ASSISTANCE FOR DENTISTS IN LITHUANIA

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Key words: dental assistant, dentist, ergonomics.

Summary
The study objectives were to investigate the preference of Lithuanian dentists to work with or without an assistant and to identify the most significant predictors for the preference. As well, we aimed to explore the education of practicing dental assistants in Lithuania. The information was collected by a postal questionnaire survey which was carried out among all practicing general dental practitioners and dental specialists in Lithuania (n=2971). The final response rate was 67.6% corresponding to 2,008 respondents. The results show that most dentists in Lithuania always or sometimes work without an assistant. Each third dentist of those who work with an assistant employ non-certified dental assistant. This may be done on purpose due to financial reasons.

Dentists should be educated how efficient, ergonomic practice with a qualified dental assistant can be; inclusion of contemporary four-handed practice subject in applicants resume could improve employment of certified dental assistants in the long term.

Introduction
Modern dentistry is extremely interesting and attractive; it gives various possibilities for a dental practitioner to express her/his abilities and for patients to receive professional care. Despite that, dentists all over the world are subject to variety of occupational factors that affect their psychological and physical wellbeing. According to researchers all over the world, even young dentists face various psychological disorders such as burnout, stress, suicide and drug or alcohol addiction [1-6]. Majority of dentists (70-90%) suffer from various physical occupational disorders – neck, shoulders, lower back and wrist pain is the most common [7-12]. Lithuanian dentists face the same problem – many of them complain with back pain (91.0%), headache (88.7%), hand problems (83.1%) and chest pain (53.8%), feel tired (82.6%) and tense (80.5%), suffer from anxiety (78.8%) or nervousness (89.2%), problems at work cause insomnia (74%) and awakening at night (78.8%); some dentists suffer from these symptoms constantly [13,14].

High volume workload is important stress trigger in clinical dentistry: 94.2% of Lithuania dentists claim experiencing negative health-related effects of long working hours and 41.7% of respondents experience these symptoms often or always [13]. Because of long working hours dentists have less time for themselves and tend to spend less time with their family. The research which investigated mental health and job satisfaction of Lithuanian dentists showed that about thirty percent of dentists are dissatisfied with personal time and time for their family they have [15].

Taking into an account the prevalence of physical, psychological occupational disorders and high volume workload in dentistry every effort should be made to make clinical practice more efficient and safe. Physical, psychological occupational factors and work efficiency can be addressed working with a qualified dental assistant. Dental assistant’s help can contribute a lot to dentist’s work. Four-handed dentistry minimizes damaging dentists’ elbow and shoulder repetitive movements, avoids rotation of the trunk [16]. As a result, inflammation of muscles, joints and tendons which causes pain and limited movements is not encouraged. A dentist who shares work and responsibilities with a dental assistant can pay more attention to his patient, therefore expanded function personnel has a positive effect on quality of dental care [17]. Recent study among USA dentists showed that nearly one quarter of respondents felt that employing dental personnel who can perform auxiliary tasks would free up their time for more complex and interesting dental procedures [17]. Another research proved that practices that reported using allied dental personnel had more income, provided almost twice as many visits and had more auxiliary hours [18]. Various health professionals claim that share of responsibilities and daily contact among team members not only improve interrelations but also decrease stress and overload at work [19]. Therefore...
dentist working with the assistant is more productive, less tired and healthier. Teamwork and communication with colleagues is an important factor in order to have healthy working environment and successful career. It is more and more common in foreign countries, that dentists have more than one dental assistant helping them in their daily practice [20].

Considering high prevalence of physical and psychological occupational disorders and the negative effect of long working hours among Lithuanian dentists the aim of our study was to investigate the preference of Lithuanian dentists to work with or without an assistant, the most significant predictors for the preference and to explore the education of practicing dental assistants in Lithuania.

Research methods
The study was approved by the National Data Protection Inspectorate (No. 2R-3247). An ethics approval was not required due to the nature of the study. Contact information (e-mail, address, telephone number) of all licensed dentists in Lithuania was acquired from the License Registry of the Lithuanian Dental Chamber in October 2012. The retired and emigrated dentists were excluded from the sample. The overall study sample consisted of all licensed dentists and dental specialists in Lithuania (n = 2,971). All dentists were contacted up to three times. Firstly, depending on the available contact information (e-mail or address), questionnaires were sent either electronically or by post. Non-responders received copies of the same questionnaire again after six weeks. Those who did not respond after the second time were contacted again by phone six weeks later and the questionnaire was re-sent via their preferred mode. In total, 2,008 questionnaires were returned and the final response rate was 67.6%. The data were collected from December 2012 to June 2013.

Reliability of the original study questionnaire was tested by asking 10 randomly chosen dentists and dental specialists to complete the questionnaire twice with a 2-month gap in between these recordings in order to avoid memory bias. The questionnaire items were structured on nominal, ordinal, and interval scales. The reliability of questions structured on nominal or ordinal scales was tested employing Cohen’s kappa and interval scale responses were checked by intra-class correlation. Overall, the reliability was high for questionnaire items falling within the range 0.7 to 1.0.

The SPSS statistical program version 21.0 was employed for all statistical analyses. Univariate analyses were used to describe the study sample regarding demographic characteristics and some study variables. The bivariate analyses were done for the following purposes: non-response analyses ($\chi^2$ test/Fisher test and independent samples $t$-test), comparisons between dentists working alone part/full time and dentists who work with an assistant full time as well as dentists who work with certified dental assistants/hygienists and dentists who work with an assistant of other medical education or without medical education regarding their demographic and professional characteristics ($\chi^2$ test), to explore the most significant predictors for the preference to work with or without an assistant, with medical professional or assistant without medical education (Odds Ratio). The threshold for significance for all tests was set at $P <0.05$. Due to some missing answers for individual questions of the questionnaire, the statistics for each question were based on a varying number of study subjects.

Results
The analyses showed no significant differences between responders and non-responders regarding the number of different dental specialists (oral surgeons, periodontologists, endodontists, prosthodontists, orthodontists and pediatric dentists; ($P=0.252$). However, there were significantly fewer younger dentists ($P = 0.001$), males ($P<0.001$), and dentists from big cities ($P<0.001$) among the responders compared to the non-responders (results are not presented).

21.9% of Lithuanian dentists constantly work alone, 37.4% work with an assistant sometimes and 40.7% work always with an assistant (Fig. 1). Statistical analysis showed that senior dentists, females, general dentists, dentist who work in suburban or rural areas, workers of public clinics (p<0.001), owners of private practice or renters of dental chair (p=0.008), those who experience the shortage of patients (p=0.03) work without an assistant significantly more than younger dentists, males, dental specialists, dentists, who work in big cities and private clinics, associate dentists, those who do not feel the lack of patients (Table 1). Most significant predictors for working without an assistant were being a general dentist (OR=3.4), working in suburban or rural areas (OR=2.4) or experiencing the shortage of patients (OR=1.9).

The study showed that 66.4% of practicing dental assistants in Lithuania are certified and graduated from dental assistant study programs, 20.2% of dental assistants are professionals of other medical specialities (medical professionals), 8.6% are dental hygienists and 4.8% don’t have medical education (Fig. 2). Statistical analysis show that younger dentists (p=0.016), general practitioners (p=0.018), dentists of suburban/rural areas, owners of private practice, renters of dental chair (p<0.001) and dentists who experience the shortage of patients (p=0.012) work...
significantly more with medical professionals or assistants without medical education (Table 2). Most significant factors that predetermine the work with medical professionals or assistants without medical education are the lack of patients (OR=2.2), working in a private dental clinic (OR=2.2) and in suburban/rural area (OR=2.0).

**Discussion**

The present study findings indicate that majority of general dental practitioners and dental specialists in Lithuania do not have constant assistance during their clinical practice. Present situation can be resulted by the lack of knowledge in ergonomics among Lithuanian dentists as the subject of dental ergonomics is being taught in Lithuanian universities only since 2010. Lithuanian Association of Dental Ergonomics was founded as well in 2010. It annually organizes postgraduate education courses where Lithuanian dentists are taught the principles of ergonomics. No ergonomic lectures were given before to the practicing dentists. Older dentists who practiced during the Soviet period before the regain of Lithuania’s independence make

<table>
<thead>
<tr>
<th>Demographic and professional characteristics</th>
<th>With medical professional or assistant without medical education (reference group)</th>
<th>With certified dental assistant or hygienist</th>
<th>P values, OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Mean±SD</td>
<td>N Mean±SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>393 41.9±14.4</td>
<td>1181 43.1±13.7</td>
<td>0.016</td>
</tr>
<tr>
<td>Gender</td>
<td>N %</td>
<td>N %</td>
<td></td>
</tr>
<tr>
<td>Females (reference group)</td>
<td>333 25.2</td>
<td>986 74.8</td>
<td>0.562</td>
</tr>
<tr>
<td>Males</td>
<td>60 23.5</td>
<td>195 76.5</td>
<td></td>
</tr>
<tr>
<td>Dental professionals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General dentists (reference group)</td>
<td>329 26.3</td>
<td>923 73.7</td>
<td>0.018 OR-1.4</td>
</tr>
<tr>
<td>Specialists</td>
<td>64 19.9</td>
<td>258 80.1</td>
<td></td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban or rural (reference group)</td>
<td>147 34.7</td>
<td>277 65.3</td>
<td>&lt;0.001 OR-2.0</td>
</tr>
<tr>
<td>Big cities</td>
<td>245 21.3</td>
<td>903 78.7</td>
<td></td>
</tr>
<tr>
<td>Practice type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private (reference group)</td>
<td>223 27.5</td>
<td>588 72.5</td>
<td>&lt;0.001 OR-2.2</td>
</tr>
<tr>
<td>Public</td>
<td>51 14.7</td>
<td>297 85.3</td>
<td></td>
</tr>
<tr>
<td>Employment status*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owns private practice or rents a dental chair (reference group)</td>
<td>143 30.8</td>
<td>321 69.2</td>
<td>&lt;0.001 OR-1.5</td>
</tr>
<tr>
<td>Associate dentist</td>
<td>241 22.4</td>
<td>833 77.6</td>
<td></td>
</tr>
<tr>
<td>Shortage of patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (reference group)</td>
<td>16 38.1</td>
<td>26 61.9</td>
<td>0.012 OR-2.2</td>
</tr>
<tr>
<td>No</td>
<td>236 21.7</td>
<td>851 78.3</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2.** Comparison of demographic and professional characteristics between dentists who work with certified dental assistant or hygienist and with medical professional or assistant without medical education.

**Table 1.** Comparison of demographic and professional characteristics between dentists who work with and without an assistant.
significant part of the present dental workforce which is hardly receptive to innovations. It is known, that it is not so easy to apply ergonomic knowledge in clinical practice for dentists who are not used to work in ergonomic way. Ergonomics is a discipline which requires a profound and systematic approach, regular practical training and control [21-23]. Therefore the promotion of ergonomics in dentistry should be highly encouraged by universities, Lithuanian Association of Dental Ergonomics and all the organizers of postgraduate courses in Lithuania.

Despite all the advantages a dentist has when working with the dental assistant, hiring of ancillary personnel in dental offices has one disadvantage – it is the matter of financial burden [24]. Our study show, that according to the factors predicting working without an assistant (shortage of patients, work in a suburban/ rural area, being general practitioner) it can be supposed, that not hiring an assistant may be done on purpose due to financial reasons. These financial reasons could be more important than practitioners’ health due to lack of knowledge about the acute problem of the prevalence of physical and psychological disorders in dentistry. Dentists who care about their health, has management and ergonomic knowledge know that it is obligatory to use the help of dental assistant to be healthy and have an efficient practice [16, 18, 19].

Dentists should focus on performing tasks that only they can perform, other tasks in the dental surgery should be delegated to ancillary personnel. Certified dental assistants are trained to perform various complex tasks, develop an effective four-handed dentistry practice in the dental surgery. Competent dental assistant increases productivity, reduces stress and strain on practicing dentist [17-19]. The results of the study show, that each third dentist of those who work with an assistant employ non-certified dental assistant (i.e. medical professional, dental hygienist or assistant without medical education). As younger dentists, general practitioners, dentists of suburban/rural areas, owners of private practice, renters of dental chair and dentists who experience the shortage of patients chose to work with a non-certified dental assistant, this can be done also due to financial reasons.

According to the data of Lithuanian Dental Chamber, there is an absolute shortage of certified dental assistants with only 0.5 dental assistant per dentist in Lithuania [25]. One reason for this ratio is high emigration of the professionals. The study in Lithuania showed that dental assistant graduates scored the highest rate (35.5%) among all dental care graduates intending to seek employment abroad. General dentists reported a rate of 26.9%, 19.4% of dental hygienists, 15.1% of technicians and 3.2% of dental specialists were planning to leave the country [26]. The salary of dental assistant in Lithuanian capital health institutions is low and makes about 600-800 Eur before taxes [28-30]. The possibility to earn money for personal housing, higher salary, possibility for new acquaintances, better living and working conditions were identified as the most important by the dental assistants seeking to work abroad [26]. An absolute shortage of certified dental assistants in Lithuania was addressed of the responsible institutions introducing a specialty of a dentist helper in 2012 [27]. This measure was the quick and effective way to address the shortage of the workforce in dental healthcare system. Nevertheless, these specialists learn only for 3 months and their knowledge and practical skills are limited. Certified dental assistants are trained for 3 years, they can be much more effective in the dental surgery. According to the results of our study, Lithuanian dentists should be taught that it is more effective to work with a qualified dental assistant rather than a specialist with low qualification and how to utilize the dental assistant’s qualification fully. The same recommendations for foreign dental schools can be found in the literature – students should learn how to utilize their staff members more effectively [17]. Inclusion of contemporary four-handed practice subject in the curriculum could improve employment and increase the value of the profession of certified dental assistants in the long term.

Conclusions

Most dentists in Lithuania always or sometimes work without an assistant. Each third dentist of those who work with an assistant employ non-certified dental assistant. This may be done on purpose due to financial reasons. They should be educated how efficient, ergonomic practice with a qualified dental assistant can be; inclusion of contemporary four-handed practice subject in the curriculum could improve employment of certified dental assistants in the long term. The growing discrepancy of the supply and demand of certified dental assistants should be addressed.

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35. Lithuanian Dental Chamber. Internet access: http://www.vrcp.lt/go.php/Informacija%20apie%20darbo%20

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40. Lithuanian Dental Chamber. Internet access: http://www.vrcp.lt/go.php/Informacija%20apie%20darbo%20
ASISTAVIMAS GYDYTOJAMS ODONTOLOGAMS LIETUVOJE
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Raktažodžiai: odontologo padėjėjas, odontologas, ergonomika.
Santrauka
Tyrimo tikslai: išsiaiškinti, ar Lietuvos odontologai dirba su odontologo padėjėju ar be jo pagalbos bei nustatyti reikšmingiausius veiksnius, nulemiančius pasirinkimą dirbti be asistento pagalbos. Taip pat šiuo tyrimu buvo siekiami išsiaiškinti Lietuvoje praktikuojančių odontologų padėjėjų įgijtą išsilavinimą.

Medžiagos ir metodai: informacija gauta apklausos būdu išsiuntus anketą visiems Lietuvos bendrosios praktikos odontologams bei odontologams specialistams (n=2971). Galutinė atsakymų vertė siekė 67,6% (2.008 respondentų).

Rezultatai: 21,9% Lietuvos odontologų dirba vieni visada, 37,4% dirba su padėjėju, kartais ir 40,7% dirba su asistento nuolat. Statistinė analizė parodė, kad vyresnio amžiaus, moteriškos lyties, mažame mieste ar valstybinėse įstaigose dirbantys, turintys bendrosios praktikos gydytojo odontologo licenciją (p<0,001), privačios praktikos savininkai ar nuomuojanti odontologinę kėdę (p=0,008), nusiskundžiantys pacientų trūkumą (p=0,03) dirba be odontologo padėjėjo pagalbos reikšmingai dažniau. Reikšmingiausi veiksniui, nulemiantis darbą su padėjėju, neturintis medicinės licencijos arba turintis pacientų trūkumą (p<0,001), dirba statistiškai reikšmingai dažniau su asistento, neturinti medicinės licencijos arba turinti medicinės licencijos arba turintis pacientų trūkumą (p<0,001) bei turintis trūkumą pagalbos (p=0,012) darbas privačioje odontologijos klinikose (OR=2,2), darbas privačioje odontologijos klinikose (OR=2,2) ar mažame mieste (OR=2,0).

Išvados. Didžioji dauguma Lietuvos odontologų dirba vieni visada ar kartais be padėjėjo pagalbos. Kas trečias odontologas, dirbantis su asistento, dirba be odontologo padėjėjo ar su asistento, neturinti medicinės licencijos, gali būti susijęs su finansine našta arba tos veikos efektyviausiai, kaip dirbtis be odontologo padėjėjo pagalbos reikšmingai dažniau. Reikšmingiausi veiksniui, nulemianti darbą be odontologo padėjėjo pagalbos reikšmingai dažniau, turintis pacientų trūkumą (p<0,01), dirbantys mažame mieste (OR=2,4), darbas privačioje odontologijos klinikose (OR=2,4) bei turintis pacientų trūkumą (OR=1,9) dirbau. Tyrimas parodė, kad 66,4% praktikuojančių odontologų padėjėjų turi darbo licenciją ir yra pabaigę odontologų asistentų studijas, 20,2% padėjėjų yra pabaigę kitas medicinos srities studijas, 8,6% yra burnos higienistai ir 4,8% neturi medicinės licencijos. Statistinė analizė parodė, kad jaunus (p=0,016) bendrosios praktikos gydytojai (p=0,018), dirbantys mažuose miestuose, privačios praktikos savininkai, turintys pacientų trūkumą (p=0,001) bei turintys pacientų trūkumą (p=0,012) dirba statistiškai dažniau be asistento, neturinti medicinės licencijos arba turinti medicinės licencijos arba turintis pacientų trūkumą (p<0,012). Tyrimas parodė, kad jaunesnio amžiaus (p=0,016) bendrosios praktikos gydytojai (p=0,018), dirbantys mažuose miestuose, privačios praktikos savininkai, turintys pacientų trūkumą (p=0,001) bei turintys pacientų trūkumą (p=0,012) dirba statistiškai dažniau be asistento, neturinti medicinės licencijos arba turinti medicinės licencijos arba turintis pacientų trūkumą (p=0,012) dirba statistiškai dažniau be asistento, neturinti medicinės licencijos arba turinti medicinės licencijos arba turintis pacientų trūkumą (p=0,012).

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