone interview proceeded in a set order of questions with participants initially asked whether they had attended a general medical practitioner (GP) in the previous 12 months. Further questions about self-reported chronic conditions were only asked of those who had a recent GP attendance.

Such attendance was seen as important in establishing the veracity of self-reported chronic condition experience. The 5,537 adults who had made a recent GP visit were asked whether they had experienced a particular chronic condition for at least the previous 6 months.

Chronic conditions included were asthma, cancer, heart disease, diabetes, arthritis/osteoporosis, stroke, high blood pressure, kidney disease and depression.

Categories of response for each individual condition were 'Yes', 'No' or 'Don't know'.

In this report, 95% confidence intervals (CIs) were used as a guideline to identify differences between population subgroups that are statistically significant. When there was no overlap between the 95% CIs for two groups, the difference between the groups was deemed to be statistically significant.

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Acknowledgements

The authors of this report were Dr Jane Harford and Dr Najith Amarasena of the Dental Statistics and Research Unit at the Australian Institute of Health and Welfare (AIHW).

This research is supported by the AIHW. The National Dental Telephone Interview Survey is supported by the Australian Government Department of Health and Ageing.

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

ISSN 1445-775X
ISBN 978-1-74249-363-3

Suggested citation
Australian Institute of Health and Welfare 2012. Chronic conditions and oral health. Research report series no. 56. Cat. no. DEN 221. Canberra: AIHW.

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