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SA DENTAL SERVICE



THE UNIVERSITY OF ADELAIDE

**The Child Dental Health Survey
South Australia
January - December 1992**

by

The AIHW Dental Statistics
and Research Unit

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This report is the South Australian component of the Child Dental Health Survey, a project in which all States and Territories are participating.

The AIHW Dental Statistics and Research Unit (DSRU) is an external unit of the Australian Institute of Health and Welfare and was established in 1988 at The University of Adelaide. The DSRU was funded to improve the range and quality of dental statistics and research on the dental workforce, dental health status, dental practices and use of dental services.

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THE CHILD DENTAL HEALTH SURVEY - SOUTH AUSTRALIA 1992

Purpose of this report

This report establishes the series of annual reports providing descriptive statistics concerning child dental health in South Australia, and follows the 1991 report. Information listed in the tables includes: the age and sex of children in the sample, their deciduous and permanent caries experience, frequency of fissure sealants and children's history of School Dental Service examinations. These data were collected during the 1992 calendar year from SA School Dental Service patients by dental therapists and dentists. A random sampling procedure was used to select patients aged five to 15 years during June 1991 to May 1992. This was achieved in metropolitan Adelaide by selecting those children whose birthdays were on the 13th, 30th or 31st day of any month. Non-metropolitan areas included birthdays falling on the 13th, and 26th through to 31st.

A sample of this cohort, based on participation in the Child Fluoride Study,¹ of cases was re-examined during the 1992 calendar year. To allow for the ageing of this cohort, five year-old children new to the SDS were also sampled at the above-mentioned ratios.

This sampling scheme represents a modification from the procedures used in 1991.

The following sections describe briefly each table and contain a simple summary statement highlighting differences between the 1992 and 1991 data. However, no formal hypothesis tests have been undertaken, and *descriptions of difference between years are intended as a guide to the reader, rather than an evaluation of trends.*

Table 1: Demographic composition of the sample

The first table lists at the left the number of children sampled according to their date of birth. The majority of children were aged five years or more, and there were large numbers of children in the range five to 15 years. There was a tendency for younger children within this age range to be represented in slightly greater numbers. Males and females were represented in approximately equivalent numbers. There was not more than 11 per cent variation in the gender balance within any age group.

The age distribution of the sample is related to the main target groups of children served by the School Dental Service in SA. This illustrates that the sample is representative of children in primary school and early secondary school, rather than all children in South Australia. Consequently, those children who are outside the main school dental service target groups (less than 5 or more than 15 years) may differ on key characteristics and are likely to be less representative of their respective age groups in the SA population.

Changes since 1991

The 1992 sample is smaller than the 1991 sample by approximately 9,600 children, reflecting the different sampling arrangements described previously. In other respects, the proportional distribution of ages and sexes is similar to the 1991 sample.

¹ An NHMRC funded project conducted in collaboration with SADS designed to examine the effect of water fluoridation on 3 year caries incidence.

Table 2: Country of birth

This information, collected for the first time in 1990, highlights the large percentage of sampled children who were born in Australia. Fewer than six per cent of children were born in other countries. A higher percentage of mothers were born outside Australia, with Europe and the United Kingdom being the most frequent overseas birthplace.

Table 3: Deciduous teeth: age-specific prevalence

The mean number of decayed teeth shows considerable variation among ages, ranging from a high of 0.6 among children aged five years to a low of 0.2 among 10 year-olds. The age-associated decline in number of decayed teeth is fairly linear. Variation in mean dmft is less consistently associated with age, being highest among eight year-olds (mean = 1.84), and tending to be smaller among younger and older ages. A pattern of reducing dmft among older children is consistent with natural exfoliation of teeth.

The percentage of caries experience due to decay (d/dmft) shows a strong age-associated decline, reducing from 46.1 per cent among children aged five years or less to below 20 per cent for children aged nine years or more. This pattern of deciduous caries experience among the youngest groups (dominated by patients new to the School Dental Service) indicates that they enter the dental program with a relatively high level of untreated caries.

The percentage of caries-free children (% dmft = 0) also shows an age-associated reduction from 63.0 per cent among five year-old children to 43-44 per cent among eight and nine year-olds. The percentage of caries free children therefore mirrors the mean dmft prevalence.

Changes since 1991

The mean number of decayed teeth declined consistently across ages by approximately 0.1 teeth. There were noticeable declines in the mean dmft, ranging from 0.3 to 0.7 in the age range five to nine years. Related to this, the percentage of caries experience due to decay (d/dmft) decreased marginally in that age range. There were also indications of modest decreases (two to five per cent) in the percentage of children with no deciduous caries experience (dmft=0).

Table 4: Permanent teeth: age-specific prevalence

The mean number of decayed permanent teeth is consistently smaller than the mean number of decayed deciduous teeth for children aged 11 years or less. Although the figure increases among older ages, it is substantially less than the highest mean number of decayed deciduous teeth. As expected, the mean DMFT increases quite consistently across age groups. Permanent caries experience of children aged 14 years or more is of a similar magnitude to the equivalent maximum observed in the deciduous dentition amongst eight and nine year-olds.

As a consequence of these age-associated trends, the percentage of DMFT due to decay (D/DMFT) and the percentage caries free (DMFT=0) each decline across age groups. Indeed, fewer than 52 per cent of children aged over 12 years have no caries experience.

Changes since 1991

There were very small reductions of approximately 0.01 teeth in the mean DMFT of most age groups in the range 5 to 12 years, and the mean number of decayed permanent teeth

decreased by similar amounts on average across the same age range. Similarly, very minor differences were observed in the percentage of caries experience due to untreated decay (D/DMFT). The percentage of caries-free children (DMFT=0) did not change to any substantial degree.

Table 5: All teeth: age-specific prevalence

Untreated caries in the combined deciduous and permanent dentitions exist for 15 to 25 per cent of children in most ages. Based on observations from previous tables, much of this untreated decay can be attributed to the deciduous dentition. Furthermore, it is noteworthy that the most extensive levels of untreated decay (4 or more deciduous or permanent teeth) occur in the younger age groups, with five per cent of children aged five years or less being affected to this extent. This is further evidence that the most extensive levels of untreated decay occur in the deciduous dentition.

More than 97 per cent of children across all ages have no deciduous or permanent teeth missing due to caries ($m+M=0$). As expected, the percentage of children with neither deciduous or permanent caries experience ($dmft+DMFT=0$) declines among older ages, and less than 50 per cent of those aged 13 years or more have no caries experience.

Changes since 1991

There were increases in the percentage of children with decay ($\% d+D=1$) in ages 7 to 12 years, and there were small but consistent increases (generally in the range of one to three per cent) in the percentage of children with no caries experience ($dmft+DMFT=0$). Those changes in dental health status are consistent with the changes noted separately for the deciduous and permanent dentitions.

Table 6: Fissure sealants: age-specific prevalence

Fissure sealants were recorded for the first time during 1990 in South Australia. Sealants were frequent in children aged 8 years or more. The prevalence of fissure sealants among those without permanent caries experience (DMFT=0) was consistently greater than among those with some permanent caries experience (DMFT=1+). This indicates that fissure sealants were being used preferentially in children with past caries experience.

There were increases in the mean number of teeth with fissure sealants across most ages, generally within the range of 0.1 to 0.2 teeth.

Table 7: Immediate treatment needs

This data item was recorded for the first time in 1990 and refers to children who at the time of examination have, or are likely to develop within four weeks, pain, infection or serious life threatening conditions. It is intended to capture the more severe clinical conditions which may not be apparent from statistics such as the number of teeth affected with some caries experience. Fewer than 20 per cent of children had immediate treatment needs. Both deciduous and permanent caries experience (dmft and DMFT) were high for this group. In addition, large percentages, particularly among the youngest age groups, had four or more teeth with untreated decay.

Changes since 1991

There has been a substantial decrease across most age groups in the percentage of children sampled in need of immediate treatment, within the range of five to eight per cent. This is probably due to the sampling methods described in the introduction.

Table 8: School Dental Service examinations

This table demonstrates that the great majority (over 90 per cent) of children over the age of five years had previously been examined within the School Dental Service. The percentage of children aged 3 years or less with a previous examination is difficult to interpret, as it may be expected that virtually all of them would receive a first examination.

The right hand side of the table refers to the period since the previous school dental service examination among children with a previous record of examination. There was a distinctive age-related pattern with younger children more likely than older children to have received a previous examination within the last 12 months. Indeed, more than 10 per cent of children aged five years or less had received a previous examination within the previous six months.

Changes since 1991

The months since last examination reveal stable proportions of children who last received care over 12 months ago, and a slight decrease in the proportion who had an exam more than two years ago, which again reflects the sampling strategy mentioned in the introduction.

Figure 1: Percentage of children with dmft=0, DMFT=0 and d+D=4+

This figure presents data contained in Tables 3, 4 and 5 to summarise the extent of dental health (represented by percentage with no caries experience) and the extent of more extensive untreated decay (represented by the percentage with d+D=4 or more).

Figure 2: Time since last dental examination

This figure draws on information from Table 8, and selects six and 12 year-olds to demonstrate the variation in time since last examination.

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TABLE 1: DEMOGRAPHIC COMPOSITION OF THE SAMPLE

Data for the Child Dental Health Survey are collected from a stratified random sample of children in all Australian States and Territories. In South Australia the sampling is 1:19. This ratio is achieved by systematically selecting every nineteenth record of data from all children examined in the School Dental Service. The following table describes the number of records processed from children in South Australia.

State/Territory: **South Australia**

Sampling Ratio: **1:19**

Data for period January-December 1992

Date of Report: 31st August 1993

Age (years)	NUMBER OF RECORDS PROCESSED		
	Males	Females	Persons
2	8	5	13
3	26	30	56
4	58	53	111
5	322	290	612
6	398	362	760
7	426	460	886
8	449	420	868
9	439	410	848
10	418	399	818
11	396	391	786
12	332	345	678
13	316	303	620
14	278	289	567
15	179	197	377
16	67	77	143
17	5	8	13
Total	4117	4040	8157

TABLE 2: COUNTRY OF BIRTH (INCLUDING ABORIGINALITY)

The country of birth of children is determined from information concerning birthplace of the child and mother. The number and percentage of children in each group is provided in this Territory-wide report.

State/Territory: **South Australia**

Sampling Ratio: **1:19**

Data for period January-December 1992

Date of Report: 31st August 1993

COUNTRY OF BIRTH	CHILDREN		MOTHERS	
	Number ¹	%	Number	%
Australia (non-Aboriginal)	5655	93.4	4433	75.5
Australia (Aboriginal or TSI)	67	1.1	54	0.9
United Kingdom and Eire	97	1.6	777	13.2
Other English speaking	56	0.9	76	1.3
Southern Europe	12	0.2	143	2.4
Other Europe	36	0.6	157	2.7
Middle East	3	0.0	9	0.2
South East Asia	102	1.7	141	2.4
Other Asia	16	0.3	41	0.7
Other	11	0.2	40	0.7
Not recorded	2103		2286	
Total	8157	100.0	8157	100.0

¹ Data are weighted to reflect the sampling scheme by correcting for the over-representation in the sample of children with an unknown date of birth and children from outside the Darwin region. Data relating to second or subsequent examinations of children within this reporting period are eliminated.

TABLE 3: DECIDUOUS TEETH: AGE-SPECIFIC PREVALENCE¹

This table uses Statewide data to describe the dmft index and its components for individual (year of birth) ages. Indices are calculated from data collected over a 12 month period. Where children received more than one examination during this period, the information derived from examinations other than the first is excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: **South Australia**

Sampling ratio: **1:19**

Data for period January-December 1992

Date of report: 31st August 1993

Age (years)	Number of children in sample	decayed ²		dmft		d/dmf %	Children with dmft=0 %
		mean	sd	mean	sd		
5	612	0.58	1.41	1.23	2.19	46.1	63.0
6	760	0.53	1.28	1.53	2.39	37.1	53.3
7	886	0.35	0.82	1.54	2.23	24.6	51.3
8	868	0.30	0.70	1.84	2.21	18.6	43.1
9	848	0.29	0.68	1.72	2.08	19.3	44.2
10	818	0.23	0.61	1.61	1.97	15.7	46.1

¹ Legend: d - decayed deciduous teeth
 dmft - decayed, missing or filled deciduous teeth
 sd - standard deviation

² Filled but otherwise sound teeth which needed a replacement filling were included in the decayed index resulting in a very small over-estimation of the decayed and dmft indices of four per cent or less.

TABLE 4: PERMANENT TEETH: AGE-SPECIFIC PREVALENCE¹

This table uses Statewide data to describe the DMFT index and its components for individual (year of birth) ages. Indices are calculated from data collected over a 12 month period. Where children received more than one examination during this period, the information derived from examinations other than the first is excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1992

Date of report: 31st August 1993

Age (years)	Number of children in sample	DECAYED ²		DMFT		D/DMFT	Children with DMFT=0
		mean	sd	mean	sd	%	%
5	612	*	*	*	*	*	99.2
6	760	0.05	0.31	0.07	0.34	75.0	95.2
7	886	0.07	0.30	0.12	0.41	61.9	91.0
8	868	0.07	0.34	0.25	0.63	28.8	83.5
9	848	0.10	0.34	0.33	0.73	33.6	78.5
10	818	0.10	0.36	0.50	0.94	21.6	72.0
11	786	0.10	0.39	0.63	1.14	16.2	67.2
12	678	0.21	0.61	1.04	1.43	19.1	51.5
13	620	0.19	0.58	1.09	1.62	15.8	53.4
14	567	0.21	0.60	1.59	1.79	13.5	40.3
15	377	0.18	0.52	2.09	2.30	10.2	32.3
16	143	0.16	0.58	2.03	2.04	8.36	28.9

¹ Legend: D - decayed permanent teeth
DMFT - decayed, missing or filled permanent teeth
sd - standard deviation

² Filled but otherwise sound teeth which needed a replacement filling were included in the decayed index resulting in a very small over-estimation of the decayed and DMF indices of two per cent or less.

TABLE 5: ALL TEETH: AGE-SPECIFIC PREVALENCE¹

This table uses Statewide data to describe the combined dmft and DMFT indices and their components for individual (year of birth) ages. Indices are calculated from data collected over a 12 month period. Where children received more than one examination during this period, the information derived from examinations other than the first is excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1992

Date of report: 31st August 1993

Age (years)	Number of children in sample	% of children with d+D=					% of children with		
		0	1	2	3	≥4	m+M=0	f+F=0	dmft+DMFT=0
4	111	79.1	8.7	6.4	*	*	99.5	88.6	70.6
5	612	77.2	8.0	6.0	3.9	4.9	98.3	74.7	62.9
6	760	72.1	15.4	5.5	3.1	4.0	98.9	64.9	52.0
7	886	73.7	17.2	5.9	1.3	1.9	98.0	56.5	48.4
8	868	76.3	14.8	6.6	1.2	1.2	97.9	45.0	38.4
9	848	74.7	16.3	6.3	1.4	1.2	97.5	45.7	38.6
10	818	77.8	15.8	3.9	1.6	0.9	98.3	41.3	36.3
11	786	82.5	12.7	3.5	0.7	*	99.2	48.7	44.1
12	678	79.8	12.3	5.6	1.2	1.2	99.7	45.5	39.2
13	620	84.5	11.5	3.0	*	*	99.0	55.0	50.0
14	567	84.6	11.2	2.3	1.3	*	99.3	43.8	39.3
15	377	85.3	11.1	2.5	*	*	99.5	36.1	31.0
16	143	88.8	9.4	*	0.0	*	99.6	31.4	27.9

- ¹ Legend:
- d - decayed deciduous teeth
 - D - decayed permanent teeth
 - m - deciduous teeth missing due to caries
 - M - permanent teeth missing due to caries
 - f - deciduous teeth restored due to caries
 - F - permanent teeth restored due to caries
 - dmft - decayed, missing or filled deciduous teeth
 - DMFT - decayed, missing or filled permanent teeth

TABLE 6: FISSURE SEALANTS: AGE-SPECIFIC PREVALENCE¹

This table uses State-specific data to describe the distribution of fissure sealants for individual (year of birth) ages, along with the caries experience of those who have fissure sealants and those who do not. Indices are calculated from data collected over a 12 month period. Where children received more than one examination during this period, the information derived from examinations other than the first is excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1992

Date of report: 31st August 1993

Age (years)	Number of children in sample ²	Number of sealants		CHILDREN WITH DMFT=0		CHILDREN WITH DMFT=1+	
		mean	sd	number	% with F/S=1+	number	% with F/S=1+
6	760	0.08	0.48	724	2.3	36	24.2
7	886	0.26	0.83	807	9.3	79	25.8
8	868	0.64	1.23	725	20.6	144	53.3
9	848	0.99	1.44	666	33.8	182	55.1
10	818	1.27	1.55	589	42.8	229	63.9
11	786	1.36	1.59	529	45.5	258	64.5
12	678	1.64	1.77	349	53.6	329	66.5
13	620	1.78	2.12	331	51.2	289	65.4
14	567	2.17	2.18	229	57.1	339	75.4
15	377	2.25	2.37	122	48.4	255	76.4
16	143	2.73	2.96	42	56.3	102	78.2

¹ Legend: DMFT - decayed, missing or filled permanent teeth

² Data are weighted to reflect the sampling scheme by correcting for the over-representation in the sample of children with an unknown date of birth and children from outside the Darwin region.

TABLE 7: IMMEDIATE TREATMENT NEEDS: AGE-SPECIFIC DISTRIBUTION¹

This table, based on State-wide data, describes the number and proportion of children in immediate need of dental treatment. This classification is accorded to children who have, or who are likely to develop within four weeks, oral pain or infection. The dental caries experience of this group of children is also described. Indices are calculated from data collected over a 12 month period. Where children received more than one examination during this period, the information derived from examinations other than the first is excluded. Age-specific indices denoted with an asterisk (*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these indices are statistically unreliable.

State/Territory: South Australia

Sampling ratio: 1:19

Data for period January-December 1992

Date of report: 31st August 1993

CHILDREN IN NEED OF IMMEDIATE TREATMENT

Age (years)	Number of children in sample	No.	% of all children	dmft		DMFT		% with d+D=				
				mean	sd	mean	sd	0	1	2	3	4+
4	175	0	0.0	-	-	-	-	-	-	-	-	-
5	611	3	*	*	*	-	-	100.0	0.0	0.0	0.0	0.0
4	751	9	1.2	5.55	3.73	*	*	0.0	43.5	0.0	0.0	56.5
5	875	3	*	*	*	*	*	*	*	0.0	0.0	0.0
6	870	9	1.1	4.28	1.41	*	*	*	*	*	0.0	*
7	849	6	0.7	1.93	1.74	0.73	0.69	0.0	*	56.8	0.0	0.0
8	818	4	*	2.00	1.62	*	*	0.0	66.7	*	0.0	0.0
9	783	4	*	*	*	*	*	64.9	*	0.0	0.0	0.0
10	690	2	*	*	*	4.70	0.65	0.0	0.0	*	*	0.0
11	636	1	*	-	-	1.00	-	100.0	0.0	0.0	0.0	0.0
12	565	1	*	-	-	2.00	-	100.0	0.0	0.0	0.0	0.0
13	535	0	0.0	-	-	-	-	-	-	-	-	-

¹ Legend: dmft - number of decayed, missing or filled deciduous teeth
 DMFT - number of decayed, missing or filled permanent teeth
 d - number of decayed deciduous teeth
 D - number of decayed permanent teeth

**TABLE 8: SCHOOL DENTAL SERVICE EXAMINATIONS:
AGE-SPECIFIC DISTRIBUTION**

This table describes the percentage distribution of children who have received initial and subsequent dental examinations in the School Dental Service. Data from all examinations of children who were examined during the report period are included in this table; percentage estimates denoted with an asterisk (*) are those in which the relative standard error exceeds 40 per cent, and population estimates of these percentages are statistically unreliable.

State/Territory: **South Australia**

Sampling ratio: **1:19**

Data for period January-December 1992

Date of report: 31st August 1993

Age (years)	Number of children examined	Previous examination in School Dental Service (%)			CHILDREN WITH PREVIOUS EXAMINATION			
		No	Yes	Unknown	Months since last examination ¹ (%)			
					0-6	7-12	13-24	25+
3	51	80.4	17.6	*	44.4	*	*	0.0
4	98	48.5	49.5	*	14.6	47.9	37.5	0.0
5	610	22.4	74.2	3.5	11.1	48.8	39.0	*
6	849	4.0	95.2	0.8	9.8	48.8	40.6	0.9
7	938	1.2	97.7	1.2	6.4	47.2	45.2	1.1
8	924	1.2	97.5	1.3	6.7	46.9	45.3	1.1
9	901	0.9	98.0	1.1	5.3	46.6	46.6	1.4
10	860	*	98.6	1.2	5.1	43.5	49.9	1.5
11	817	0.7	97.9	1.3	4.4	41.9	52.6	1.1
12	717	*	99.2	*	3.0	41.1	54.0	2.0
13	652	*	98.9	*	3.1	35.8	59.7	1.4
14	590	*	98.6	1.0	3.4	36.7	57.9	1.9
15	417	0.0	99.3	*	4.8	39.0	54.2	1.9
16	147	0.0	100.0	0.0	*	32.7	66.7	0.0
17	13	0.0	100.0	0.0	0.0	*	84.6	0.0

¹ Excludes those with no previous examination and where the date of previous examination is unknown.

FIGURE 1: PERCENTAGE OF CHILDREN WITH dmft=0, DMFT=0 and d+D=4+

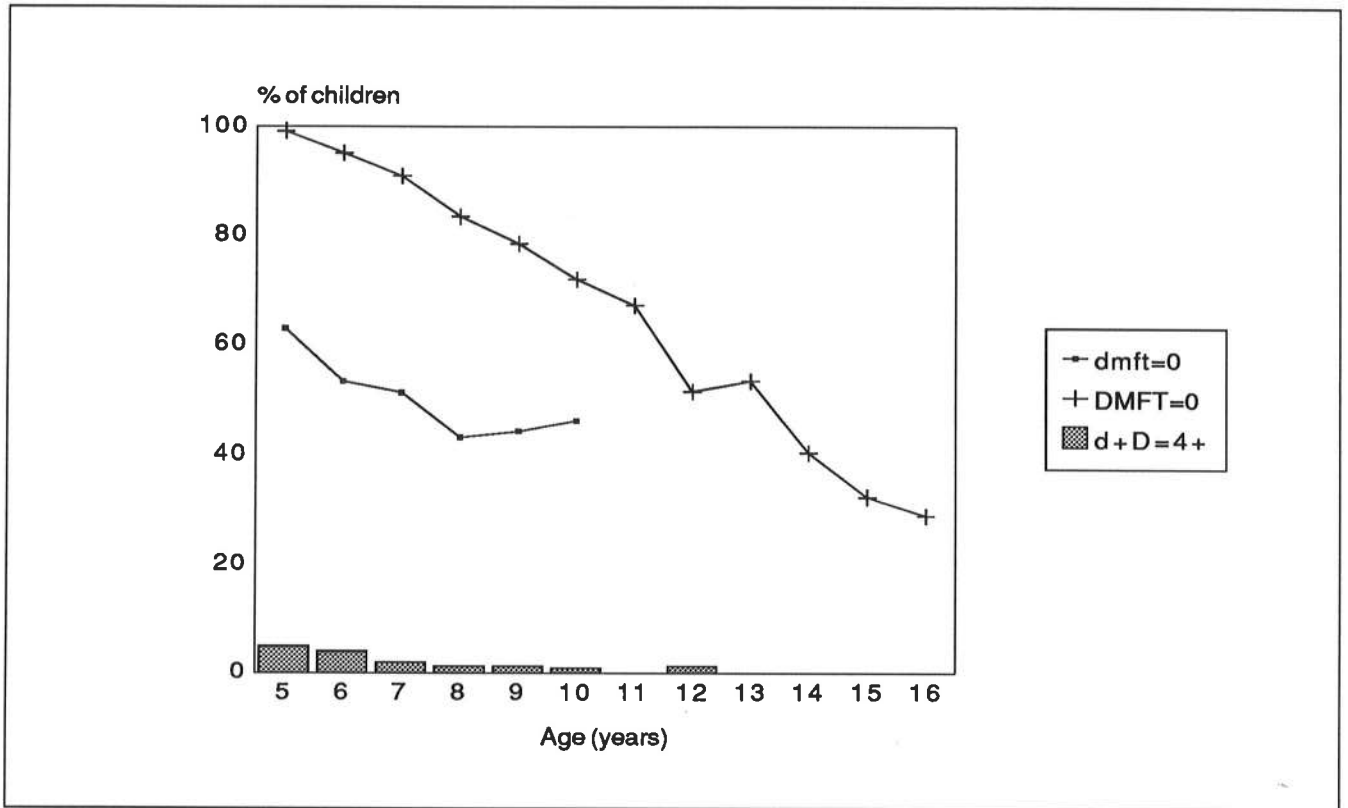


FIGURE 2: TIME SINCE LAST DENTAL EXAMINATION

