



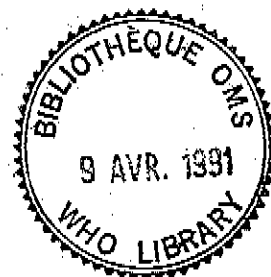
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ORAL HEALTH IN YUGOSLAVIA

Report on a pilot study from 1986

by

Professor V. Vrbic (principal investigator)



1991

EUR/HFA target 4

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TARGET 4

Reducing disease and disability

By the year 2000, the average number of years that people live free from major disease and disability should be increased by at least 10%.

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ORAL HEALTH
YUGOSLAVIA

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Introduction

As yet, accurate data on the epidemiology of oral diseases have not been available in the Socialist Federal Republic of Yugoslavia. Such information is indispensable for the planning of oral health care services. Hence, in 1983, representatives of all faculties of stomatology in Yugoslavia agreed to carry out a pilot epidemiological study on the state of oral health in the country. It was decided to use the WHO combined oral health and treatment need assessment forms (with CPITN) from 1983.

After two years of preparatory work, the study was conducted in the form of an interrepublic research project entitled "Oral health status and treatment needs of the Yugoslav population using basic criteria of the World Health Organization". The project team included Professor V. Vrbic (principal investigator), who was also in charge of the field of caries in adults, Professor M. Vulovic (assistant principal investigator), Professor J. Aurer-kozelj and Professor B. Topic, responsible for periodontal diseases, Professor Z. Rajic, responsible for caries in children up to the age of 18, and Professor E. Tatic and B. Dimitrijevic, working under the supervision of the following experts:

SR Bosnia and Herzegovina	Professor M. Malic
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SR Croatia	Professor V. Lapter
SR Macedonia	Professor L. Neceva
SR Slovenia	Professor V. Vrbic
SR Serbia	Professor M. Vulovic
SAP Kosovo	Professor S. Redzepagic
SAP Vojvodina	Professor D. Mratinkovic

The members of the project team, Professor Vrbic, Professor Rajic, Professor Topic and Professor Tatic, were designated by Dr P. Leous and Dr I.J. Moeller, officers for oral health at the WHO offices in Geneva and Copenhagen, respectively, at a seminar in oral epidemiology organized by the World Health Organization in Novi Sad in 1983. The team supervisors for individual SRs and SAPs were trained at an interrepublic seminar held at Bled in 1985. Dr Leous of WHO also participated in this seminar.

The pilot study was carried out in all SRs and SAPs of Yugoslavia in May and June 1986. A total of 2600 persons in the age groups 6, 12, 15, 18, 35-44 and 65-plus were examined (Table 1). The examinations were conducted in 22 Yugoslavian towns, including 11 developed and 11 undeveloped areas. The level of development was defined in terms of the per capita national product and the physician:population ratio. In each of the six SRs and two SAPs, either one or two of the most developed towns and one or two of the least developed settlements were selected, depending on the size of the SR/SAP.

Dental caries

Caries prevalence among the Yugoslav population is very high (Table 2). It exceeds 98.7% in 12 and 18 year-olds, while in persons aged 35-44 years the rate is 100%.

Table 1. Age and number of persons examined

Age in years	Number of persons
6	300
12	301
15	279
18	320
35-44	859
65+	541
All ages	2600

Table 2. Average number of decayed, missing and filled teeth (dmft/DMFT) per person, including all areas

Age in years	Number of persons	Percentage of persons with caries*	DMFT or dmft	Decayed teeth (DT)	Missing teeth (MT)	Filled teeth (FT)	Sound teeth**
6 (primary teeth)	300	93.7	7.3	6.1	0.5	0.7	9.3
6 (permanent teeth)	300	39.7	0.8	0.7	0.0	0.1	5.8
12	301	98.7	6.1	3.8	0.5	1.8	19.4
15	279	96.8	9.6	5.7	1.1	2.8	18.4
18	320	98.8	10.9	4.9	1.8	4.2	18.1
35-44	859	100.0	18.0	3.1	10.2	4.7	13.5
65 +	541	100.0	28.0	1.7	25.5	0.9	3.9

* Per cent of persons with decayed, missing and filled teeth.

** The data on sound teeth were not processed separately. These figures have been calculated from the data on percentage and number of decayed, missing and filled teeth.

In six-year-old children, the average number of decayed, missing and filled primary teeth (dmft) is 7.3. The averages of missing (mt) and filled teeth (ft) are low, but the average number of decayed teeth (dt) is very high (6.1). Six-year-olds have an average of 9.3 healthy primary teeth and 0.8 decayed permanent teeth, mainly molars.

The average number of decayed, missing and filled permanent teeth (DMFT) for 12-year-old children is 6.1, at age 15 years 9.6, at age 18 years 10.9, at age 35-44 years 18.0, and in persons over 65 years of age it is 28.0.

In the age groups 12, 15, 18 and 35-44 years, an average of 0.5 permanent teeth need to be extracted because of caries, periodontal disease or prosthetic and other reasons. At age 65-plus, the corresponding figure is 1.1.

The differences in treatment needs between individual SRs and SAPs are considerable. Although the average DMFT for the age group 12 years does not differ considerably between individual SRs and SAPs (from 5.0 to 7.6), the individual components - DT, MT and FT - show remarkable variation. The treatment rate is highest in SR Slovenia (0.57) and lowest in SAP Kosovo (0.06), as shown in Table 3.

Table 3. Present treatment needs of 12-year-old children in different Yugoslav republics and provinces

Republic Province	D	M	F	DMF	$\frac{F}{D+F}$
Slovenia	2.6	0.1	3.4	6.1	0.57
Serbia	2.6	0.4	2.0	5.0	0.43
Croatia	4.7	0.2	2.8	7.6	0.37
Bosnia and Herzegovina	3.5	1.0	1.8	6.2	0.34
Vojvodina	4.3	0.1	1.6	5.9	0.27
Macedonia	4.6	0.6	1.4	6.5	0.23
Montenegro	5.4	1.1	0.5	6.9	0.09
Kosovo	4.7	1.0	0.3	5.9	0.06
Yugoslavia	3.8	0.5	1.8	6.1	0.32

Periodontal disease

The periodontal status was assessed in a total of 1720 persons, aged 18 years (320), 35-40 years (859) and over 65 years (541). The Community periodontal index of treatment needs (CPIITN) was employed.

The CPITN values for the different age groups are shown in Table 4. CPITN values from 1 to 4 indicate various levels of periodontal disease. The CPITN values increase with advancing age. In the 18-year age group the predominant symptom is calculus, found in 54.8% of subjects. It is followed by shallow pockets, found in 24.4%. In those aged 35-44 years, shallow pockets were the predominant symptom (46.1%), followed by calculus (34.5%). Table 5 shows the separate and cumulative CPITN values by sextants for the different age groups.

The periodontal treatment needs, computed from the cumulative CPITN scores (Table 5, column C), are shown in Table 6. In all age groups, the highest percentages of sextants were in need of oral hygiene instruction (OHI) and prophylaxis. In the 18-year age group none of the subjects requires complex periodontal care (0.0%). In the age group 35-44 years, 4.5% of the sextants need complex care, while in the group aged over 65 years the corresponding figure is 6.7%.

The present epidemiological data for all the age groups studied clearly indicate that periodontology should be conceived as a largely preventive branch of dentistry. Such a reorientation towards preventive periodontology should be adopted in all our dental clinics. Only in this way can we hope to attain the periodontal health goals laid down in the European programme for the year 2000^a.

Other conditions

Oral mucosal disorders are very rare. They were found in only 3.3% of the study population (all age groups) and do not show any specific trends (Table 7).

Dentofacial anomalies are appreciably more common. The prevalence figures for the age groups 6, 12, 15 and 18 years are presented in Table 8. Only 54.5% of people in all age groups have no dentofacial anomalies. Of the 45.5% with such anomalies, 32.8% require orthodontic treatment. Fluorosis, mostly of a very mild degree, was noted in only 2.1% of the subjects.

The prosthetic status for all age groups is given in Table 9. Of the entire population, 15.2% are denture-wearers (upper, lower or both). In the age group 35-44 years, 7.5% of subjects need an upper denture, 15.4% a lower denture and 20.3% need both upper and lower dentures. In the age group over 65 years, the need for dentures is even greater (37.2% of the subjects need both sets).

^a European periodontal health goals by the year 2000: (a) at age 18, 90% will have acceptable gingival health to the extent that each person has at least three healthy sextants (CPITN = 0); (b) at age 35-44, 75% will have acceptable gingival health to the extent that each person has at least three healthy sextants (CPITN = 0); (c) at age 65 and over, no more than 10% should have one or more sextants with deep pockets (CPITN = 4).

Table 4. Number and percentage of persons with different values of the community periodontal index of treatment needs (CPITN) in different age groups

Age	18 years		35-44 years		65+ years		Total	
	No. of persons	%	No. of persons	%	No. of persons	%	No. of persons	%
No. of persons	320		859		541		1720	
CPITN*	Number	%	Number	%	Number	%	Number	%
4	0	0.0	39	4.5	36	6.6	75	4.4
3	27	8.4	235	27.4	51	9.4	313	18.2
2	115	35.9	264	30.7	22	4.1	401	23.3
1	109	34.1	95	11.0	5	1.0	209	12.1
X	6	1.9	190	22.2	425	78.5	621	36.1
0	63	19.7	36	4.2	2	0.4	101	5.9

*CPITN: 4 = deep pockets
3 = shallow pockets
2 = calculus
1 = bleeding
0 = healthy gingival and periodontal tissues
X = excluded sextants

Table 5. Community periodontal index (CPITN) by sextants (separate and cumulative) in age groups 18, 35-44 and 65-plus years

Age	18 years	35-44 years	65+ years
No. of persons	320	859	541
No. of sextants	1920	5154	3246
CPITN	S*	S	S
Qualit. Quantit.	C**	C	C
4	0.00	0.27	0.27
3	0.50	1.64	1.91
2	2.15	1.84	3.75
1	2.05	0.66	4.41
X	0.12	1.33	5.74
Health	• 0	1.17	0.25
		0.25	0.02
		0.02	0.02

*S = separate CPITN score

**C= cumulative CPITN score

Table 6. Percentage of sextants requiring periodontal treatment in age groups 18, 35-44 and 65-plus years

Age	18 years	35-44 years	65+ years
No. of persons	320	850	541
No. of sextants	1920	5154	3246
None	0	4.2	0.3
OHI*	1	73.5	20.8
Prophylaxis	2	62.5	20.4
Complex care	3	4.5	6.7
Excluded sextants	X	22.2	78.7

*OHI = Oral Hygiene Instruction

Table 7. Frequency of mucosal conditions at different ages

Age in years	Normal	Abnormal
6	287* 95.7**	18 4.3
12	292 97.0	9 3.0
15	274 98.2	5 1.8
18	313 97.8	7 2.2
35-44	836 97.4	22 2.6
65+	510 94.4	30 5.6
Total	2512 96.7	86 3.3

* Number of persons

** Percentage

Table 8. Frequency of dentofacial anomalies in age groups 6, 12, 15 and
18 years

Dento-facial anomalies			
Age	Absent	Present	Treatment Need
6	196*	29	75
	65.3	9.7	25.3
12	141	21	139
	46.8	7.0	46.2
15	130	49	100
	46.6	17.6	35.8
18	187	54	79
	58.4	16.9	24.7
Total	654	153	393
	54.5	12.8	32.8

* Number of persons

** Percentage

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Annex 1

STATISTICAL TABLES

Table 1. Caries experience in the primary teeth (dmft, dt, mt, ft)
at age 6, and in the permanent teeth (DMFT, DT, MT, FT)
at ages 6, 12, 15, 18, 35-44 and 65+

Age	Bosnia and Herzegovina	Montenegro	Croatia	Macedonia	Slovenia	Serbia	Kosovo	Vojvodina
6								
No of persons	40	40	40	20	20	100	20	20
dmft	7.3	7.3	8.2	7.3	6.1	7.3	6.9	6.9
dt	6.4	6.5	6.6	6.6	3.3	6.3	5.7	6.1
mt	0.5	0.8	0.9	0.5	0.0	0.3	1.0	0.3
ft	0.5	0.0	0.7	0.2	2.9	0.7	0.2	0.5
6								
No of persons	40	40	40	20	20	100	20	20
DMFT	0.7	0.7	1.4	1.2	0.9	0.9	0.2	0.5
DT	0.6	0.7	1.2	1.2	0.5	0.7	0.2	0.5
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FT	0.2	0.0	0.2	0.0	0.4	0.2	0.1	0.0
12								
No of persons	41	40	40	20	20	100	20	20
DMFT	6.2	6.9	7.6	6.5	6.1	5.0	5.9	5.9
DT	3.5	5.4	4.7	4.6	2.6	2.6	4.7	4.3
MT	0.9	1.1	0.2	0.6	0.1	0.4	1.0	0.1
FT	1.8	0.5	2.8	1.4	3.4	2.0	0.3	1.6
15								
No of persons	39	20	40	20	20	100	20	20
DMFT	10.9	10.6	8.9	11.6	11.0	8.8	7.8	9.2
DT	6.9	7.5	3.8	9.8	4.6	4.8	6.2	6.2
MT	1.4	2.1	0.8	1.4	0.9	0.8	1.5	0.8
FT	2.6	1.0	4.4	0.4	5.6	3.3	0.2	2.3
18								
No of persons	40	40	60	20	20	100	20	20
DMFT	13.5	12.3	9.3	10.8	13.0	10.1	10.9	10.8
DT	5.9	6.6	2.9	7.7	2.8	4.5	6.3	6.0
MT	3.0	3.1	1.6	1.0	0.7	1.4	2.2	1.7
FT	4.6	2.6	4.8	2.2	9.5	4.2	2.4	3.1
35-44								
No of persons	160	40	160	80	79	180	80	80
DMFT	19.2	21.2	15.6	15.9	19.4	17.6	18.0	20.1
DT	2.8	4.3	1.5	3.5	1.4	4.0	3.5	5.2
MT	11.8	13.3	8.6	7.8	8.3	9.6	11.4	12.4
FT	4.6	3.6	5.5	4.6	9.7	4.0	3.1	2.5
65 +								
No of persons	80	20	160	40	41	120	40	40
DMFT	28.9	28.9	29.1	25.3	27.7	26.6	30.3	26.6
DT	2.5	1.2	1.3	2.1	0.2	1.9	1.8	1.8
MT	25.9	26.4	27.5	21.6	25.0	23.2	28.3	24.0
FT	0.5	1.3	0.3	1.6	2.5	1.6	0.3	0.8

Table 2. Percentage of persons with one or more extractions in different age groups in developed and undeveloped areas

Age	Developed areas	Undeveloped areas	All areas
6	15.0	38.6	26.0
12	30.0	34.8	32.2
15	42.0	60.5	50.5
18	65.3	71.3	68.1
35-44	95.5	98.8	97.1
65	100.0	100.0	100.1
All ages	69.3	77.8	

Table 3. Caries experience in the primary teeth (dmft) at age 6 and in the permanent teeth (DMFT) at ages 6, 12, 15, 18, 35-44 and 65+ in developed and undeveloped areas

Age in	Number of persons	Area	Prevalence % dmft/ % DMFT	dmft/ DMFT	dt/ DT	mt/ MT	ft/ FT	Sound teeth
6 dmft	140	undeveloped	98.6	8.4	7.4	0.8	0.2	8.2
	160	developed	89.4	6.3	5.0	0.3	1.0	10.1
6 DMFT	140	undeveloped	40.0	0.8	0.7	0.0	0.1	5.5
	160	developed	39.4	0.9	0.7	0.0	0.2	6.1
12 DMFT	141	undeveloped	98.6	5.7	4.5	0.5	0.7	19.1
	160	developed	98.8	6.4	3.1	0.6	2.7	19.6
15 DMFT	129	undeveloped	98.5	9.0	6.8	1.3	1.0	18.8
	150	developed	95.3	10.0	4.7	0.9	4.4	18.0
18 DMFT	150	undeveloped	98.7	10.2	6.0	2.3	2.0	18.5
	170	developed	98.8	11.6	4.0	1.5	6.1	17.6
35-44 DMFT	419	undeveloped	100.0	17.6	3.4	11.2	3.0	13.9
	440	developed	100.0	18.4	2.9	9.1	6.4	13.1
65 + DMFT	271	undeveloped	100.0	27.4	2.0	24.7	0.7	4.6
	270	developed	100.0	28.7	1.3	26.2	1.2	3.3

Table 4. Caries experience by sex in the primary (dmft) and permanent teeth (DMFT) at age 6 and in the permanent teeth at ages 12, 15, 18, 35-44 and 65+

Age in years	Number of persons	Sex	Prevalence % dmft/ % DMFT	dmft/ DMFT	dt/ DT	mt/ MT	ft/ FT	Sound teeth
6 dmft + DMFT	150*	M	94.7	7.8	6.7	0.4	0.7	14.8
	149	F	96.6	8.5	6.9	0.6	0.9	14.2
12 DMFT	149	M	98.0	5.6	3.5	0.5	1.6	19.7
	152	F	99.3	6.5	4.0	0.6	1.9	19.1
15 DMFT	140	M	95.7	8.8	5.5	0.9	2.4	19.2
	139	F	97.8	10.4	5.9	1.2	3.2	17.6
18 DMFT	162	M	98.2	10.5	5.0	1.7	3.8	18.6
	158	F	99.4	11.4	4.9	2.0	4.6	17.5
35-44 DMFT	425	M	100.0	15.6	3.2	8.3	4.2	15.7
	434	F	100.0	20.3	3.1	12.0	5.2	11.2
65 + DMFT	281	M	100.0	27.0	2.0	23.8	1.2	4.9
	260	F	100.0	29.1	1.2	27.2	0.7	2.9

* One patient from this age group has been excluded from analysis because of incomplete data.

Table 5. Average number of teeth requiring treatment for caries and other reasons

Treatment required	Primary and permanent teeth		Permanent teeth			
	Age 6	Age 12	Age 15	Age 18	Age 35-44	Age 65+
None	15.8	21.6	22.2	24.0	27.7	29.9
Crown or more than 3-surface restoration	0.0	0.1	0.1	0.1	0.8	0.3
3-surface restoration	0.4	0.2	0.3	0.4	0.2	0.1
2-surface restoration	3.0	1.2	1.8	1.8	1.1	0.2
1-surface restoration	2.0	2.4	3.0	2.3	1.2	0.4
Extractions - total	1.4	0.5	0.4	0.5	0.5	1.1
- for caries	1.4	0.5	0.4	0.5	0.4	0.7
- for periodont. disease	0.0	0.0	0.0	0.0	0.1	0.3
- for dentures	0.0	0.0	0.0	0.0	0.0	0.1
* - for other reasons	0.0	0.0	0.0	0.0	0.0	0.0

Table 6. Prosthetic status and need in 1399 persons aged 35-44 years and 65+ years

	Age 35-44 years		Age 65+ years	
	Persons wearing dentures	Persons in need of dentures	Persons wearing dentures	Persons in need of dentures
	No. of persons	Percentage No. of persons	No. of persons	Percentage No. of persons
No dentures	723	84.2	489	56.8
Upper denture	75	8.7	64	7.5
Lower denture	15	1.7	132	15.4
Both	46	5.4	174	20.3
Total	859	100.0	859	100.0
			285	52.8
			49	9.1
			19	3.5
			187	34.6
			540	100.0
			287	53.2
			14	2.6
			38	7.0
			201	37.2
			540	100.0