

# XIII. Oral examinations

## 1) Caries

## 2) Periodontal index

## 3) Denture use

## 4) Tongue coat

Caries, periodontal index, and tongue coat were evaluated by a well trained dentist with a dental mirror and WHO CPI probe. Denture use was asked at oral examination on verbal.

### 1) Caries

All teeth were classified into intact, decayed, filled, missing, or caries observation.

### 2) Periodontal index

Periodontal indices (CPI score) on 10 index teeth (17/16, 11, 26/27, 36/37, 31, 46/47) were derived according to World Health Organization standard.

code 0 : healthy gingival tissue

code 1 : bleeding on probing

code 2 : presence of calculus or defective restoration margins

code 3 : presence of 4mm - 6mm pocket

code 4 : presence of more than 6mm pocket

(The highest code was given if two or more phenomena were found on same tooth.)

Missing

Others

### 3) Denture use

Denture use was asked by a dentist on verbal.

No use

sometimes

always

### 4) Tongue coat

Score of tongue coat was given by its area on the tongue dorsum.

score 0 : none visible

score 1 : less than one-third on the tongue dorsum

score 2 : less than two-third on the tongue dorsum

score 3 : more than two-third on the tongue dorsum

## 1) Caries

The numbers of intact, filled, caries observation, decayed, and missing teeth were counted.

### Number of intact teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	14.9	5.7	258	14.9	6.7	327	12.1	7.8	292	6.3	6.7	266	4.1	5.3	42	11.9	7.7	1185
Female	13.2	5.3	289	11.8	6.2	280	9.6	6.7	279	4.7	5.5	269	3.5	5.9	32	9.7	6.8	1149
Total	14.0	5.6	547	13.5	6.7	607	10.9	7.4	571	5.5	6.2	535	3.9	5.5	74	10.8	7.4	2334

### Number of filled teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	11.9	5.1	258	10.0	5.6	327	9.3	5.8	292	8.3	6.6	266	7.4	6.1	42	9.7	6.0	1185
Female	13.5	4.5	289	13.2	5.0	280	12.4	5.5	279	10.5	6.7	269	5.9	6.1	32	12.3	5.7	1149

Total 12.7 4.9 547 11.5 5.6 607 10.8 5.9 571 9.4 6.8 535 6.7 6.1 74 11.0 6.0 2334

Number of caries observation teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.3	0.7	258	0.2	0.6	327	0.1	0.4	292	0.0	0.1	266	0.0	0.3	42	0.1	0.5	1185
Female	0.2	0.5	289	0.1	0.4	280	0.1	0.4	279	0.0	0.2	269	0.0	0.0	32	0.1	0.4	1149
Total	0.2	0.6	547	0.2	0.6	607	0.1	0.4	571	0.0	0.2	535	0.0	0.2	74	0.1	0.5	2334

Number of decayed teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.5	1.4	258	0.5	1.5	327	0.5	1.5	292	0.5	1.3	266	1.0	2.1	42	0.5	1.4	1185
Female	0.2	1.0	289	0.3	0.9	280	0.2	0.6	279	0.5	1.5	269	0.2	0.5	32	0.3	1.0	1149
Total	0.4	1.2	547	0.4	1.2	607	0.4	1.2	571	0.5	1.4	535	0.7	1.7	74	0.4	1.3	2334

Number of missing teeth

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	4.3	2.5	258	6.3	5.2	327	9.7	7.9	292	16.9	10.1	266	19.3	9.6	42	9.6	8.6	1185
Female	4.7	2.7	289	6.3	4.1	280	9.5	7.2	279	16.2	9.3	269	22.4	9.8	32	9.5	8.0	1149
Total	4.5	2.6	547	6.3	4.7	607	9.6	7.6	571	16.5	9.7	535	20.7	9.7	74	9.5	8.3	2334

Others

	40-49yr			50-59yr			60-69yr			70-79yr			80yr-			Total		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Male	0.1	0.4	258	0.2	0.5	327	0.3	2.2	292	0.1	0.5	266	0.1	0.4	42	0.2	1.2	1185
Female	0.1	0.4	289	0.1	0.4	280	0.1	0.4	279	0.1	0.4	269	0.0	0.0	32	0.1	0.4	1149
Total	0.1	0.4	547	0.2	0.5	607	0.2	1.6	571	0.1	0.5	535	0.1	0.3	74	0.1	0.9	2334

2) Periodontal status

Periodontal indices (CPI score) on 10 index teeth (17/16, 11, 26/27, 36/37, 31, 46/47) were derived according to World Health Organization standard.

Periodontal index  
17/16

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Healthy gingival tissues (CPI=0)	Male	66	25.6	63	19.3	33	11.3	10	3.8	0	0.0	172	14.5
	Female	124	42.9	64	22.9	38	13.6	8	3.0	0	0.0	234	20.4
	Total	190	34.7	127	20.9	71	12.5	18	3.4	0	0.0	406	17.4
Bleeding on probing (CPI=1)	Male	4	1.6	2	0.6	4	1.4	0	0.0	0	0.0	10	0.8
	Female	6	2.1	2	0.7	5	1.8	0	0.0	0	0.0	13	1.1
	Total	10	1.8	4	0.7	9	1.6	0	0.0	0	0.0	23	1.0
Calculus detected or defective restoration margins (CPI=2)	Male	118	45.7	111	33.9	75	25.8	44	16.5	7	16.7	355	30.0
	Female	121	41.9	124	44.3	99	35.5	68	25.3	4	12.5	416	36.2
	Total	239	43.7	235	38.7	174	30.5	112	20.9	11	14.9	771	33.0
Pocket >4mm, <6mm (CPI=3)	Male	53	20.5	84	25.7	58	19.9	42	15.8	3	7.1	240	20.3
	Female	25	8.7	61	21.8	60	21.5	61	22.7	3	9.4	210	18.3

	Total	78	14.3	145	23.9	118	20.7	103	19.3	6	8.1	450	19.3
Pocket >6mm (CPI=4)	Male	14	5.4	39	11.9	50	17.2	39	14.7	7	16.7	149	12.6
	Female	8	2.8	13	4.6	28	10.0	23	8.6	2	6.3	74	6.4
	Total	22	4.0	52	8.6	78	13.7	62	11.6	9	12.2	223	9.6
Missing	Male	2	0.8	28	8.6	68	23.4	129	48.5	25	59.5	252	21.3
	Female	5	1.7	16	5.7	48	17.2	107	39.8	23	71.9	199	17.3
	Total	7	1.3	44	7.2	116	20.4	236	44.1	48	64.9	451	19.3
Others	Male	1	0.4	0	0.0	3	1.0	2	0.8	0	0.0	6	0.5
	Female	0	0.0	0	0.0	1	0.4	2	0.7	0	0.0	3	0.3
	Total	1	0.2	0	0.0	4	0.7	4	0.7	0	0.0	9	0.4

Periodontal index  
11

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Healthy gingival tissues (CPI=0)	Male	111	43.0	101	30.9	67	23.0	25	9.4	4	9.5	308	26.0
	Female	177	61.2	113	40.4	71	25.4	20	7.4	1	3.1	382	33.2
	Total	288	52.7	214	35.3	138	24.2	45	8.4	5	6.8	690	29.6
Bleeding on probing (CPI=1)	Male	11	4.3	7	2.1	6	2.1	3	1.1	0	0.0	27	2.3
	Female	7	2.4	6	2.1	6	2.2	5	1.9	1	3.1	25	2.2
	Total	18	3.3	13	2.1	12	2.1	8	1.5	1	1.4	52	2.2
Calculus detected or defective restoration margins (CPI=2)	Male	87	33.7	111	33.9	72	24.7	53	19.9	4	9.5	327	27.6
	Female	74	25.6	110	39.3	114	40.9	84	31.2	4	12.5	386	33.6
	Total	161	29.4	221	36.4	186	32.6	137	25.6	8	10.8	713	30.6
Pocket >4mm, <6mm (CPI=3)	Male	30	11.6	50	15.3	53	18.2	31	11.7	2	4.8	166	14.0
	Female	14	4.8	23	8.2	27	9.7	38	14.1	2	6.3	104	9.1
	Total	44	8.0	73	12.0	80	14.0	69	12.9	4	5.4	270	11.6
Pocket >6mm (CPI=4)	Male	5	1.9	25	7.6	25	8.6	17	6.4	5	11.9	77	6.5
	Female	6	2.1	11	3.9	10	3.6	9	3.3	4	12.5	40	3.5
	Total	11	2.0	36	5.9	35	6.1	26	4.9	9	12.2	117	5.0
Missing	Male	14	5.4	33	10.1	65	22.3	136	51.1	27	64.3	275	23.2
	Female	11	3.8	17	6.1	51	18.3	111	41.3	20	62.5	210	18.3
	Total	25	4.6	50	8.2	116	20.4	247	46.2	47	63.5	485	20.8
Others	Male	0	0.0	0	0.0	3	1.0	1	0.4	0	0.0	4	0.3
	Female	0	0.0	0	0.0	0	0.0	2	0.7	0	0.0	2	0.2
	Total	0	0.0	0	0.0	3	0.5	3	0.6	0	0.0	6	0.3

Periodontal index  
26/27

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Healthy gingival tissues (CPI=0)	Male	72	27.9	65	19.9	28	9.6	7	2.6	1	2.4	173	14.6
	Female	121	41.9	72	25.7	43	15.4	17	6.3	0	0.0	253	22.0
	Total	193	35.3	137	22.6	71	12.5	24	4.5	1	1.4	426	18.3
Bleeding on probing (CPI=1)	Male	10	3.9	5	1.5	2	0.7	1	0.4	1	2.4	19	1.6
	Female	8	2.8	4	1.4	3	1.1	1	0.4	0	0.0	16	1.4
	Total	18	3.3	9	1.5	5	0.9	2	0.4	1	1.4	35	1.5
Calculus detected or defective restoration margins	Male	131	50.8	127	38.8	98	33.7	51	19.2	7	16.7	414	35.0
	Female	131	45.3	138	49.3	120	43.0	73	27.1	4	12.5	466	40.6

(CPI=2)	Total	262	47.9	265	43.7	218	38.2	124	23.2	11	14.9	880	37.7
Pocket >4mm, <6mm (CPI=3)	Male	30	11.6	58	17.7	50	17.2	35	13.2	2	4.8	175	14.8
	Female	18	6.2	31	11.1	42	15.1	49	18.2	7	21.9	147	12.8
	Total	48	8.8	89	14.7	92	16.1	84	15.7	9	12.2	322	13.8
Pocket >6mm (CPI=4)	Male	11	4.3	46	14.1	35	12.0	34	12.8	3	7.1	129	10.9
	Female	6	2.1	14	5.0	19	6.8	13	4.8	0	0.0	52	4.5
	Total	17	3.1	60	9.9	54	9.5	47	8.8	3	4.1	181	7.8
Missing	Male	4	1.6	26	8.0	76	26.1	135	50.8	28	66.7	269	22.7
	Female	5	1.7	21	7.5	51	18.3	113	42.0	21	65.6	211	18.4
	Total	9	1.6	47	7.7	127	22.3	248	46.4	49	66.2	480	20.6
Others	Male	0	0.0	0	0.0	2	0.7	3	1.1	0	0.0	5	0.4
	Female	0	0.0	0	0.0	1	0.4	3	1.1	0	0.0	4	0.3
	Total	0	0.0	0	0.0	3	0.5	6	1.1	0	0.0	9	0.4

Periodontal index  
36/37

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Healthy gingival tissues (CPI=0)	Male	72	27.9	63	19.3	40	13.7	12	4.5	0	0.0	187	15.8
	Female	117	40.5	73	26.1	44	15.8	10	3.7	0	0.0	244	21.2
	Total	189	34.6	136	22.4	84	14.7	22	4.1	0	0.0	431	18.5
Bleeding on probing (CPI=1)	Male	6	2.3	3	0.9	3	1.0	3	1.1	0	0.0	15	1.3
	Female	3	1.0	4	1.4	2	0.7	3	1.1	0	0.0	12	1.0
	Total	9	1.6	7	1.2	5	0.9	6	1.1	0	0.0	27	1.2
Calculus detected or defective restoration margins (CPI=2)	Male	139	53.9	132	40.4	93	32.0	62	23.3	8	19.0	434	36.7
	Female	134	46.4	127	45.4	118	42.3	68	25.3	6	18.8	453	39.4
	Total	273	49.9	259	42.7	211	37.0	130	24.3	14	18.9	887	38.0
Pocket >4mm, <6mm (CPI=3)	Male	26	10.1	54	16.5	45	15.5	32	12.0	4	9.5	161	13.6
	Female	16	5.5	28	10.0	40	14.3	33	12.3	2	6.3	119	10.4
	Total	42	7.7	82	13.5	85	14.9	65	12.1	6	8.1	280	12.0
Pocket >6mm (CPI=4)	Male	7	2.7	22	6.7	37	12.7	17	6.4	4	9.5	87	7.3
	Female	4	1.4	13	4.6	6	2.2	15	5.6	0	0.0	38	3.3
	Total	11	2.0	35	5.8	43	7.5	32	6.0	4	5.4	125	5.4
Missing	Male	8	3.1	52	15.9	71	24.4	140	52.6	26	61.9	297	25.1
	Female	14	4.8	33	11.8	69	24.7	138	51.3	24	75.0	278	24.2
	Total	22	4.0	85	14.0	140	24.6	278	52.0	50	67.6	575	24.6
Others	Male	0	0.0	1	0.3	2	0.7	0	0.0	0	0.0	3	0.3
	Female	1	0.3	2	0.7	0	0.0	2	0.7	0	0.0	5	0.4
	Total	1	0.2	3	0.5	2	0.4	2	0.4	0	0.0	8	0.3

Periodontal index  
31

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Healthy gingival tissues (CPI=0)	Male	54	20.9	45	13.8	20	6.9	14	5.3	0	0.0	133	11.2
	Female	83	28.7	49	17.5	32	11.5	13	4.8	1	3.1	178	15.5
	Total	137	25.0	94	15.5	52	9.1	27	5.0	1	1.4	311	13.3
Bleeding on probing (CPI=1)	Male	4	1.6	2	0.6	5	1.7	2	0.8	0	0.0	13	1.1
	Female	5	1.7	3	1.1	7	2.5	3	1.1	0	0.0	18	1.6
	Total	9	1.6	5	0.8	12	2.1	5	0.9	0	0.0	31	1.3

Calculus detected or defective restoration margins (CPI=2)	Male	174	67.4	193	59.0	166	57.0	104	39.1	19	45.2	656	55.4
	Female	193	66.8	208	74.3	188	67.4	136	50.6	8	25.0	733	63.8
	Total	367	67.1	401	66.1	354	62.1	240	44.9	27	36.5	1389	59.5
Pocket >4mm, <6mm (CPI=3)	Male	16	6.2	41	12.5	29	10.0	23	8.6	2	4.8	111	9.4
	Female	5	1.7	10	3.6	17	6.1	28	10.4	2	6.3	62	5.4
	Total	21	3.8	51	8.4	46	8.1	51	9.5	4	5.4	173	7.4
Pocket >6mm (CPI=4)	Male	7	2.7	23	7.0	20	6.9	12	4.5	2	4.8	64	5.4
	Female	1	0.3	3	1.1	6	2.2	9	3.3	0	0.0	19	1.7
	Total	8	1.5	26	4.3	26	4.6	21	3.9	2	2.7	83	3.6
Missing	Male	3	1.2	23	7.0	49	16.8	110	41.4	19	45.2	204	17.2
	Female	2	0.7	7	2.5	29	10.4	79	29.4	21	65.6	138	12.0
	Total	5	0.9	30	4.9	78	13.7	189	35.3	40	54.1	342	14.7
Others	Male	0	0.0	0	0.0	2	0.7	1	0.4	0	0.0	3	0.3
	Female	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Total	0	0.0	0	0.0	2	0.4	2	0.4	0	0.0	4	0.2

Periodontal index  
46/47

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Healthy gingival tissues (CPI=0)	Male	72	27.9	61	18.7	33	11.3	8	3.0	1	2.4	175	14.8
	Female	105	36.3	56	20.0	34	12.2	8	3.0	1	3.1	204	17.8
	Total	177	32.4	117	19.3	67	11.8	16	3.0	2	2.7	379	16.2
Bleeding on probing (CPI=1)	Male	4	1.6	1	0.3	6	2.1	1	0.4	1	2.4	13	1.1
	Female	6	2.1	7	2.5	1	0.4	0	0.0	0	0.0	14	1.2
	Total	10	1.8	8	1.3	7	1.2	1	0.2	1	1.4	27	1.2
Calculus detected or defective restoration margins (CPI=2)	Male	144	55.8	132	40.4	96	33.0	62	23.3	9	21.4	443	37.4
	Female	151	52.2	147	52.5	121	43.4	76	28.3	4	12.5	499	43.4
	Total	295	53.9	279	46.0	217	38.1	138	25.8	13	17.6	942	40.4
Pocket >4mm, <6mm (CPI=3)	Male	25	9.7	63	19.3	50	17.2	33	12.4	5	11.9	176	14.9
	Female	16	5.5	25	8.9	44	15.8	33	12.3	3	9.4	121	10.5
	Total	41	7.5	88	14.5	94	16.5	66	12.3	8	10.8	297	12.7
Pocket >6mm (CPI=4)	Male	6	2.3	24	7.3	32	11.0	23	8.6	4	9.5	89	7.5
	Female	4	1.4	12	4.3	12	4.3	16	5.9	0	0.0	44	3.8
	Total	10	1.8	36	5.9	44	7.7	39	7.3	4	5.4	133	5.7
Missing	Male	7	2.7	46	14.1	70	24.1	137	51.5	21	50.0	281	23.7
	Female	7	2.4	31	11.1	65	23.3	136	50.6	24	75.0	263	22.9
	Total	14	2.6	77	12.7	135	23.7	273	51.0	45	60.8	544	23.3
Others	Male	0	0.0	0	0.0	4	1.4	2	0.8	1	2.4	7	0.6
	Female	0	0.0	2	0.7	2	0.7	0	0.0	0	0.0	4	0.3
	Total	0	0.0	2	0.3	6	1.1	2	0.4	1	1.4	11	0.5

3) Denture wearing  
Denture use was asked by a dentist on verbal.  
No use, sometimes, always

Denture wearing

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
No-use	Male	247	95.7	274	83.8	171	58.8	86	32.3	7	16.7	785	66.3

	Female	276	95.5	242	86.4	179	64.2	102	37.9	4	12.5	803	69.9
	Total	523	95.6	516	85.0	350	61.4	188	35.1	11	14.9	1588	68.1
Sometime	Male	0	0.0	2	0.6	5	1.7	4	1.5	1	2.4	12	1.0
	Female	1	0.3	1	0.4	2	0.7	2	0.7	0	0.0	6	0.5
	Total	1	0.2	3	0.5	7	1.2	6	1.1	1	1.4	18	0.8
Always	Male	11	4.3	51	15.6	114	39.2	176	66.2	34	81.0	386	32.6
	Female	12	4.2	37	13.2	98	35.1	165	61.3	28	87.5	340	29.6
	Total	23	4.2	88	14.5	212	37.2	341	63.7	62	83.8	726	31.1
Others	Male	0	0.0	0	0.0	1	0.3	0	0.0	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	1	0.0

#### 4) Tongue coat

##### Tongue coat

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Non visible	Male	171	66.3	177	54.1	156	53.6	130	48.9	19	45.2	653	55.2
	Female	236	81.7	209	74.6	212	76.0	182	67.7	21	65.6	860	74.8
	Total	407	74.4	386	63.6	368	64.6	312	58.3	40	54.1	1513	64.9
Less than one-third of the tongue dorsum	Male	58	22.5	112	34.3	85	29.2	78	29.3	13	31.0	346	29.2
	Female	39	13.5	48	17.1	49	17.6	65	24.2	9	28.1	210	18.3
	Total	97	17.7	160	26.4	134	23.5	143	26.7	22	29.7	556	23.8
Less than two-thirds of the tongue dorsum	Male	24	9.3	35	10.7	46	15.8	56	21.1	8	19.0	169	14.3
	Female	13	4.5	21	7.5	15	5.4	21	7.8	2	6.3	72	6.3
	Total	37	6.8	56	9.2	61	10.7	77	14.4	10	13.5	241	10.3
More than two-thirds of the tongue dorsum	Male	5	1.9	3	0.9	4	1.4	2	0.8	2	4.8	16	1.4
	Female	1	0.3	2	0.7	3	1.1	1	0.4	0	0.0	7	0.6
	Total	6	1.1	5	0.8	7	1.2	3	0.6	2	2.7	23	1.0