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research report 53

Dental decay among Australian children

This report provides information on the dental decay experience of Australian children from the Child Dental Health Survey (CDHS) 2005. Data for this survey have been derived from routine examination data from a random sample of children enrolled in the School Dental Service (SDS). Decay experience is measured by the number of decayed, missing and filled teeth (dmft for deciduous teeth, DMFT for permanent teeth).

Main findings

Among Australian children aged 5–6 years:

- nearly half (48.7%) had a history of dental decay in the deciduous teeth
- the mean number of decayed, missing and filled deciduous teeth was 2.0
- the mean number of decayed, missing and filled deciduous teeth of children from the lowest socioeconomic status areas was about 70% higher than for those from the highest socioeconomic status areas. This pattern was evident across all states and territories whose data were included in the analysis.

Among Australian children aged 12 years:

- nearly half (45.1%) had a history of dental decay in the permanent teeth
- the mean number of decayed, missing and filled permanent teeth was 1.1
- the mean number of decayed, missing and filled permanent teeth of children from the lowest socioeconomic status areas was about 70% higher than for those from the highest socioeconomic status areas.

Contents

Data collection methods and reporting

Data presented in this publication were sourced from the Child Dental Health Survey (CDHS) 2005, which monitors the dental health of children attending school dental services (SDS) operated by the health departments or authorities of Australian state and territory governments.

Data for CDHS have been derived from routine examinations of a random sample of children enrolled in the SDS. Data were adjusted according to time since last dental examination so that children on longer recall intervals, who often have better oral health, were not under-represented in this analysis. State and territory estimates (ABS 2003) of the 2005–06 estimated resident population (ERP) within individual ages are used to provide numerators for weights that are divided by the age-specific number of cases in the samples from respective states and territories (see Ha et al. 2011 for a detailed description of data collection and analysis methods). The age groups of children aged 5–6 years and 12 years were chosen to present in this report, as these age groups have been widely used internationally for monitoring progress in child oral health (Federation Dentaire Internationale 1982).

Decay experience is expressed as the number of decayed, missing and filled teeth (dmft for the deciduous or baby teeth or DMFT for permanent or adult teeth). Three measures of decay experience are reported:

- The prevalence of disease is measured by the proportion of children who have disease (dmft or DMFT more than 0).
- The severity of decay is measured by mean dmft and mean DMFT.
- The need for dental treatment is measured by the proportion of children who have untreated decay (d or D more than 0).

Comparisons are made between boys and girls, across all available states and territories and across socioeconomic status groups. To help interpret results, 95% confidence intervals are reported for all results.

New South Wales (NSW) and Victoria (Vic) have been excluded from this report, as data were not available. It is necessary to be cautious in drawing inferences among states and territories, as the differences may be the result of differences between states and territories in SDS coverage, level of enrolment, focus of services policy, or access to services in rural or remote areas.

Quartiles of the Socio-Economic Index for Areas (SEIFA) measure Index of Relative Socioeconomic Advantage/Disadvantage, developed by the Australian Bureau of Statistics (ABS 2006), are used to analyse differences in socioeconomic status (SES). A higher SEIFA index score indicated that an area has a relatively high proportion of people with high incomes or a skilled labour force, and is relatively advantaged. SEIFA scores were allocated to children according to the postcode of the location of the SDS clinic they attended.

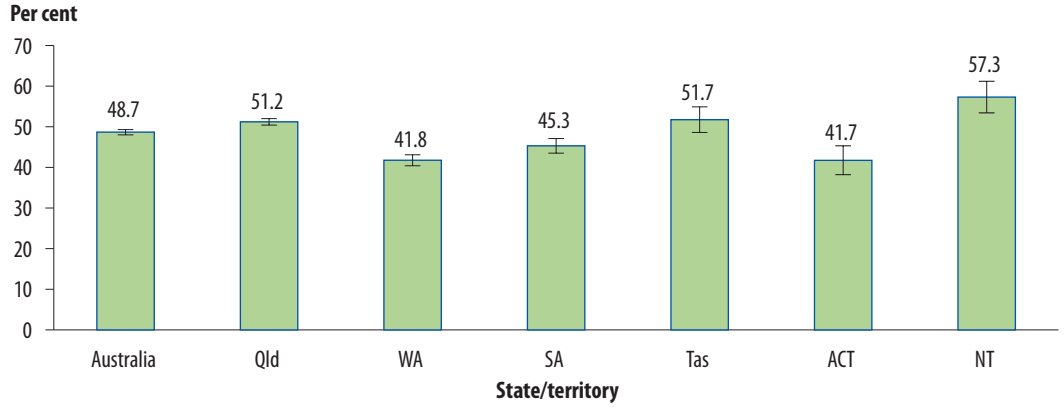
In this report, the 25% of children attending clinics with the highest SEIFA index score is described as the 'highest SES'. The 25% at the other end of the scale is described as the 'lowest SES' (see Ha et al. 2011 for a detailed description of data collection and analysis methods).

Dental decay in children aged 5–6 years

Dental decay (also called dental caries), both treated and untreated, in Australian children aged 5–6 years has declined significantly compared with the 1970s (Armfield 2008). In spite of this decline, this disease remains common in Australian children.

Prevalence

More than 20,000 children aged 5–6 years were included in this analysis. Nearly half (48.7%) of Australian children in that age group have had dental caries in their deciduous teeth (also called baby teeth). This figure varied across states and territories. It ranged from 41.7% in the Australian Capital Territory (ACT) and 41.8% in Western Australia (WA) to 57.3% in the Northern Territory (NT) (Figure 1).



Source: Child Dental Health Survey 2005

Figure 1: Proportion of children aged 5–6 years with number of decayed, missing and filled deciduous teeth more than 0, by state and territory, 2005

There was no difference in prevalence of decay between boys and girls. Children aged 5–6 years from the three lower SES areas had more dental decay than those from the highest SES areas (54.3% in the lowest SES and 39.3% in the highest SES) (Table 1).

Table 1: Proportion of children aged 5–6 years with caries in deciduous teeth, 2005

Characteristic	Total number of children (unweighted number)	Percentage of children with dmft more than 0 (95% CI) (weighted number)
Sex		
Boys	10,500	48.6 (47.8–49.5)
Girls	10,173	48.7 (47.8–49.5)
Socioeconomic status		
1 (lowest SES)	5,495	54.3 (53.1–55.6)
2	4,847	51.1 (49.5–52.8)
3	4,900	51.8 (50.8–52.8)
4 (highest SES)	5,461	39.3 (38.2–40.4)

Note: Sex was not reported for all children

Source: Child Dental Health Survey 2005

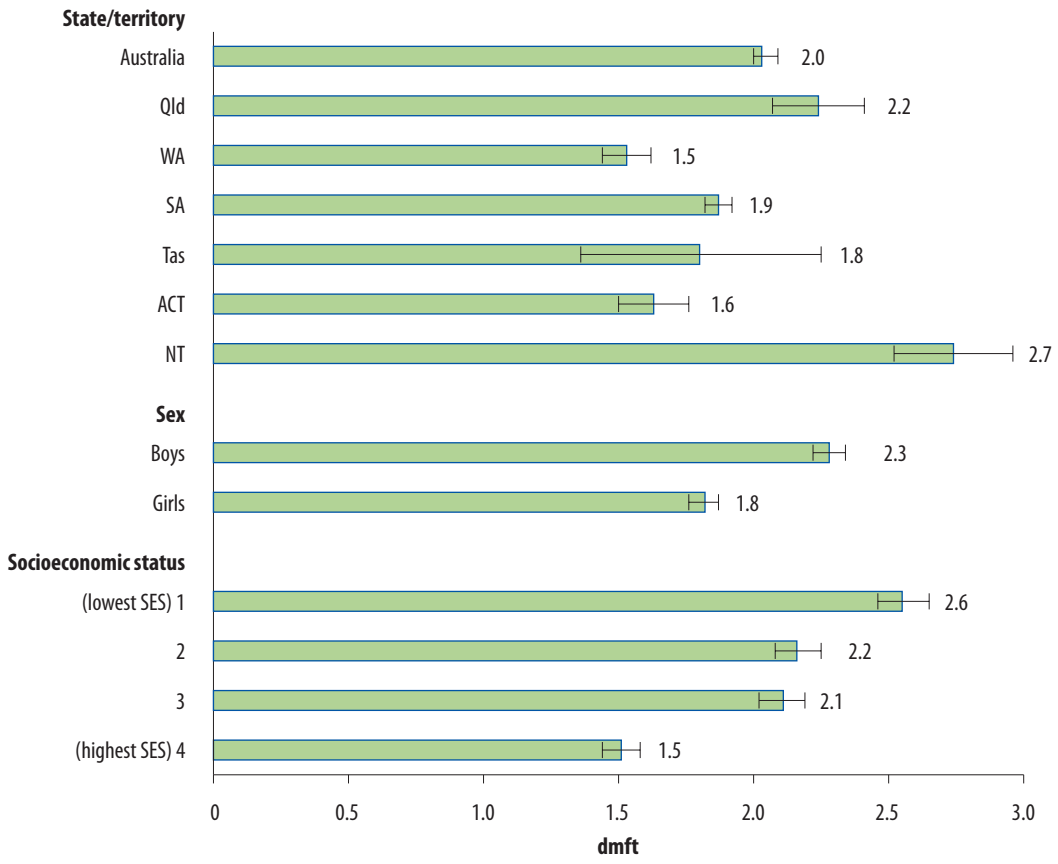
Severity

In 2005, the mean number of decayed, missing and filled deciduous teeth among Australian children aged 5–6 years was 2.0.

Boys had a higher mean dmft than girls (2.3 compared with 1.8).

The mean dmft of children from the three lower SES areas were higher than for those from the highest SES area, with the biggest difference being between the lowest and the highest SES area. The mean dmft of children from the lowest SES areas was about 70% higher than for those from the highest SES areas (Figure 2)

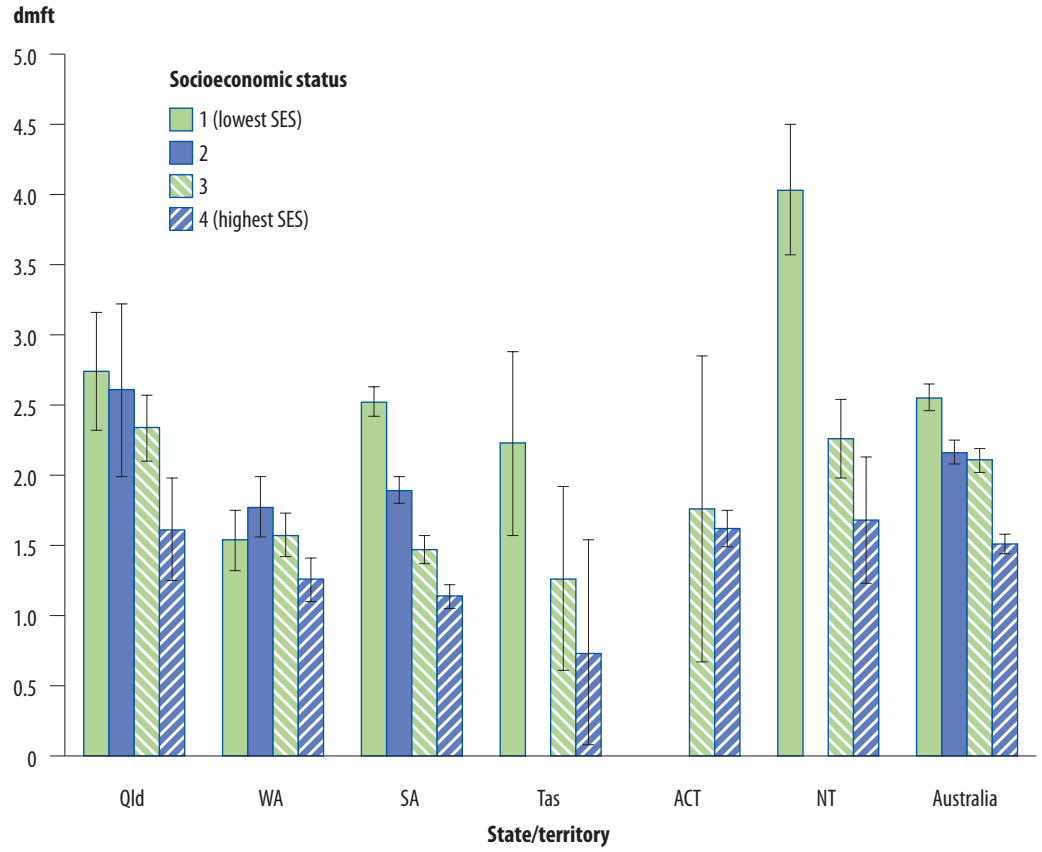
Means varied across states and territories, from a low of 1.5 in WA to 2.7 in the NT.



Source: Child Dental Health Survey 2005

Figure 2: Mean number of decayed, missing and filled deciduous teeth (dmft) among children aged 5–6 years, by state and territory, sex, and socioeconomic status, 2005

The gradient in worsening oral health with decreasing advantage was consistent across the states and territories. Decay experience of children from the lowest SES areas was between 22% (WA) and 139% (NT) higher than for children from the highest SES areas (Figure 3).



Source: Child Dental Health Survey 2005

Figure 3: Mean number of decayed, missing and filled deciduous teeth (dmft) among children aged 5–6 years, by socioeconomic status and state and territory, 2005

Untreated decay

The presence of untreated decay can be used as an indicator of a need for dental treatment. More than 40% of Australian children aged 5–6 years had untreated decay (Table 2). The proportion of children with untreated decay varied among states and territories from 29.3% in the ACT to 49.7% in the NT. Consistent with previous results, children aged 5–6 years from the three lower SES areas had more untreated decay than children from the highest SES areas.

Table 2: Prevalence of untreated decay in deciduous teeth of children aged 5–6 years, by state and territory, sex, and socioeconomic status, 2005

Characteristic	Total number of children (unweighted number)	Total number of children (weighted number)	Percentage of children with untreated decay (95% CI) (weighted number)
State/territory			
Qld	1,332	16,360	44.5 (43.7–45.3)
WA	2,993	4,930	34.3 (32.9–35.6)
SA	13,427	3,052	35.9 (34.2–37.6)
Tas	160	966	44.4 (41.3–47.5)
ACT	1,747	756	29.3 (26.0–32.5)
NT	1,044	618	49.7 (45.7–53.6)
Sex			
Boys	10,500	13,040	42.4 (41.6–43.3)
Girls	10,173	13,632	40.2 (39.4–41.1)
Socioeconomic status			
1 (lowest SES)	5,495	6,227	47.9 (46.6–49.1)
2	4,847	3,529	44.4 (42.7–46.0)
3	4,900	9,181	45.9 (44.9–46.9)
4 (highest SES)	5,461	7,745	29.2 (28.2–30.2)
Australia	**20,703**	**26,683**	**41.3** (40.7–41.9)

Note: Sex was not reported for all children

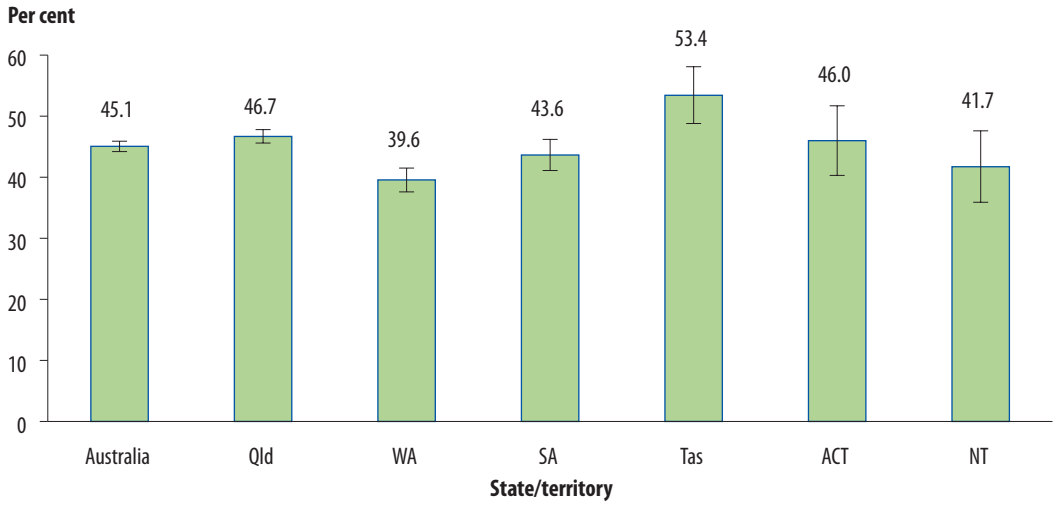
Source: Child Dental Health Survey 2005

Dental decay in children aged 12 years

There has been a considerable decline in caries experience since the 1970s, with the mean number of decayed, missing and filled permanent teeth (DMFT) of Australian children aged 12 years decreasing from 4.8 in 1977 to 1.1 in 2005. However, dental decay remains a common disease among Australian children.

Prevalence

Nearly 9,000 children aged 12 years were included in this analysis. Across Australia, 45.1% of children aged 12 years had decay in their permanent teeth. Tasmania (Tas) had the highest proportion of children aged 12 years with a history of decay (53.4%), while WA had the lowest proportion (39.6%) (Figure 4).



Source: Child Dental Health Survey 2005

Figure 4: Proportion of children aged 12 years with DMFT more than 0, by state and territory, 2005

The prevalence of decay in children aged 12 years was somewhat higher in girls than in boys (46.5% compared with 43.8%). Children from the lowest SES areas had more decay than those from the highest SES areas (53.1% compared with 37.1%, respectively) (Table 3).

Table 3: Proportion of children aged 12 years with DMFT more than 0, by sex and socioeconomic status, 2005

Characteristic	Total number of children (unweighted data)	Percentage of children with DMFT more than 0 (95% CI) (weighted data)
Sex		
Boys	4,503	43.8 (42.6–45.0)
Girls	4,338	46.5 (45.2–47.7)
Socioeconomic status		
1 (lowest SES)	2,422	53.1 (51.1–55.2)
2	2,105	41.6 (39.4–43.9)
3	2,076	47.5 (46.1–48.9)
4 (highest SES)	2,242	37.1 (35.4–38.9)

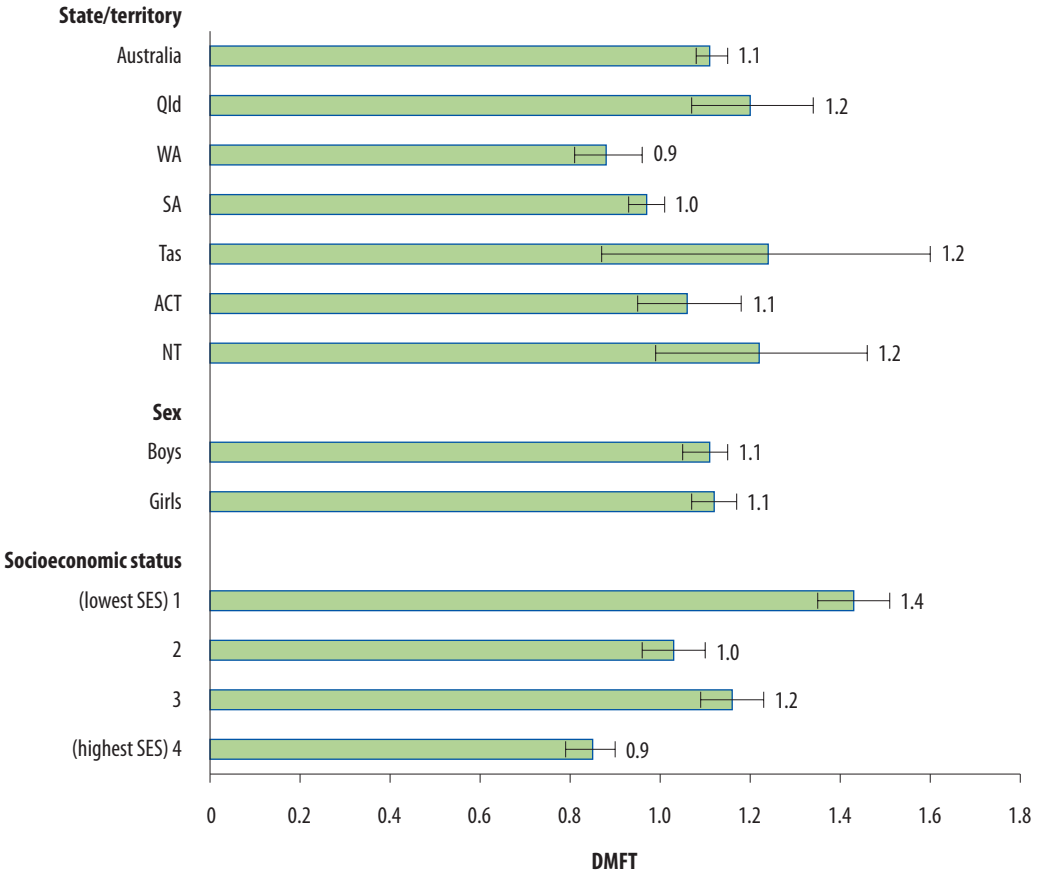
Note: Sex was not stated for all children

Source: Child Dental Health Survey 2005

Severity

In 2005, the mean number of decayed, missing and filled permanent teeth (DMFT) among Australian children aged 12 years was 1.1.

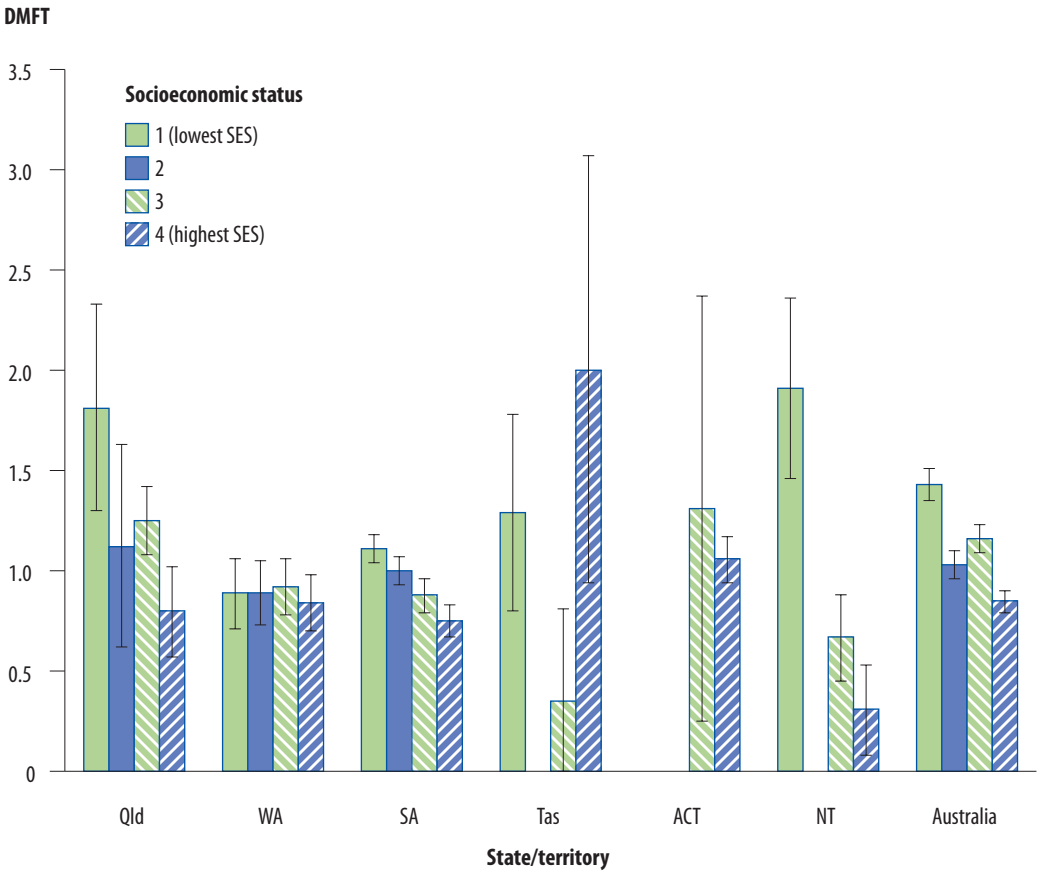
WA had the lowest mean DMFT score (0.9) while the NT, Tas and Queensland (Qld) had the highest mean DMFT scores (1.2 for each state/territory) (Figure 5).



Source: Child Dental Health Survey 2005

Figure 5: Mean number of decayed, missing and filled permanent teeth (DMFT) among children aged 12 years, by state and territory, sex, and socioeconomic status, 2005

Figure 6 shows the differences in DMFT score among socioeconomic groups within states and territories. There was a consistent pattern showing children from the lowest SES areas had more caries than those from the highest SES areas across most states and territories. However, the relationship between the DMFT score and socioeconomic status was less consistent than that seen in the deciduous teeth.



Source: Child Dental Health Survey 2005

Figure 6: Mean number of decayed, missing and filled permanent teeth (DMFT) among children aged 12 years, by socioeconomic status and state and territory, 2005

Untreated decay

The presence of untreated decay can be used as an indicator of a need for dental treatment. Nearly one-quarter (24.8%) of Australian children aged 12 years had untreated decay (Table 4). The proportion of children with untreated decay in their permanent teeth ranged from 19.1% in the ACT and 19.7% in WA to 30.7% in the NT. Among children aged 12 years, those from the lowest SES areas had more untreated decay than those from the highest SES areas (30.8% compared with 17.9%).

Table 4: Prevalence of untreated decay in permanent teeth of 12 year old children, by state and territory, sex and socioeconomic status, 2005

Characteristic	Total number of children (unweighted number)	Total number of children (weighted number)	Percentage of children with untreated decay (95% CI)
States and territories			
Qld	668	7,430	26.7 (25.7–27.7)
WA	1,322	2,368	19.7 (18.8–21.3)
SA	5,792	1,456	22.3 (20.1–24.4)
Tas	69	444	29.5 (25.3–33.6)
ACT	670	291	19.1 (14.5–23.6)
NT	324	271	30.7 (25.2–36.2)
Sex			
Boys	4,503	6,369	24.8 (23.7–25.8)
Girls	4,338	5,890	24.9 (23.8–26.0)
Socioeconomic status			
1 (lowest SES)	2,422	2,270	30.8 (28.9–32.7)
2	2,105	1,855	23.7 (21.8–25.6)
3	2,076	5,085	26.7 (25.5–28.0)
4 (highest SES)	2,242	3,050	17.9 (16.5–19.3)
Australia	**8,845**	**12,260**	**24.8** (24.0–25.6)

Note: Sex was not stated for all children

Source: Child Dental Health Survey 2005

Abbreviations

CI	confidence interval
CDHS	Child Dental Health Survey
d	decay in deciduous (or baby) teeth
D	decay in permanent (or adult) teeth
dmft	decayed, missing and filled deciduous (or baby) teeth
DMFT	decayed, missing and filled permanent (or adult) teeth
SDS	school dental service
SEIFA	Socio-Economic Index for Areas
SES	socioeconomic status
NSW	New South Wales
Vic	Victoria
Qld	Queensland
WA	Western Australia
SA	South Australia
Tas	Tasmania
ACT	Australian Capital Territory
NT	Northern Territory

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