

Characteristics of dental attendance among Lithuanian middle-aged university employees

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Key words: dentist's recall; habitual dental attendance; most recent dental visit; preventive check-up; self-reported number of teeth lost.

Summary. Objective. This study aimed to evaluate and describe the dental attendance patterns and to characterize the factors that encourage preventive dental visits among 35- to 44-year-old university employees in Lithuania.

Material and methods. A questionnaire survey was conducted anonymously among the 35- to 44-year-old employees ($n=862$) of four universities in Lithuania in 2005. The response rate was 64% ($n=553$). Data on their most recent dental visit, habitual dental attendance, and self-reported dental health were collected. Gender, marital status, education, and income levels served as background factors. Of the respondents, 79% were women, and 82% held a university degree.

Results. Of all the respondents, 75% reported having their most recent dental visit within the previous 12 months; 19% indicated a preventive check-up as the reason for it (15% – self-decided visit and 4% – dentist's recall). The most common treatments received were fillings (75%), scaling and cleaning (28%), and endodontic treatment (22%). Analysis of the data about habitual dental attendance showed that preventive check-up as the main reason for attendance was more commonly reported by women ($OR=1.7$), among those who indicated having lost fewer teeth ($OR=1.5$), reported higher incomes ($OR=1.4$), and who indicated a shorter time interval since their most recent dental visit ($OR=1.3$).

Conclusion. Dental problem seems to be a dominant reason for dental attendance in Lithuania where both dentists' and patients' behavior weakly reflects preventive orientation.

Introduction

Previous studies on oral health behavior have demonstrated that dental attendance habits are affected by a range of factors, such as gender, socioeconomic status, and culture as well as the organization of dental care (1–5). Effective use of dental health services is of great importance among the factors affecting the oral health status of a population (5–7). Thus, assessing the characteristics of dental attendance and key determinants to improve attendance habits could be helpful in organizing oral health care for populations.

After Lithuania's re-declaration of independence in 1990, Lithuanian oral health care has been undergoing the transition from a government-based, strictly planned and controlled, heavily subsidized system to one based on private ownership and partly or fully charged dental services. In the former USSR, free dental care, with the exception of prosthodontic treatment,

was accessible to all citizens at public clinics (8). Under the new circumstances, dentistry has become one of the fastest growing private sectors in the Lithuanian health care system (9). These changes are likely to affect the utilization of dental services, especially in the lower socioeconomic groups of the population, and may widen dental health inequalities in the future. The dental health status of the Lithuanian adult population is rather poor (10). Only few studies have described various aspects of oral health behavior among Lithuanian adults (11, 12), primarily demonstrating the lower utilization of dental services in Lithuania (13) than in other countries. The negative trend in general health behavior was recently observed in Lithuanian population (14). No data currently exist concerning the characteristics of dental attendance among the Lithuanian adult population.

The objective of this study was to describe the dental attendance patterns and to characterize the factors

that encourage preventive dental visits among 35- to 44-year-old university employees in Lithuania.

Material and methods

The Kaunas Regional Committee of Ethics for Biomedical Research (Lithuania) granted its permission to conduct the present study in December 2003. A pilot study designed to test the questionnaire was carried out on 50 adult patients attending the dental clinics of the Faculty of Odontology, Kaunas University of Medicine, in 2004 (15).

A cross-sectional questionnaire survey inquiring about dental attendance and factors related to it was conducted anonymously from March to June 2005. The target population comprised middle-aged (35- to 44-year-old) university employees in Lithuania. One university from each of four university cities (Vilnius, Kaunas, Klaipėda, and Šiauliai) was invited to participate on the basis of having no medical profile. All present employees between 35 and 44 years of age (n=862) were selected from lists provided by the human resources departments of the participating universities. The target subjects received an envelope with the questionnaire together with an invitation letter explaining the study design and encouraging them to respond. They were asked to complete the questionnaire voluntarily and to return it anonymously to an indicated address (office/officer at the university) within two weeks.

This present study reports data on the most recent subjects' dental visit, habitual dental attendance, and self-reported dental health.

The most recent dental visit

For the question, "How much time has elapsed since your most recent dental visit?", respondents could choose from five answering alternatives: no more than 6 months, between 6 and 12 months, 1 to 3 years, between 3 and 5 years, more than 5 years. These alternatives were later grouped into three categories: up to 6 months, between 6 and 12 months, and more than 12 months. Those respondents who indicated that their most recent dental visit was more than five years ago (n=16) were excluded from the analysis related to the most recent dental visit. The type of practice (private or public) was recorded for the most recent dental visit.

The question, "What was the main reason for your most recent dental visit?", offered seven answering alternatives, later categorized as preventive (self-decided preventive check-up and dentists' recall), trouble-based (toothache, other dental problems, poor

dental appearance, recommendation to visit a dentist), and continuation of treatment.

The question about treatment procedures received during the most recent dental visit offered seven answering alternatives: fillings, endodontic treatment, crowns or bridges, tooth extraction, periodontal surgery, scaling and cleaning, and other. Multiple answers were allowed.

A total of 23 answers were unclear and thus excluded from the analyses.

Habitual dental attendance

Habitual dental attendance was inquired with three alternatives (preventive check-up once every one to two years, preventive check-up once every three to five years, emergency visit), later categorized as:

- a) preventive check-up (once every one to two years and once every three to five years);
- b) emergency.

Dental status, described as the number of teeth lost, was inquired with six alternatives, later categorized as three: none to two, three to nine, and ten or more teeth lost.

The respondents' age, gender, marital status, education, and income served as background information. Marital status was classified into four categories: married or living together, single, divorced, or widowed. These categories were later grouped into two: cohabiting and single. Level of education was reported according to the following categories: less than secondary school, secondary school, vocational school, and university degree. These categories were later dichotomized into less than university and university degree. Four answering alternatives were provided for the question, "What was your household income per person during the past six months?" Responses were categorized as follows: below average (less than 500 litas), average (500–1000 litas), and above average (more than 1000 litas).

Statistical analysis

Statistical analysis included the chi-square test for analyzing differences between the groups. A logistic regression model was used to analyze the factors related to reporting a preventive check-up as the reason for habitual dental attendance, simultaneously controlling for all other factors included. Odds ratios (OR) and their 95% confidence intervals (CI) were calculated.

Subjects

A total of 553 (64%) questionnaires were returned and evaluated. Response rates among the universities

Table 1. Characteristics of the studied 35- to 44-year-old university employees (n=553) in Lithuania, by gender

Characteristic	Women n=439 %	Men n=114 %	P value
Marital status			
Cohabiting	70	77	0.150
Single	30	23	
Education			
University	83	78	0.238
Less than university	17	22	
City of residence			
Vilnius	29	32	0.307
Kaunas	19	18	
Klaipėda	26	25	
Šiauliai	26	25	
Income			
Below average	40	32	0.003
Average	40	34	
Above average	20	34	

Statistical evaluation by the chi-square test for differences according to gender.

showed no differences. Table 1 shows the distribution of the study subjects according to their background information.

Results

The most recent dental visit

Of all the respondents (n=553), 75% reported having had a dental visit within the previous 12 months. Amongst them, the cohabiting subjects more often reported visiting the dentist recently ($P=0.03$). The majority (77%) reported having visited a private practice. Visiting a private dentist was more common among respondents with a university degree (85%, $P=0.003$) and among those with an above-average income (89%, $P<0.001$).

Of the respondents, 19% reported preventive check-up as the main reason for their most recent dental visit; 15% reported a self-decided preventive check-up, and 4% reported a dentist's recall as the main reason. Of all the respondents, 68% reported a trouble-based reason, with men (79%) doing so more frequently than women (65%). Those cohabiting (22%), those with an average and above-average income (24% and 23% respectively), and those with fewer teeth lost (23%) reported a preventive check-up as the reason more often than did their counterparts (Table 2). Continuation of treatment was reported by 13% of the respondents, more often by women.

The most common treatment procedures received during the most recent dental visit were fillings (75%) followed by scaling and cleaning (28%), endodontic treatment (22%), crowns and bridges (18%), tooth extraction (10%), periodontal surgery (4%), and other (8%). Tooth extraction was reported significantly more often by those with an education below the university level (17%, $P<0.001$) or with a lower income (14%, $P=0.004$).

Habitual dental attendance

A preventive check-up as the reason for habitual dental attendance was reported by 51% of the respondents, significantly more often by women than by men (54% vs. 40%, $P=0.01$) (Table 3). Similar gender differences appeared for those who were single or with an education below the university level or with a below-average income.

Almost all of those reporting a preventive check-up as the reason for their most recent dental visit also indicated that such visits constitute their habitual dental attendance: 90% of women and 88% of men, respectively (Table 3). Those with fewer teeth lost or with higher incomes (both men and women) were more likely to report a preventive check-up as the reason for their habitual dental attendance.

Reporting a preventive check-up as the reason for habitual dental attendance was more likely for women

Table 2. Reason for the most recent dental visit among 35- to 44-year-old university employees in Lithuania who reported having had a dental visit within the past five years (n=514), by their background characteristics, reported number of teeth lost, and time interval since their most recent dental visit

Characteristic	Preventive		Trouble-based %	Continuation of treatment %	P value
	n	%			
All respondents	514	19	68	13	–
Gender					
Women	410	20	65	15	0.008
Men	104	16	79	5	
Marital status					
Cohabiting	372	22	64	14	0.016
Single	142	12	77	11	
Education					
University	426	20	66	14	0.246
Less than university	88	14	75	11	
Income					
Above average	115	23	67	10	0.001
Average	201	24	59	17	
Below average	193	12	78	10	
Data missing for 5 cases					
Number of teeth lost					
0–2	311	23	67	10	0.014
3–9	176	14	69	17	
10 +	21	5	24	71	
Data missing for 6 cases					
Time interval since the most previous dental visit					
<6 months	217	15	65	20	0.001
6–12 months	165	25	66	9	
>12 months	132	19	74	7	

Statistical evaluation by the chi-square test.

(OR=1.7), for those who reported fewer teeth lost (OR=1.5), for those with higher income (OR=1.4), and for those who indicated shorter time interval since their most recent dental visit (OR=1.3) (Table 4). The logistic regression model fitted the data well ($P=0.33$).

Discussion

The present study demonstrated that dental attendance patterns in Lithuania are affected mainly by gender and socioeconomic aspects, such as marital status, level of education, and income. These associations were strong in both of the study elements (the most recent dental visit and habitual dental attendance) as well as in the subject-related experiences. These findings agree those of previous studies on dental health behavior (2–4). It is important to note that the population of the present study, according to its socioe-

conomic and gender characteristics, could be considered representative of the highest oral health behavior standards in the country: predominantly women, cohabiters, urban residents, with a university education, and with at least an average income. Generally, these indicate the highest health care attitudes, as described earlier, common in many other countries (2–4, 6, 16–18). Therefore, the conclusions of this study cannot be generalized to the entire adult population of Lithuania. However, even the present highly educated group demonstrated very weak preventive habits when reporting their dental attendance. For comparison, 89% of 35- to 44-year-old Danes from high social groups, but only 67% of respondents of the same age from the entire Danish population reported being in the habit of visiting the dentist regularly (19). Thus, the present study clearly demonstrated a serious lack of

Table 3. Reporting a preventive check-up as the reason for habitual dental attendance among 35- to 44-year-old university employees (n=553) in Lithuania by their characteristics, separately for women and men

Characteristic	Women		Men		P value by gender
	n	%	n	%	
All respondents	439	54	114	40	0.11
Marital status					
Cohabiting	309	53	88	46	0.227
Single	130	56	26	23	0.002
	<i>P</i> =0.514		<i>P</i> =0.041		
Education					
University	363	54	88	43	0.076
Less than university	76	54	26	31	0.041
	<i>P</i> =0.971		<i>P</i> =0.257		
Income					
Above average	85	65	39	54	0.249
Average	176	55	38	40	0.080
Below average	74	47	36	28	0.033
	<i>P</i> =0.026		<i>P</i> =0.070		
Number of teeth lost					
0–2	268	59	59	51	0.277
3–9	146	48	48	33	0.077
10+	20	35	6	0	0.090
	<i>P</i> =0.026		<i>P</i> =0.021		
Reason for most recent dental visit*					
Preventive	82	90	17	88	0.802
Trouble-based	276	45	86	30	0.018
Continuation of treatment	64	44	6	50	0.768
	<i>P</i> =0.000		<i>P</i> =0.000		
Time interval since the most recent dental visit*					
<6 months	179	57	47	49	0.323
6–12 months	139	57	29	55	0.870
>12 months	109	50	33	21	0.004
	<i>P</i> =0.116		<i>P</i> =0.003		

Statistical evaluation by the chi-square test

*Excluding those who reported no dental visit within the past five years (n=16).

preventive attitudes towards oral health care among adults in Lithuania, possibly as a result of the previous health care system. Although oral care during the USSR period was said to be preventively oriented and accessible to every citizen, the prevention of dental diseases was in reality only declarative (8). In order to follow requirements designed to demonstrate high rates of dental visiting, public dental services preferred quantity to quality. Adding to this aggressive treatment methods and deficient dental materials, the result was a very poor image of dental professionals in the eyes of the population and, consequently, an avoidance of dental visits by lay-people.

Recent dental attendance reported by subjects was

dominated by trouble-based reasons. Data from previous health behavior surveys (20, 21) show similar results for the recent dental attendance of the entire Lithuanian population of the same age: 17% of men and 22% of women in 2002 and 17% and 36% in 2004 reported a preventive reason for their most recent dental visit. The highly-educated and well-off members of the Lithuanian population seem to follow the same pattern of dental attendance as the majority of adult Lithuanians. In contrast, reports from other countries, such as Finland or the UK, demonstrate that preventive procedures (e.g. scaling and cleaning), as the most recent dental treatment among the adult population, are more common there than in Lithuania (22, 23).

Table 4. Factors related to reporting a preventive check-up as the reason for habitual dental attendance among 35- to 44-year-old university employees (n=553) in Lithuania by means of a logistic regression model

Factors and their categories	Estimate of strength		Odds ratio (OR) and its 95% confidence interval (CI)		P value
	Estimate	SE	OR	95% CI	
Age: from 35 to 44 years old	0.025	0.029	1.0	1.0, 1.1	0.394
Gender: 1=male, 2=female	0.546	0.228	1.7	1.1, 2.7	0.017
Marital status: 1=cohabiting, 2=single	0.048	0.202	1.0	0.7, 1.6	0.814
Education level: 1=university, 2=less than university	0.257	0.255	1.3	0.8, 2.1	0.314
Income level: 1=low, 4=high	0.305	0.112	1.4	1.1, 1.7	0.006
Time interval since the most recent dental visit: 1=long, 5=short	0.296	0.092	1.3	1.1, 1.6	0.001
Number of teeth lost: 1=all, 6=none	0.436	0.112	1.5	1.2, 1.9	<0.001
Constant term	-5.854	1.580			

Hosmer and Lemeshow test: $P=0.33$.

In the present study, the time elapsed since the most recent dental visit was associated weakly with a preventive reason for it. This indicates that experiencing dental problems rather than the subjects' habitual dental attendance affects the interval as well as the regularity of dental visits. Again, these results do not correspond to previous findings, which show that those subjects who reported a shorter time interval since their most recent dental visit more often indicated a preventive reason for it (1).

Only half of the respondents in this study reported a preventive check-up as the reason for their habitual dental attendance. This percentage is generally lower than that found in a number of Western European countries, where 62–89% of various groups of the adult populations report preventive check-ups as the most common reason for their habitual dental attendance (1, 18, 22–24). Our study showed a marked discrepancy between the subjects' reporting of a preventive check-up as the reason for their most recent dental visit (only 19%) and as the reason for their habitual dental attendance (51%). Thus, one can speculate that highly educated people generally know what the correct answer is, and thus, the actual habitual preventive dental attendance may be even lower. This type of study should consider an over-reporting bias, where respondents deliver desirable answers that conform to dominant belief patterns (25). This tendency cannot be excluded among the highly-educated individuals

of the present study. Should this have been the case, the results presented should be considered as an over-optimistic picture of the entire nation.

Interestingly, no relation was observed in the study population between the subjects' preventive habitual dental attendance and their education level, while the former was clearly associated with income level. However, previous studies on dental attendance have reported similar influence of education and income levels on preventive dental visits (2, 24, 26). In this study, such associations were observed only among women. Therefore, economic factors seem to be the dominant determinants of dental attendance in Lithuania.

Besides gender and socioeconomic factors, oral health status, as reported previously, is related to dental attendance habits (3, 5, 6, 27, 28). In present study, oral health was measured by the self-reported number of teeth lost. The results confirmed a strong association between preventive dental attendance habits and the reported number of teeth lost. The subjects reporting fewer teeth lost more often indicated a preventive check-up as the reason for their most recent dental visit as well as the reason for their habitual dental attendance. These results support previous findings, which suggest that a lack of preventive dental attendance may induce poor dental health (7).

Dentists in Lithuania have apparently not adopted the recall practice yet. In contrast to the data from

Finland, where 25% of 30- to 44-year-olds in a recent population-based survey reported dentist's recall as the reason for their most recent dental visit (22), this present study found a very low rate (only 4%) of dentists' recalls. A dentists' recall rate similar to that found in this present study was shown in Finland more than 25 years ago among the representative adult population (29), with an even lower (1%) rate among 25- to 49-year-olds (30). In the Netherlands in 2005, 39% of dentists reported assigning fixed recall intervals for all their patients and 62% indicated giving

individual recall intervals for selected higher-risk patients (31). Lithuanian dental professionals prefer to treat existing dental problems and make little effort to educate patients in the prevention of oral diseases (13).

Conclusions

In conclusion, the behavior of patients and dentists in Lithuania weakly reflects preventive aspects related to dental attendance. More efforts are needed to better establish preventive oral health care habits in the community and among dental professionals in Lithuania.

Vidutinio amžiaus Lietuvos universitetų darbuotojų lankymosi pas odontologą savitumai

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Raktažodžiai: odontologo iškviestas, lankymasis pas odontologą, paskutinis apsilankymas pas odontologą, profilaktinė patikra, išrautų dantų skaičius.

Santrauka. *Tyrimo tikslas.* Ištirti ir aprašyti 35–44 metų Lietuvos universitetų darbuotojų lankymosi pas odontologą savitumus ir apibūdinti veiksnius, turinčius įtakos profilaktinei burnos priežiūrai.

Medžiaga ir metodai. 35–44 metų keturių Lietuvos universitetų darbuotojai (n=862) 2005 m. anonimiškai buvo apklausti, naudojant klausimyną. 64 proc. (n=553) apklaustųjų grąžino užpildytas anketas. Anketose buvo pateikti klausimai apie paskutinį apsilankymą ir įprastinio lankymosi pas odontologą priežastis bei apklausos dalyvių savo paties dantų sveikatos įvertinimą. Demografiniai rodikliai: lytis, šeimos padėtis, išsilavinimas ir pajamos. 79 proc. atsakiusių sudarė moterys, 82 proc. atsakiusių turėjo aukštąjį išsilavinimą.

Rezultatai. 75 proc. atsakiusių nurodė, kad pas odontologą paskutinį kartą buvo pastarųjų 12 mėnesių laikotarpiu. 19 proc. atsakiusių teigė lankęsi pas odontologą paskutinį kartą profilaktiškai pasitikrinti (15 proc. – savo iniciatyva, 4 proc. – iškviesti odontologo). Paskutinio apsilankymo metu dažniausiai atliekamos procedūros: dantų plombavimas (75 proc. atvejų), profesionali burnos ertmės higiena (28 proc. atvejų) ir endodontinis gydymas (22 proc. atvejų). Vertinant lankymosi pas odontologą priežastis, profilaktinės patikros tikslas labiau būdingas moterims (šansų santykis – 1,7) bei asmenims, turintiems mažiau išrautų dantų (šansų santykis – 1,5), didesnes pajamas (šansų santykis – 1,4) ir nurodžiusiems trumpesnę laikotarpį po paskutinio apsilankymo pas odontologą (šansų santykis – 1,3).

Išvada. Odontologinei priežiūrai Lietuvoje būdingas jau esamų burnos sveikatos sutrikimų gydymas bei mažas dėmesys profilaktinei burnos patikrai ir odontologinių ligų plitimo mažinimui.

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