Acta odont scand 1972 *30:* 523—537

Keywords:
Periodontal index
Periodontal diseases
Arthritis, rheumatoid
Epidemiologic methods
Statistics

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THE EFFECT OF SAMPLE SELECTION ON THE BEHAVIOUR OF THE PERIODONTAL INDEX IN RHEUMATOID ARTHRITIS

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The effect of the selection of material on the periodontal index (PDI-M), determined for 93 rheumatoid (RA) males aged 15—64 years and 100 RA females aged 15—67 years (Material I), was investigated on the basis of general dental conditions in 337 RA males aged 15—64 years and 751 RA females aged 15—73 years (Material II), from which Material I had originated. The results were compared with corresponding findings in non-rheumatoids (NRA). In NRA, Material I consisted of 124 males aged 15—64 years and 129 females aged 15—63 years and Material II of 355 males and 677 females aged 15—64 years.

In the males, at limit values PDI-M = 2 and 3, the relationship between PDI-M scores in RA and NRA was not influenced by the selection of material. At limit value PDI-M = 4, the marked selection in RA had, in Material I, led to a smaller difference between RA and NRA than might otherwise have been present. In the females, at limit values PDI-M = 2 and 3, the differences observed in Material I decreased when Material II was considered. Beyond limit value PDI-M = 3, the greater selection of material in NRA than in RA had led to a situation which was the opposite of those encountered previously.

In an earlier study (*Helminen-Pakkala,* 1971b) attention was given to the distorting effect of sample selection on the scores of the periodontal index (PDI-M)* in a dentulous group (Material I) obtained from an initial material (Material II) with varying dental conditions. In that particular case, i.e. in a group of »normal» subjects used as non-rheumatoid (NRA) controls in the study of periodontal conditions in rheumatoid arthritis** it was found that the distortion of scores having been greater in the females than in the

* Modification of Ramfjord's (1959) PDI (*Helminen-Pakkala,* 1968).
** Diagnosed according to the criteria of the American Rheumatism Association (ARA) (*McEwen,* 1966).

Received for publication, June 9, 1972.

II lost from the investigation owing to edentulousness and removable prosthesis been included in the study.

The observation of PDI-M in the rheumatoid (RA) subjects (*Helminen-Pakkala,* 1971a) revealed, in the first place, a different relationship between the scores of PDI-M in males and females from that found in NRA, and secondly, lower scores in RA than in NRA in a number of instances, this feature being particularly pronounced in the females. In view of the results of the previous investigation on the effect of sample selection (*Helminen-Pakkala,* 1971b) as well as of the fact that a different selection of material had taken place in RA and NRA (*Helminen-Pakkala,* 1971a), it was considered important to study the effect of this factor on the findings for PDI-M in RA and, in particular, any influence it may have had on the relationship of findings for PDI-M in RA and NRA.

MATERIALS AND METHODS

In RA, Material I comprised 93 males* aged 15—64 years and 100 females** aged 15—67 years and Material II 337 males*** aged 15—64 years and 751 females**** aged 15—73 years. In NRA, Material I consisted of 124 males aged 15—64 years and 129 females aged 15—63 years, Material II of 355 males aged 15—64 years and 677 females, also aged 15—64 years, all these subjects having belonged to the original study of the effect of sample selection on the scores of PDI-M (*Helminen-Pakkala,* 1971b).

In accordance with the earlier study (*Helminen-Pakkala,* 1971b), the PDI-M scores in RA were submitted to both median analysis (*Helminen-Pakkala,* 1971b) and probit analysis (*Finney,* 1952). Evaluation of the males, the actual sex difference would probably have been smaller than that observed through examination of Material I had the subjects of Material effect of the selection of material was undertaken on the basis of ages at which limit values PDI-M 2, 3 and 4 were reached/exceeded in the various instances, i.e. in the median analysis by the median values of PDI-M and in the probit analysis by fifty per cent of the subjects in the group concerned (= typical ages, cf. *Helminen-Pakkala,* 1971b). The above also applied to the comparison of the circumstances in RA and NRA.

* Group reported in *Helminen-Pakkala,* 1971a and 6 subjects aged 61—67 years.
** Group reported in *Helminen-Pakkala,* 1971a and 9 subjects aged 61—73 years.
*** Taken from the initial material reported in *Helminen-Pakkala,* 1971a.
**** Initial material reported in *Helminen-Pakkala,* 1971a.

Median Analysis

The median analysis (*Helminen-Pakkala*, 1971b) was based on the following hypotheses:

1. In Material II, for subjects with natural teeth only, the PDI-M observations in the various age groups would be on the same level as in Material I.
2. In Material II, for subjects with partial prosthesis as supplement to the natural dentition or with total prosthesis/being edentulous in one or both jaws, all PDI-M observations in a given age group would be above the median of this group.

Table I shows the age and sex distribution of RA of Materials I and II considered for the purpose of median analysis. Also the percentages of RA in Material II wearing removable prosthesis/being edentulous without prosthesis are presented forming, together with the ordered observations of PDI-M in age groups of Material I, the basis for determination of the median values of PDI-M in Material II. In order to facilitate comparison of findings in RA and NRA, previously reported data in NRA (*Helminen-Pakkala*, 1971b) are also included in this table as well as in all other tables of the present text.

Probit Analysis

Probit analysis (*Finney*, 1952) was based on the following hypotheses:

1. In Material II, among subjects having natural teeth only, the percentile distribution of PDI-M scores within a given age group would be the same as in Material I.
2. In Material II, subjects with natural teeth and partial prosthesis would be in possession of a minimi PDI-M = 3. Within a given age group the percentile distribution of PDI-M scores $\geqq 4$ would be the same as in Material I.
3. In Material II, subjects with total prosthesis/being totally edentulous in one or both jaws would be in possession of a minimi PDI-M = 4.

For the purpose of probit analysis the RA subjects of Material I were divided according to order of age as far as possible into groups of twenty, the subjects of Material II into groups corresponding in age to those of Material I. In RA, for the analysis of Material I, 80 males aged 15—54 years and 100 females aged 15—67 years were thus available, while Material II involved 249 males aged 15—54 years and 751 females aged 15-73 years.

Table I.

Age and sex distribution of RA and NRA in Materials I and II for the purpose of median analysis; percentages of RA and NRA with removable prosthesis/being edentulous in one or both jaws

	Material II									
			Non-investigated subjects*							
	Investigated dentulous subjects (Material I)		with natural teeth only		with prosthesis/ edentulous		Total		Per cent of total with prosthesis/ edentulous	
Age group	RA	NRA	RA	NRA	RA	NRA	RA	NRA	RA	NRA
					Male					
15—19	11	20	5	26	1	1	17	47	5.9	2.1
20—24	9	15	7	37	5	4	21	56	23.8	7.2
25—29	12	19	10	31	3	1	25	51	12.0	2.0
30—34	7	14	4	19	2	4	13	37	15.4	10.8
35—39	13	16	6	11	14	7	33	34	42.4	20.6
40—44	7	11	15	12	10	6	32	29	31.2	20.7
45—49	11	9	12	12	19	13	42	34	45.2	38.2
50—54	11	9	27	7	29	11	67	27	43.3	40.8
55—59	4	4	15	3	37	10	56	17	66.1	58.7
60—64	8	7	3	4	20	12	31	23	64.5	52.2
					Female					
15—19	14	15	12	32	6	1	32	48	18.8	2.1
20—24	14	24	25	62	10	14	49	100	20.4	14.0
25—29	10	19	24	47	8	23	42	89	19.0	25.8
30—34	6	16	29	39	20	44	55	99	36.4	44.5
35—39	13	11	21	31	41	36	75	78	54.7	46.2
40—44	6	10	24	18	39	50	69	78	56.5	64.2
45—49	9	16	18	5	82	48	109	69	75.2	69.6
50—54	10	9	29	3	112	24	151	36	74.2	66.7
55—59	8	6	20	5	62	41	90	52	68.9	79.0
60—64	7	3	8	2	42	23	57	28	73.7	82.1

* Known with regard to general dental conditions only (for screening categories cf. *Helminen-Pakkala*, 1971b).

In NRA males the probit analysis had involved 120 subjects of Material I and the 340 subjects of Material II corresponding in age to Material I. In NRA females the analysis involved 120 subjects for Material I and 598 subjects for Material II. In NRA the age range of the male groups was 15—61 years and of the female groups 15—54 years.

Table II.

Age and sex development of median scores of PDI-M in RA and NRA, Materials I and II

Age group	Material I		Material II	
	RA	NRA	RA	NRA
		Male		
15—19	1.68	1.41	1.73	1.45
20—24	1.23	2.57	1.51	2.69
25—29	3.88	3.59	4.05	3.60
30—34	4.20	4.42	4.38	4.43
35—39	4.79	4.43	5.00	4.61
40—44	4.58	4.77	4.83	4.93
45—49	4.96	4.57	5.82	5.33
50—54	5.58	5.19	5.42	5.61
55—59	4.68	4.55	. *	.
60—64	5.32	4.93	.	.
		Female		
15—19	0.84	1.17	1.00	1.24
20—24	1.30	2.15	1.39	2.27
25—29	2.24	3.05	2.75	3.27
30—34	3.16	3.54	3.82	4.48
35—39	4.10	4.11	. *	4.63
40—44	3.84	4.50	.	.
45—49	4.04	4.34	.	.
50—54	4.74	4.67	.	.
55—59	4.66	4.83	.	.
60—64	5.25	4.84	.	.

* Analysis not possible because loss of subjects in group >50 % (cf. Table I).

Table VII shows the distribution of RA considered for the purpose of probit analysis in groups of Material II in addition to the twenty dentulous RA of Material I. Table VIII presents the percentages of RA in groups of Material I and II reaching/exceeding limit values of PDI-M = 2, 3 and 4 together with corresponding primary (= first working) probits.

RESULTS

Median Analysis

The information provided by the median analysis of RA is presented in Tables II and III.

Table III.

*Typical ages obtained through median analysis for various limit values of PDI-M in RA and NRA, Materials I and II**

	Limit PDI-M									
	2		3		(3.8)**		4		5	
	RA	NRA	RA	NRA	RA	NRA	RA	NRA	RA	NRA
Material	Age in years									
					Male					
I	24.0	20.0	25.8	24.6	(27.4)	(28.6)	29.4	29.8	. .***	51.0
II	23.4	19.7	25.4	24.2	(27.0)	(28.6)	27.4	29.8	43.4	43.2
					Female					
I	26.2	21.7	31.7	27.2	(36.0)	(34.8)	37.0	36.6	. .	. .
II	24.8	21.2	28.6	26.2	(32.5)	(29.6)	. .	30.5	. .	. .

* Estimated from figures corresponding to Fig. 1. in *Helminen-Pakkala,* 1971b. As a consequence of the hypotheses on which the analysis was based the typical ages for the given limit values of PDI-M were in Material II either the same as or lower than those in Material I.

** Included to clarify conditions in females beyond limit value PDI-M = 3 (cf. Tables I and II).

*** Analysis not possible owing to limitations in material.

Relationship of typical ages for limit values of PDI-M = 2, 3 and 4 in RA males and females of Material I and II (Tables IV and V). — Up to limit PDI-M = 3.8 (necessary to include in the analysis because of conditions in the females, see below) in the RA males the typical ages in Material I and II deviated only slightly from each other. Nevertheless, at limit value PDI-M = 4, a clear deviation of these values from each other could be observed, the subjects of Material II reaching/exceeding this limit of PDI-M two years earlier than those of Material I (Table IV). In RA females, again, a steadily increasing deviation of the typical ages of Material I and II seemed to be present (Table IV). Since the above deviations were the result of lower typical ages in Material II as compared with Material I the differences between typical ages in RA males and females decreased when passing from Material I to Material II (Table V). Yet, in spite of this, there was a clear difference also in RA Material II between the typical ages of males and females (Table V).

Relationship of typical ages for limit values of PDI-M = 2, 3 and 4 in RA and NRA of Materials I and II (Table VI). — In the males, in Materials I

Table IV.

Differences between typical ages obtained through median analysis in Materials I and II, RA and NRA, at various limit values of PDI-M

	Limit PDI-M				
	2	3	(3.8)	4	5
Material	Difference between typical ages of Materials I and II in years				
			RA		
Male	0.6	0.4	(0.4)	2.0	. .
Female	1.4	3.1	(3.5)	. .	. .
			NRA		
Male	0.3	0.4	(0.0)	0.0	7.8
Female	0.5	1.0	(5.2)	6.1	. .

and II, the typical ages were at limit values PDI-M = 2 and 3 higher in RA than in NRA but at the limit value PDI-M = 4 lower in RA than in NRA. In the females, the typical ages were higher in RA than in NRA throughout. It was moreover observed in the females that while, at the lower levels of PDI-M there was a slight decrease of the differences between typical ages in RA and NRA from Material I to Material II, an opposite trend developed with advancing limits of PDI-M. Since in RA females the loss of material

Table V.

Differences between typical ages obtained through median analysis in males and females, Materials I and II, RA and NRA, at various limit values of PDI-M

	Limit PDI-M				
	2	3	(3.8)	4	5
Material	Difference between typical ages of males and females in years				
			RA		
I	—2.2	—5.9	(—8.6)	—7.6	. .
II	—1.4	—3.2	(—5.5)	. .	. .
			NRA		
I	—1.7	—2.6	(—6.2)	—6.8	. .
II	—1.5	—2.0	(—1.0)	—0.7	. .

+ sign indicates higher typical age in males than in females.
— sign indicates lower typical age in males than in females.

Table VI.

Differences between typical ages obtained through median analysis in RA and NRA. Materials I and II, at various limit values of PDI-M

	Limit PDI-M				
	2	3	(3.8)	4	5
Material	Difference between typical ages of RA and NRA in years				
			Male		
I	+4.0	+1.2	(−1.2)	-0.4	. .
II	+3.7	+1.2	(−1.6)	−2.4	+0.2
			Female		
I	−4.5	+4.5	(+1.2)	+0.4	. .
II	+3.6	+2.4	(+2.9)	. .	. .

+ sign indicates higher typical age in RA than in NRA.
− sign indicates lower typical age in RA than in NRA.

exceeded fifty per cent already in the 35—39 age group (Table II) further analysis of the above differences was, in these subjects, rendered impossible beyond limit value PDI-M = 3.8.

Probit Analysis

The results of the probit analysis in RA are presented in Tables IX and X.

Relationship of typical ages for limit values of PDI-M = 2, 3 and 4 in RA males and females of Material I and II (Tables XI and XII). — As estimated by probit analysis, in RA, the typical ages of Materials I and II deviated from each other in both males and females, the differences between these ages increasing with increasing levels of PDI-M (Table XI). Yet, while in the males this deviation was moderate, it assumed in the females a more pronounced character (Table XI). Consequently some decrease could be observed in the differences between typical ages of males and females when passing from Material I to Material II (Table XII). Nevertheless, in spite of this decrease there was still a distinct difference in Material II between typical ages in RA males and females.

Relationship of typical ages for limit values of PDI-M = 2, 3 and 4 in RA and NRA of Materials I and II (Table XIII). — In the males, at the limit value PDI-M = 2, the typical ages were in both Material I and Material

Table VII.

Number of non-investigated subjects in Material II taken into account in RA and NRA for alteration of the PDI-M observations in probit analysis*

	Male		Female	
Group	RA	NRA	RA	NRA
1	18	27	31	32
2	22	55	67	92
3	44	28	134	83
4	85	19	239	76
5	—	41	180	148
6	—	50	—	47

* Known with regard to general dental conditions only.

II higher in RA than in NRA. In Material I, at the limit value PDI-M = 3, the typical age was higher in RA than in NRA, while the position was reversed in Material II. At the limit value PDI-M = 4, in the males, the typical age of PDI-M was lower in RA than in NRA in both materials.

In the females, the typical ages were clearly higher in RA than in NRA both in Material I and in Material II at all the investigated limit values of PDI-M.

DISCUSSION

In studying the effect of sample selection on the periodontal index in RA, respectively in RA and NRA, on the basis of the typical ages at which the various limit values of PDI-M scores were reached/exceeded by the subjects examined for PDI-M (Material I) and by the subjects of the basic populations (Material II) from which these subjects had originated, median analysis revealed the following:

In the RA males, at limit values PDI-M = 2 and 3, only small differences were present between the typical ages of Materials I and II (Table IV), the above levels of PDI-M thus being relatively unaffected by the selection of material. At limit value PDI-M = 4, however, the selection of material had, in the investigation of Material I, caused an underestimation of the »real» value (*Helminen-Pakkala*, 1971b) of PDI-M, evident in the form of a difference of two years between the typical ages of Materials I and II (Table IV). In the RA females on the other hand, there were distinct differences

Table VIII.

Observed percentages and primary probits for various limit values of PDI-M according to age and sex in RA and NRA, Materials I and II

Group	Male												
	RA						NRA						
	Median age in years corresponding to observations	Observed percentages for limit of PDI-M			Value of primary probit at limit of PDI-M			Median age in years corresponding to observations	Observed percentages for limit of PDI-M			Value of primary probit at limit of PDI-M		
		2	3	4	2	3	4		2	3	4	2	3	4
	Material I*													
1	19.0	25	10	5	4.33	3.72	3.36	17.0	25	5	0	4.48	3.60	..**
2	29.0	90	75	50	6.28	5.67	5.00	22.5	65	35	5	5.30	4.50	3.62
3	38.5	100	90	70	..	6.28	5.52	29.0	95	80	50	6.35	5.55	4.27
4	49.0	100	100	95	..	..	6.64	36.5	100	90	65	..	6.52	5.03
5	60.5	..	..	100	..	..	..	43.0	100	100	85	..	..	5.68
6	—	—	—	—	—	—	—	53.0	100	100	85	..	..	6.70
	Material II													
1	19.0	36.8	24.2	17.5	4.66	4.30	4.07	17.0	26.1	5.9	1.1	4.33	3.74	2.97
2	29.0	91.9	79.8	58.3	6.40	5.83	5.21	22.5	66.9	38.6	7.5	5.38	4.58	3.60
3	39.0	100.0	92.0	78.2	..	6.41	5.78	29.0	95.2	81.1	52.8	6.43	5.56	4.35
4	50.0	100.0	100.0	97.0	..	..	6.88	36.5	..	91.2	68.5	..	6.70	5.20
5	—	—	—	—	—	—	—	43.0	..	..	88.3	..	..	5.96
6	—	—	—	—	—	—	—	53.0	..	..	91.5	..	..	7.12

Group	Female RA: Median age in years corresponding to observations	RA: Observed percentages for limit of PDI-M 2	3	4	RA: Value of primary probit at limit of PDI-M 2	3	4	Female NRA: Median age in years corresponding to observations	NRA: Observed percentages for limit of PDI-M 2	3	4	NRA: Value of primary probit at limit of PDI-M 2	3	4
						Material I*								
1	18.0	5	0	0	3.36	..**	..	18.0	35	10	0	4.50	3.55	..
2	25.0	45	25	5	4.87	4.33	3.36	22.0	50	15	5	5.05	4.10	3.07
3	37.5	85	65	45	6.04	5.39	4.87	28.0	90	60	5	5.90	4.90	3.84
4	48.0	95	90	75	6.64	6.28	5.67	33.0	90	80	30	6.60	5.58	4.45
5	59.5	100	100	90	..	..	6.28	42.5	100	95	85	..	6.85	5.70
6	—	—	—	—	—	—	—	49.0	100	100	85	..	..	6.55
						Material II								
1	19.0	19.9	15.7	0.0	4.15	3.99	..	18.0	36.0	11.6	..	4.64	3.90	..
2	25.0	56.5	42.2	21.4	5.16	4.80	4.21	22.0	58.8	30.2	19.2	5.22	4.48	3.90
3	38.0	92.5	82.5	68.6	6.44	5.93	5.48	28.0	93.3	73.3	24.8	6.10	5.35	4.55
4	49.0	98.7	97.3	90.7	7.23	6.93	6.32	33.0	94.0	87.9	53.2	6.80	6.08	5.08
5	60.0	100.0	100.0	96.6	..	..	6.83	42.5	..	98.2	93.4	..	7.40	6.12
6	—	—	—	—	—	—	—	49.0	—	—	94.2	—	—	6.80

* Groups of twenty.
** Not used in analysis.

Table IX.

Probit regression equations for relationship of PDI-M and age in RA and NRA, Materials I and II

Material	Male Limit PDI-M 2	3	4
		RA	
I	$y = 5.00+0.195(x-22.4)$	$y = 5.00+0.125(x-26.9)$	$y = 5.00+0.098(x-32.5)$
II	$y = 5.00+0.17\ (x-21.0)$	$y = 5.00+0.11\ (x-24.1)$	$y = 5.00+0.086(x-28.6)$
		NRA	
I	$y = 5.00+0.16\ (x-20.6)$	$y = 5.00+0.15\ (x-25.5)$	$y = 5.00+0.071(x-32.9)$
II	$y = 5.00+0.16\ (x-20.2)$	$y = 5.00+0.15\ (x-25.0)$	$y = 5.00+0.092(x-32.3)$
Material	Female Limit PDI-M 2	3	4
		RA	
I	$y = 5.00+0.106(x-28.5)$	$y = 5.00+0.099(x-33.8)$	$y = 5.00+0.089(x-41.7)$
II	$y = 5.00+0.11\ (x-25.4)$	$y = 5.00+0.095(x-28.3)$	$y = 5.00+0.092(x-34.9)$
		NRA	
I	$y = 5.00+0.13\ (x-21.1)$	$y = 5.00+0.13\ (x-27.7)$	$y = 5.00+0.12\ (x-37.6)$
II	$y = 5.00+0.14\ (x-20.2)$	$y = 5.00+0.15\ (x-25.1)$	$y = 5.00+0.11\ (x-32.1)$

Table X.

*Typical ages obtained through probit analysis for various limit values of PDI-M in RA and NRA, Materials I and II**

	Limit PDI-M					
	2		3		4	
	RA	NRA	RA	NRA	RA	NRA
Material	Age in years					
			Male			
I	22.4	20.6	26.9	25.5	32.5	32.9
II	21.0	20.2	24.1	25.0	28.6	32.3
			Female			
I	28.5	21.1	33.8	27.7	41.7	37.6
II	25.4	20.2	28.3	25.1	34.9	32.1

* Estimated from figures corresponding to Figs. 2 a—d in *Helminen-Pakkala,* 1971b. As a consequence of the hypotheses on which the analysis was based the typical ages for the given limit values of PDI-M were in Material II either the same as or lower than those in Material I.

Table XI.

Differences between typical ages obtained through probit analysis in Materials I and II, RA and NRA at various limit values of PDI-M

	Limit PDI-M		
	2	3	4
Material	Difference between typical ages of Materials I and II in years		
		RA	
Male	1.4	2.8	3.9
Female	3.1	5.5	6.8
		NRA	
Male	0.4	0.5	0.6
Female	0.9	2.6	5.5

between the typical ages of the two materials throughout, the differences increasing with age and with increasing limit values of PDI-M (Table IV). Thus, in the RA females, examination of the dentulous subjects resulted in a consistent underestimation of the »real» value of PDI-M.

Neither was the relationship of the PDI-M scores in RA and NRA males substantially affected by the selection of material at the limit values PDI-M =

Table XII.

Differences between typical ages obtained through probit analysis in males and females, Materials I and II, RA and NRA, at various limit values of PDI-M

	Limit PDI-M		
	2	3	4
Material	Difference between typical ages of males and females in years		
		RA	
I	—6.1	—6.9	—9.2
II	—4.4	—4.2	—6.3
		NRA	
I	—0.5	—2.2	—4.7
II	0.0	—0.1	+0.2

+ sign indicates higher typical age in males than in females.
— sign indicates lower typical age in males than in females.

Table XIII.

Differences between typical ages obtained through probit analysis in RA and NRA, Materials I and II, at various limit values of PDI-M

	Limit PDI-M		
	2	3	4
Material	Differences between typical ages of RA and NRA in years		
		Male	
I	+1.8	+1.4	—0.4
II	+0.8	—0.9	- 3.7
		Female	
I	+7.4	+6.1	+4.1
II	+5.2	+3.2	+2.8

+ sign indicates higher typical age in RA than in NRA.
- sign indicates lower typical age in RA than in NRA.

2 and 3. At the limit value PDI-M = 4, however, the consideration of Material II caused the difference between the typical ages in RA and NRA to exceed that of Material I by two years (Table VI). Thus, in the RA males, at this level of PDI-M, the selection of material had caused an underestimation of the »real» difference between scores for PDI-M in RA and NRA.

In the females, at the limit values PDI-M = 2 and 3, the selection of material had evidently caused an overestimation of the »real» difference of PDI-M scores in RA and NRA when investigating Material I. Nevertheless, in the Material II females, at the above limits of PDI-M, differences in the typical ages of RA and NRA still persisted, clearly indicating a lower level of PDI-M in RA than in NRA (Table VI). At the highest limit value of PDI-M (= 3.8) possible to investigate in the females of Material II, an even greater difference between the scores of PDI-M in RA and NRA occurred than that observed in the investigation of Material I, which indicated that at this level, owing to selection of material, underestimation rather than overestimation of the »real» difference between the scores of PDI-M of the two groups had taken place (Table VI).

It was also noted that, for RA, inclusion of the lost part of material in the analysis of PDI-M did not lead to equalization of the scores in males and females to the same extent as had been the case for NRA (Table V). On the contrary, also in the RA of Material II the typical ages were clearly higher in

the females than in the males, which thus indicated a truly lower level of PDI-M in the females.

The relationship of PDI-M scores observed for RA, respectively for RA and NRA, in Materials I and II through the median analysis was substantiated by the results of the probit analysis (Tables XI, XII and XIII). It thus seemed that also in RA the actual development of the periodontal index might have been different from that encountered through investigation of the dentulous sample had the selection of material not taken place. Yet, it further became evident that also when considering the effect of sample selection there was a behaviour of the periodontal index in RA different from that observed in NRA, this feature being especially pronounced in the females.

Acknowledgements. The author wishes to express her sincere gratitude to Mr. Erkki Järvinen, M.Sc., for his invaluable help in carrying out the statistical calculations of the present study.

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