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Oral health status of different
population groups in the Cape
Peninsula

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ORAL HEALTH STATUS OF DIFFERENT POPULATION GROUPS IN THE CAPE PENINSULA
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Oral Health is commonly expressed as dental health, basically related to the status of teeth and gums of the individual. Oral Health is measured differently for different types of tissues in the mouth.

The teeth are measured by an index called DMF(T) Index for the permanent dentition and dmf(t) for the deciduous dentition. The index measures the severity of the disease in the mouth, the amount of untreated teeth and the type of service rendered to an individual or community.

Very little information is available about the oral health of the different racial groups in the Cape Peninsula, or in fact in South Africa. The Commission of Inquiry into the Training of Non-White Dentist (1966) collected information to ascertain manpower needs. All major studies have been only in the last 4 years with the greatest concentration in the Cape Peninsula and the Witwatersrand. This paper attempts to describe the results of several studies conducted in the Cape Peninsula from 1978 to 1983 in which the author was involved.

MATERIAL AND METHODS

Several studies are discussed in this paper. The sampling technique used was a stratified random sampling technique of areas, streets and houses in the case of the family study of Coloured Family Survey and stratified random technique for schoolchildren by age and sex.

In the case of the Coloured Family Study, the survey was conducted at two levels. A household survey was conducted, using a structured questionnaire of 400 families with a maximum of three adults per family.

The second part of study was the dental examination of individuals using especially calibrated examiners and standardized forms to compute the results. A total of 2061 persons, 3 years and over were examined. Similar standards were used for the dental examination of the schoolchildren. A total of 1733 schoolchildren were examined.

RESULTS

The results presented are those essentially involving the two major oral (dental) diseases which affect most individuals at some time in their life.

The extent of the disease in the individual or community, percentage prevalence and how the disease process intercepted are closely associated with the "life style of people", and to some extent their socio-economic position.

1) SAMPLING DISTRIBUTION

FAMILIES INTERVIEWED AND GROUPED ON SOCIO-ECONOMIC STATUS OF SAMPLE

	Middle Class	Economic Class	Sub-Economic Class	Poverty Class
Families per group	101 (26,17%)	70 (18,13%)	123 (31,87%)	92 (23,83%)
Persons per group	551 (25,23%)	361 (16,53%)	714 (32,69%)	550 (25,18%)
Persons per family	5,46	5,16	5,80	5,98
of this group in Cape Peninsula (Metro, 1977)	21%	24%	31%	22%

Table One shows the grouping of individuals into four socio-economic status groups. This grouping was based on the criteria supplied by the Institute of Social Research of the University of Western Cape. The sample size of each grouping closely approximates the grouping distribution supplied by the Cape Peninsula Metropolitan Board (1977).

2) INTERVIEW

2.1 "Have you visited a dentist in the last 12 months?"

TABLE 2: VISITED A DENTIST IN THE LAST 12 MONTHS

	Middle Class %	Economic Class %	Sub-Economic Class %	Poverty Class %	Total %
Male	25,9%	33,3%	23,8%	19,1%	24,9%
Female	25,5%	27,1%	17,3%	20,1%	22,0%
All	25,7%	29,6%	20,3%	19,7%	23,3%

The results show that overall only 23,3% of the sample visited a dentist in the last one year. The pattern of distribution by socio-economic class showed that a larger percentage of the middle and economic class were visitors than subeconomic and poverty class.

2.2 "would you prefer your teeth to be filled rather than extracted?"

TABLE 3: TEETH TO BE FILLED RATHER THAN EXTRACTED

	Middle Class %	Economic Class %	Sub-Economic Class %	Poverty Class %	Total %
Male	65	43	43	32	47
Female	61	42	34	44	45
Total	63	42	38	39	46

3) DENTAL STATUS

3.1 Distribution of dentate persons with existing pain or infection

TABLE 4: DISTRIBUTION OF DENTATE PERSONS WITH EXISTING PAIN OR INFECTION

	Middle Class	Economic Class	Sub-Economic Class	Poverty Class	Total
	%	%	%	%	%
Male	38,7	40,7	34,2	43,3	38,6
Female	35,3	48,5	34,2	38,5	37,8
Total	37	45	34,2	40,9	38,2

Some 2/5th's of the sample have dental infection or pain. Yet they have not considered it urgent to visit a dentist. The differences between sexes are significant in the economic and poverty classes. These two groups also show the highest percentage of persons who are suffering from a toothache or infection.

3.2 Dental Caries

The dental caries experience of the sample is expressed by a special index called the dmf(t) for primary ("milk") teeth and DMF(T) for permanent teeth. The index measures several aspects of an individual's dental caries experience.

The D = present decayed teeth, F = filled teeth and M = missing teeth which have been extracted due to the dental decay.

Hence the Index measures past and present experience of dental decay and is a permanent record of an individual's dental experience.

3.2.1 Mean dmf(t) of 2 - 6 year olds

TABLE 5: MEAN dmf(t) OF PRIMARY TEETH FOR 2-6 YEAR OLDS

GROUP \bar{x}	MALE \bar{x}	FEMALE \bar{x}	TOTAL \bar{x}
Middle Class	5,60	4,50	5,02
Economic Class	4,70	2,80	3,80
Sub-Economic Class	4,90	4,10	4,50
Poverty Class	4,42	3,45	3,97
Total	4,87	3,89	4,36

The results show that almost 20-25% of all deciduous are decayed in this age group. It also shows that Middle-Class children have at least one more tooth decayed compared to poverty class.

3.2.2 Mean DMF(T) of Permanent Teeth for 13-14 year and 35-44 year olds

TABLE 6:

MEAN DMF(T) OF 13-14 YEAR OLDS

Group	Middle Class \bar{x}	Economic Class \bar{x}	Sub-Economic Class \bar{x}	Poverty Class \bar{x}	Total \bar{x}
Male	4,40	4,0	4,04	3,25	4,02
Female	7,11	5,38	4,79	3,20	5,66
Total	6,14	6,85	4,32	3,22	4,90

TABLE 7: MEAN CARIES PREVALENCE OF PERMANENT TEETH (D + M + F) IN DENTATE PERSONS FOR 35 - 44 YEARS

Group	Middle Class	Economic Class	Sub-Economic Class	Poverty Class	Total
Male	17,82	19,20	18,92	19,75	18,81
Female	16,83	16,5	20,00	20,38	19,26
Total	17,47	18,43	19,52	20,10	19,01

At this age, the 28 permanent teeth have all been fully erupted in the mouth and the child is most susceptible to dental decay. The results show that girls have greater decay than boys and is highest amongst the Middle Class girls. The lowest index scores are amongst the poverty class. The socio-economic differences are quite obvious. The better the social class one belongs to the higher the DMF (T) Index.

Epidemiological studies show that as one grows older the dental decay experience reduces. The results in Table 7 show that almost 68% of the dentition is involved in some form at this age. It is highest amongst the Sub-economic and Poverty Class (70%-71%). This increase is largely attributed to the "M" = missing teeth due to dental decay rather than actual decay. The high "Missing" component is also indicative of the type of service either received or demanded by the respondents.

Furthermore the females in the Middle and Economic groups have (60%) lower percentage prevalence compared to the Sub-economic (71%) and Poverty Class (72%). These differences are significant.

The results showed that 84% of the sample in the age group 35-44 years had no natural teeth.

3.3 Comparative Study of dental caries between the different population groups in schools

TABLE 8 (a):

PERCENTAGE PREVALENCE OF DENTAL CARIES
BY RACE GROUP BY AGE

AGE	COLOURED	WHITE	BLACK	INDIAN
6 Year old	89	57	82	84
12 Year old	75	33	46	62

Table 8 (b)

MEAN dmf(t) FOR 6 YEAR OLDS BY RACE

	COLOUREDS	BLACKS	WHITES	INDIANS
DECAYED (d)	4,57	2,1	0,85	3,99
MISSING (m)	1,98	1,0	0,84	2,36
FILLED (f)	0,03	-	1,41	0,03
TOTAL	6,58	3,1	2,10	6,54

Furthermore, the results show that at 6 year the dmf(t) for the Coloured and Indian children is the highest. The decayed component (d) is six times as high as compared to White or Black 6 year olds.

4) ORAL HYGIENE STATUS

The Oral Hygiene Status looks at the amount of debris (plaque) present in the mouth and the presence of gingivitis and advanced periodontal disease.

The result of the socio-economic study show:

4.1 Periodontal Status-Percentage with specified condition in given segments

		Right Premolars and Molars	Canines and Incisors	Left Premolars and Molars
SOFT DEPOSITS	UPPER	84	73	85
	LOWER	91	89	90
HARD DEPOSITS	UPPER	34	13	35
	LOWER	33	44	33
INTENSE GINGIVITIS	UPPER	18	9	20
	LOWER	15	21	14
ADVANCE PERIODONTAL DISEASE	UPPER	3	2	4
	LOWER	3	7	3

that 91% of all persons examined irrespective of social class, with teeth, had soft deposit and debris. Also some 30-40% had calculus (tartar).

The prevalence of gingival disease is low (9-20%) and advanced periodontal disease is very low (2-7%) which affect mostly the 35 years and older age group. These results indicated that overall, the population needs advice and instructions on oral hygiene rather than sophisticated dental treatment to control periodontal disease (gum disease).

If one examines the prevalence of the periodontal status of children in the four communities by age, the results show a marked difference between the White children on our side and the Coloured, Black and Indian children on the other.

4.2. PERIODONTAL STATUS PERCENTAGE PREVALENCE BY AGE BY RACE

Number and Percentage affected by age by population group

Age in yrs	Population Group	N	Soft deposit		Calculus		Intense Gingivitis	
			n	%	n	%	n	%
6-7	Black	75	75	100	12	16	53	71.7
	Coloured	154	140	90.1	35	22.7	23	14.9
	White	160	74	46.3	9	5.6		
	Indian	183	154	84.00	-	-	11	6.00
11-12	Black	78	77	99.7	66	84.6	72	92.3
	Coloured	145	139	95.9	82	56.6	51	35.2
	White	139	79	56.1	35	25.2	3	2.2
	Indian	252	247	98.00	28	11.00	116	43.4

These results of the children show that twice as many Black, Coloured and Indian children have soft deposits (debris). Also more Black children suffer from intense gingivitis. These results of periodontal status are very similar to those of other third world population groups.

5) DISCUSSION

The results of the various studies indicate that within the Coloured population social class differences exist with reference to oral (dental) health. The difference are not only with oral health, per se, but perceptions about dental health as well. Coloured Middle Class persons have greater request for "restorative" dentistry compared to sub-economic or poverty class.

Less Middle Class people require dentures compared to other socio-economic groups. Though almost equal numbers of persons in the different social group are edentulous (without teeth) more Sub-economic and Poverty Class persons (48-53%) require dentures.

The dental caries (decay) experience of children show that children from Middle Class homes have higher dmf(t) index at 6 years than those in the poverty group. It is possible that these children have diets which have more sugar and the children may have more "pocket" money to buy sweets, soft drinks which lead to greater decay of teeth. These differences on racial groupings become more marked with Coloured and Indian schoolchildren having six times as high decay of primary teeth compared to White schoolchildren. The reasons for these marked differences cannot easily be explained. It is possible that Coloured and Indian children have a more cariogenic diet from a very early age resulting in greater decay and loss of teeth.

The low dmf(t) score of Black schoolchildren (2.9) is attributed to the fact that almost all the children have stayed for some years in rural districts before they came to Crossroads and their diet had not changed significantly to urban and peri urban diets of other race groups. This difference in the index, indicates that White schoolchildren attend a dentist more regularly on a preventive/conservative basis than the other race groups. Visits to a dentist may be only on emergency basis for Coloured, Indian or Black children because of several barriers to treatment viz. availability, accessibility, finance.

Similarly if the Oral Hygiene status is compared, the results are indicative of the same differences between race groups. The Oral Hygiene status of White schoolchildren is similar to first world population groups whilst the oral hygiene status of the other groups is similar to third world population groups.

6) CONCLUSION

This paper has briefly looked at the dental status of the Coloured population group on a Socio-economic basis and found that essentially the Oral Health is poor and neglected. There is a preponderance of accepting the inevitable loss of teeth with age and replacement of the natural teeth by dentures (artificial teeth), at an early age of 20 years, so that over 64% of the adult population are either wearing dentures or edentulous. There are difference in social class practices and expectations for dental health. The higher the social class the better the perception of oral health but not necessarily better oral health. Also the oral health status of schoolchildren show a marked racial difference with White children having better oral hygiene and less dental decay compared to Coloured, Black or Indian children.

If this situation is to be improved, a planned preventive programme in Oral Health is necessary. The introduction of water fluoridation becomes essential for the good of all the population. Moreover, more facilities within economic limits be made available.

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Quoting (in context) from these preliminary papers with due acknowledgement is of course allowed, but for permission to reprint any material, or for further information about the Inquiry, please write to:

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