Periodontal Conditions among Lithuanian Adults

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Data on periodontal conditions among adult Lithuanians are scarce. The aim of the present study was to describe the periodontal conditions among 35–44- and 65–74-year-old Lithuanians measured by CPITN and to relate the disease prevalence and severity to gender, residence, education and oral hygiene.

Six hundred and eighty individuals selected by a stratified random sampling procedure from 5 urban and 5 rural areas (response rate 52 per cent) were examined. Data collection comprised registration of periodontal status based on the CPITN index, recording of the oral hygiene status according to the OHI-S index and a self-administered questionnaire.

Three persons (1%) among the 35–44-year-olds and 11% of the 65–74-year-olds were totally edentulous and therefore were excluded from the analysis. The median number of teeth-present based on 32 teeth dentition was 27 for dentate 35–44- and 15 for 65–74-year-olds.

The data indicate that 5% of 35–44- and 0.4% of 65–74-year-old individuals were scored as healthy (CPITN-score 0). Forty seven per cent of the individuals in the younger and 75% in the older age group were found to have pockets 6 mm or more (CPITN-score 4). Among the 35–44-year-olds, males were more often and more extensively affected by periodontal destruction. Urban residents and individuals with more years of education had more sextants scored as healthy in this age group. Only minor differences in severity of periodontal conditions were observed among the elderly. Participants with poor oral hygiene had more sextants with periodontal pockets in both age groups.

Periodontal disease is widespread in Lithuania and a majority of adults have at least one site severely affected by periodontal pockets. This indicates a considerable need for prevention and treatment of periodontal disease in the Lithuanian population.

Key words: periodontal conditions, adults, CPITN

INTRODUCTION

In recent reviews on the epidemiology of periodontal diseases it has been concluded that severe periodontal destruction affects on average 10–20% of individuals in almost all populations regardless of their state of economic development and availability of dental care (1–4). However, from prevalence studies on periodontal disease in Europe using the Community Periodontal Index of Treatment Needs (CPITN) (5), a considerable variation in proportions of individuals having one or more site with pockets 6 mm or more have been observed. The proportions varied from 2 to 58 percent for middle-aged and from 4–84 percent for older individuals (6), with a tendency of poorer periodontal conditions in Eastern Europe and former Soviet Union republics (6, 7).

Data about periodontal conditions and treatment needs in Lithuania are scarce. This is a limitation in planning of oral health care services and making priorities in oral health care as well as for performing international comparisons. The aim of the present study was to describe the periodontal conditions among 35–44- and 65–74-year–old Lithuanians measured by the CPITN index and to relate the disease prevalence and severity to gender, residence, education and oral hygiene.

MATERIAL AND METHODS

Individuals for the present study were selected by a random sampling of 35–44- and 65–74-year-olds li-

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ving in 5 urban (Vilnius, Klaipėda, Panevėžys, Švenčionys, Kelmė) and 5 rural (Kretinga, Šalčininkai, Molėtai, Pasvalys, Šakiai) areas in Lithuania. The selected subjects (in total 1350 individuals) were invited to participate in the investigation by a letter explaining the purpose of the survey. Additional attempts were made to invite the non-responders by two more letters, home visits and telephone calls where possible.

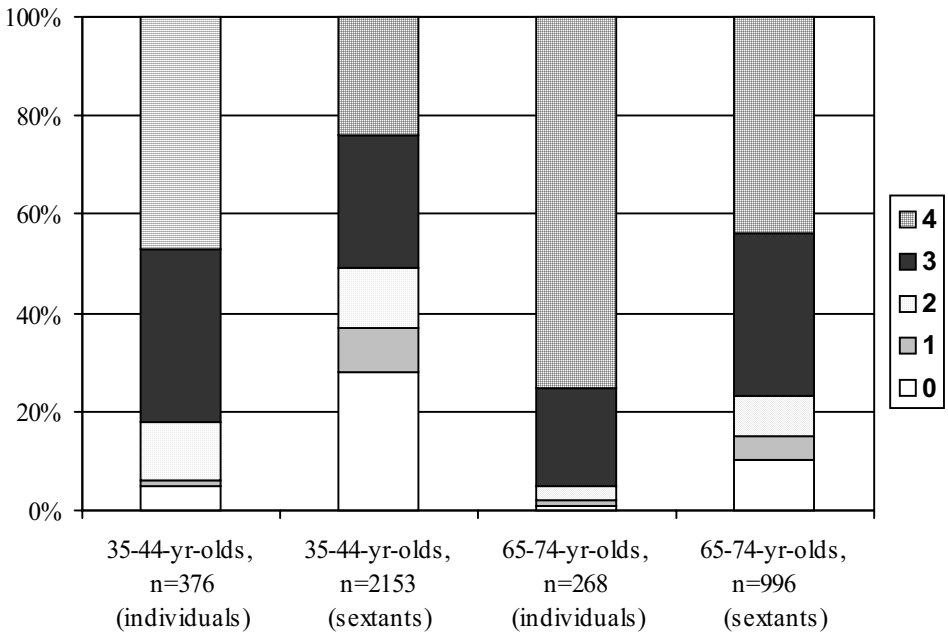

Fig 1. Prevalence of periodontal conditions assessed by the highest CPITN score in 35–44 and 65–74-year-olds

Data collection comprised a clinical examination performed at public dental clinics and a self-administered questionnaire. Periodontal status was registered based on the CPITN index using the CPITN probe and recording findings from index teeth (8). Recording of oral hygiene status according to the Simplified Oral Hygiene Index (OHI-S) (9) was also included in the clinical examination.

Data collection was performed by one examiner (JA) during 1997–1998. Intra-examiner agreement for the CPITN scoring was 87% with the kappa value of 0.82, indicating a good intra-observer agreement. Data were analyzed using the SPSS statistical program package. The Chi-squared test was used to compare differences in prevalence and Mann–Whitney U and Kruskal–Wallis tests for analyzing differences in the severity of periodontal disease. The level of statistical significance was set at $p \leq 0.05$.

RESULTS

Response rates in the study were 50% and 55% among the 35–44- and 65–74-year-olds, respectively. A detailed description of the participation and non-response in the study has been published before (10). A total of 380 subjects representing the younger and 300 subjects representing the older age group were examined clinically.

Three persons (1%) among the 35–44-year-olds and 11% of the 65–74-year-olds were totally edentulous and therefore were excluded from the analysis. The median number of teeth present was 27 based on 32 teeth dentition for dentate 35–44- and 15 for 65–74-year-olds.

A comparison of CPITN scores recorded as the highest score per subject and the proportion of sextants within each score is presented in Fig. 1. While 5% of 35–44- and 0.4% of 65–74-year-olds were scored 0 (healthy), the proportions of healthy sextants were 28% and 7% respectively for the two age groups. Conversely, 47% of the individuals in the younger and 75% in the older age group or 24% and 44% sextants respectively were scored as 4, *i.e.* having pockets 6 mm or deeper.

According to the assessment of treatment needs as suggested by Ainamo et al., 1982 (5), the results indicate that 94% and 98% of the individuals in the

Table 1. **Proportion (%) of subjects with CPITN scores 0–4 (X= excluded sextants)**

Age (N)	No. of sextants	CPITN scores					
		0	1	2	3	4	X
35–44-year-olds (376)	0	42	66	56	31	54	84
	1	20	21	31	25	13	10
	2	9	8	8	18	9	3
	3	9	5	2	14	8	1
	4	7	0	2	8	4	1
	5	9	0	1	3	6	1
	6	4	0	0	1	6	0
65–74-year-olds (268)	0	81	87	79	40	32	35
	1	8	8	15	24	22	9
	2	5	4	5	19	19	11
	3	3	1	1	11	14	13
	4	2	0	1	4	7	11
	5	1	0	0	2	4	12
	6	0	0	0	0	2	9

younger and older age group respectively needed hygiene instruction and scaling and almost half of the 35–44-year-olds and 72% in the older age group needed complex periodontal treatment, including periodontal surgery.

Statistically significant differences in the prevalence of periodontal conditions were observed between genders among the 35–44-year-olds. The prevalence of pockets 6 mm or more (score 4) was higher in males than in females. No gender differences in prevalence were observed among the elderly.

The severity of periodontal conditions is presented in Table 1. Forty two per cent of 35–44-year-olds and 81% of 65–74-year-olds had no sextants scored as healthy (Score 0). Three or more healthy sextants were recorded in 29% in the younger and 6% in the older age cohort. Sixteen per cent of 35–44-year-olds and 13% of 65–74-year-olds had four or more sextants with score 4 and thus presenting extensive periodontal destruction.

Based on bivariate comparisons, statistically significant differences in the severity of periodontal conditions were observed among the study population subgroups. As shown in Fig. 2, 35–44-year-old males had more sextants with pockets 6 mm or more compared to females.

Differences in the number of healthy sextants among 35–44-year-olds were observed in relation to education. As shown in Fig. 3, participants with more than 14 years of education had a median of 2 (mean 2.1) healthy sextants compared to 1 (mean 1.3) sextant observed among those with 12–14 years and 0 (mean 1.3) among individuals with less than 12 years of education. Better periodontal conditions were observed among urban than rural residents.

Among the elderly, only gender-related differences in the number of healthy sextants were observed. Females had median of 0 (mean 0.5) healthy sextants compared to 0 (mean 0.2) in males. No difference in periodontal conditions in relation to place of residence and education were found among the elderly.

For an assessment of a relationship between oral hygiene and periodontal pocketing (CPITN scores 3 and 4), grouping of participants according to OHI-S-scores (OHI-S < 1; OHI-S = 1–2; OHI-S > 2) was done. Fifty-two percent of 35–44-year-olds with OHI-S < 1 had no or only one sextant with pockets. Forty percent of all with OHI-S > 2 had all 6 sextants with pocketing (Fig. 4). The association between OHI-S and the proportion of sextants with pockets was found to be statistically significant. For-

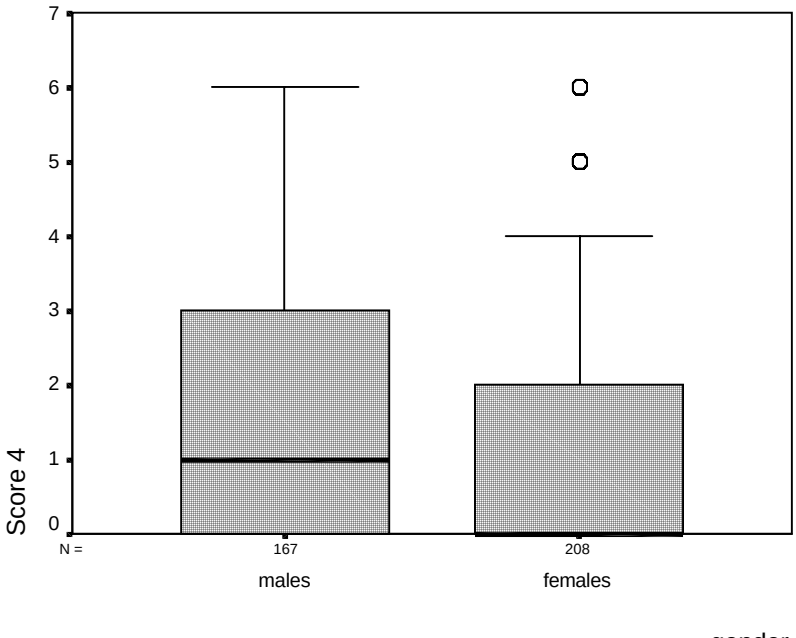

Fig. 2. Differences in number of sextants scored 4 in relation to gender in 35–44-year-olds (p = 0.000, Mann–Whitney U test)

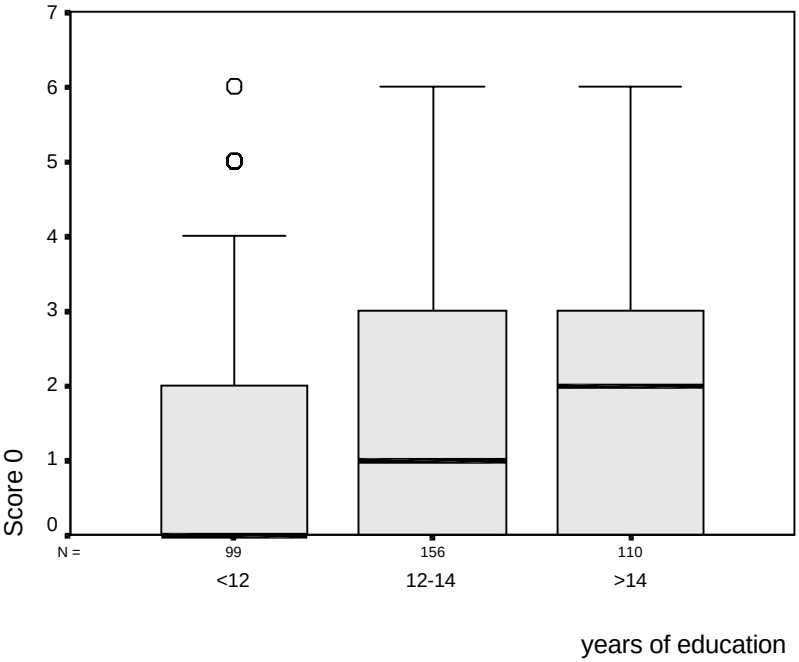

Fig. 3. Differences in number of healthy sextants in relation to education in 35–44-year-olds (p = 0.004, Kruskal–Wallis test)

ty-seven percent of the 65–74-year-olds with OHI-S > 2 had from 5 to 6 sextants recorded with pockets (Fig. 5).

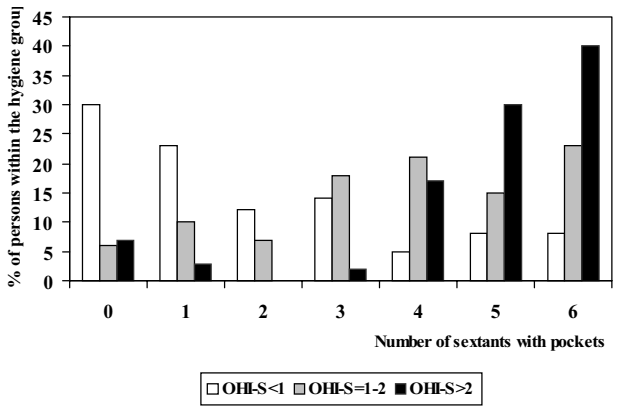

Fig. 4. Relationship between the OHI-S scores and number of sextants with periodontal pockets (CPITN scores 3 and 4) in 35–44-year-olds

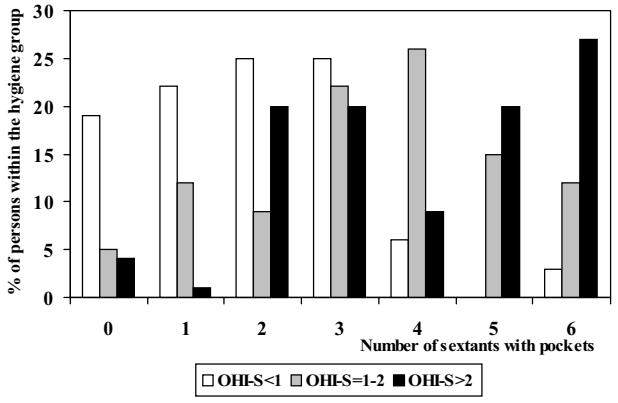

Fig. 5. Relationship between the OHI-S scores and number of sextants with periodontal pockets (CPITN scores 3 and 4) in 65–74-year-olds

DISCUSSION

In the present study, periodontal conditions were assessed using the CPITN index.

The index parameters for evaluation of periodontal conditions were bleeding, calculus, and pockets. Since the CPITN index originally was constructed for assessment of treatment needs, the cumulative effect of periodontal destruction over time such as attachment loss, recession and loss of alveolar bone were not recorded (11). Therefore, the true periodontal condition is not fully reflected by the index scores.

Even if the use of index teeth instead of full mouth recordings is a time-saving procedure in epidemiological surveys, it may lead to an underestimation of prevalence and bias in recording a severity of disease (12, 13), especially for persons with more severe conditions (14).

The results of the present study indicate that a very small proportion of individuals were found to be healthy in respect to periodontal conditions. Moreover, relatively high proportions of individuals with severe periodontal destruction were observed in both age groups. The data from the present study support the reported tendency of poor periodontal conditions in Eastern Europe and former Soviet Union republics (6, 7).

Lack of the emphasis on prevention of oral diseases in general and both prevention and proper treatment of periodontal diseases in particular that prevailed before 1990 in this region (15) probably have had an impact on the poor periodontal health.

In bivariate comparisons, a variation in periodontal conditions was observed. Among 35–44-year-olds, males were more often and more extensively than females affected by deep pockets. Conversely, females showed more healthy sextants. Several studies have reported a higher prevalence of deep pockets in males than in females (16–21) as well as females being healthier (20). However, there are also studies where gender-related differences in periodontal conditions were not observed (22). It has been suggested that the reason for gender-related differences in the clinical manifestations of periodontal destruction often are related to better oral hygiene among females (16). This could be the case in the present study as females had lower OHI-S scores compared to males in both age groups.

A higher number of healthy sextants among the 35–44-year-olds was also related to urbanization and education in the present study. Urban participants and individuals with more years of education were found to be healthier. However, it might be that the differences again could be due to better oral hygiene observed in these groups (Fig. 4).

The differences observed were more distinct among 35–44-year-olds than among the elderly (Fig. 5). This is in agreement with other studies where a higher prevalence of periodontitis among individuals with poor oral hygiene had been observed (18, 22–24).

The improvement in periodontal conditions observed in several industrial countries is thought to be related to improved oral hygiene (19, 25), and research has clearly indicated the importance of oral self-care in preventing the occurrence and progression of the inflammatory periodontal diseases (for reviews see 26, 27). It has been suggested that oral hygiene status of OHI-S values 0.3–0.6 might be compatible with a virtual absence of destructive periodontal disease throughout life for a majority of people and OHI-S scores 0.7–1.3 are associated with low to moderate levels of periodontal disease (28). In the present study, only 36% of individuals in the younger and 16% in the older age groups had

OHI-S scores lower than 1, indicating an oral hygiene compatible with low levels of periodontal disease. This is most likely one of the main reasons for the poor periodontal conditions observed in the present study.

CONCLUSIONS

1. Periodontal disease is widespread among Lithuanian adults. Forty seven per cent of the 35–44-year-olds and 75% of the 65-74-year-olds have at least one site affected by periodontal pockets of 6 mm or more.

2. Statistically significant differences in the severity of periodontal conditions among the 35–44-year-olds were related to gender, urbanization, education and oral hygiene.

3. Among the 65–74-year-olds, only statistically significant gender-related differences in the number of healthy sextants were observed. Little variation in the severity of periodontal conditions among the elderly may in part be due to a lower number of remaining teeth due to extractions.

The results of the present study indicate a considerable need for prevention and treatment of periodontal disease among adult Lithuanians.

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R. Skudutytė

LIETUVOS SUAUGUSIŲJŲ PERIODONTO BŪKLĖ

S a n t r a u k a

Šio tyrimo tikslas – ištirti 35–44 bei 65–74-mečių Lietuvos gyventojų periodonto būklę ir nustatyti galimą tiriamųjų lyties, gyvenamosios vietos (miestas/kaimas), išsilavinimo bei burnos higienos įtaką periodonto ligos paplitimui ir intensyvumui.

Kliniškai ištirta 680 tiriamųjų, atrinktų 5 miestuose ir 5 kaimo vietovėse pagal stratifikuotą atsitiktinę atranką (atsakas 52%). Tiriamųjų periodonto būklė įvertinta remiantis CPITN indeksu, burnos higiena – remiantis OHI-S.

Vienas procentas 35–44 metų amžiaus ir 11% 65–74-mečių buvo bedančiai. Tyrimo metu nustatyta, kad tik 5% 35–44 metų amžiaus ir 0,4% 65–74-mečių buvo sveiki, o 47% jaunesnės bei 75% vyresnės amžiaus grupės tiriamųjų buvo įvertinti CPITN 4, t. y. turintys bent vieną periodonto kišenę, gilesnę nei 6 mm. Jaunesniojoje amžiaus grupėje daugiau gilių kišenių nustatyta vyrams. Daugiau sveikų sekstantų turėjo tiriamieji, gyvenantys mieste ir turintys aukštesnį išsilavinimą. Vyresnėje amžiaus grupėje ryškių periodonto ligos paplitimo bei intensyvumo skirtumų nenustatyta. Abiejų amžiaus grupių, tiriamųjų, turinčių daugiau periodonto kišenių, buvo blogesnė burnos higiena. Tyrimo rezultatai rodo, kad periodonto ligos plačiai paplitusios tarp suaugusių Lietuvos gyventojų, todėl jų profilaktikai ir gydymui turėtų būti skirta daugiau dėmesio.

Raktažodžiai: periodonto būklė, suaugusieji, CPITN