

Occupational hazards of dental profession to psychological wellbeing

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SUMMARY

Objective. The aim of this study was to examine self perceived psychological wellbeing of Lithuanian dentists and to relate complains of well being to occupational hazards of dental profession.

Materials and methods. All dentists (2449) registered in Lithuanian Dental Chamber license registry were approached by post questionnaire which included structured questions regarding occupational hazards and their effects on self perceived psychological wellbeing.

Results. Overall majority (95.1%) of Lithuanian dentists reported that dental profession influences their general health and more than a half (52.4%) experienced health complains on either a frequent or very frequent basis. Substantial numbers of Lithuanian dentists reported work related stress, fatigue, nervousness and anxiety. Tension before work and awakenings at night were frequent complains. Of all, 94.2% of respondents indicated that long working hours affect their general health and 41.7% were bothered by this condition on a frequent or very frequent basis. Although less than 10% of dentists indicated overwork, they indicated that long working hours influence their psychological wellbeing.

Conclusion. Substantial numbers of Lithuanian dentists reported different impairment of their psychological well-being. These complains were related to occupational hazards of dental profession.

Key words: psychological well-being, occupational hazards, dentists.

INTRODUCTION

Occupational diseases may result from many contributing factors, such as aggravating social and economic conditions, changes in legislation and/or labor market, implementation of new technologies and changes in the workforce, service and administrative sectors. Although incidence of

physical occupational diseases decreased after implementation of medical preventive measures, such as vaccinations covering professions serving high-risk groups, acquisition of modern equipment and better understanding of ergonomics, mental impairments still dominate among occupational disorders [1, 2].

In 1991, after Lithuania regained its independence, the dental profession experienced substantial changes and new challenges which might have influenced the practitioner's health. For example, changes in the remuneration system led to an increased income and concomitantly to a greater work load, i.e. a need to work in more than one institution and for more than usual six hours per day. The most intense impact on psychological wellbeing of Lithuanian dentists might be the establishment of the law regarding patients legal rights and compensation for iatrogenic health damage fully coming into effect on Jan 1, 2005. This law led

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to a highly increased psychological pressure in already very intense and stressful working environment of a dental practitioner. Moreover, the modern society with its increasing materialism increased tension in all spheres of life including the interaction between a health care provider and one's recipient. While some stress is tolerable and can be even useful in everyday practice, substantial amounts of it are clearly detrimental to the practitioner's health. Stress related conditions like neurotic behavior or/and psychosomatic diseases such as neurotic asthma, headaches, insomnia and others reduce the potential working capacity of a practitioner [3]. A high prevalence of work related mental disorders among dentists has been previously reported [4].

It is important to consider that mental impairments limit the ability of coping with everyday challenges, interpersonal relationships, time and output tasks [5]. Consequently, cumulative stress decreases efficiency and overall productivity of a health professional [6].

The aim of this study was to evaluate self perceived psychological wellbeing of Lithuanian dentists and to assess if there is an association between psychological complains and occupational hazards.

MATERIALS AND METHODS

The study was approved by Lithuanian Bioethical Committee No.59. The postal questionnaire survey of dentists was conducted in 2006 where dentists working in various Lithuanian regions and from both public and/or private dental institutions were interviewed. Questionnaires were sent to 2449 dentists, a list acquired from the Lithuanian Dental Chamber license registry data base. The total of 1670 were returned, which comprises the response rate of 68.2%. Of all, 17.4% of respondents were specialists and 82.6% were general dental practitioners, 15.1% of them were males and 84.9% were females. One third of dentists worked only in public institutions, 50.0% worked only in private and 18.7% combined work in both public and private institutions. The mean length of job experience was 22.41 years and the mean working time was 38.23 hours per week.

The questionnaire included a number of questions about self perceived psychological wellbeing, occupational hazards and about personal life. Demographic characteristics of the responding

dentists were also assessed. The majority of questions were structured and only a few open questions were added where additional deeper insight was necessary. The Likert type scales were used in structured questions with answers from 1 to 5 allocated according to the level of agreement with the given statement or experienced state of a listed complaint. The chronic condition was defined if respondents experienced it on either a frequent or very frequent basis.

Statistical analysis included both univariate, bivariate and multivariate analyses using the MS Office Excel and SPSS version 15.0. Differences in proportions were tested by Chi squared test and Student's t test. The psychological wellbeing complains were compared between gender groups; as well as between general practitioners and specialists. The adjustment for Lithuanian dentists' age was performed given age might influence the prevalence of disorders (data about Lithuanian dentists' age was got from Lithuanian Dental Chamber). The bivariate analyses were performed to determine which factors associated with psychological complains. The possibilities of psychological complains regarding age, working hours, institution type, number of work places, specialization, gender were assessed. The joint impact of the aforementioned risk factors on psychological wellbeing was studied by means of multiple logistic regression analysis using Enter method.

RESULTS

The overall majority of dentists (95.1%) reported that occupational hazards influenced their general health and more than half of them (52.4%) experienced psychological complains on a frequent or very frequent basis.

Nearly all participants (95.7%) related these complains to work stress with a 29.0% experiencing these complains on a regular basis.

Of all, 96.4% of dentists indicated nervousness and anxiety after their work day with 24.8% of them experiencing these mental conditions chronically. Among all inquired complains, nervousness, anxiety and being overstressed after work were most frequently reported mental complains. These conditions also mostly tended to become chronic among all studied impairments of wellbeing.

Work related fatigue was also a very prevalent complaint of dentists as it manifested in 82.6 of

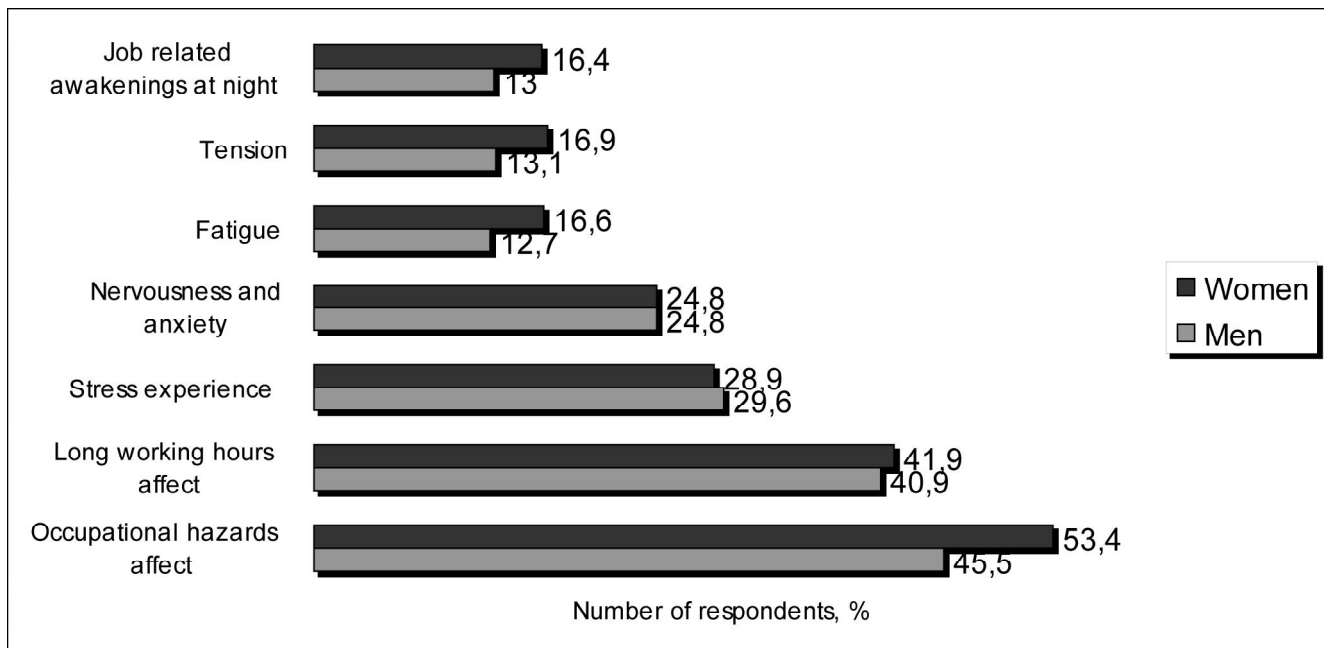


Fig. 1. Chronic psychological work related complains in gender groups, %

dentists and chronic fatigue was reported by 19.0% of practitioners.

Tension was experienced by 80.5% of practitioners and 16.3% of dentists experienced it on either a frequent or very frequent basis.

Awakening at night because of work-related problems was a less rare but still a very prevalent complaint with 78.8% of dentists having it. Chronic sleep disturbances were noted by every sixth practitioner (15.9%).

Gender differences were found regarding awakenings at night because of work-related problems and they were significantly more prevalent among women ($\chi^2=8.68$, $p=0.003$). There were no significant gender differences regarding other complains' prevalence and chronic complains (Fig. 1). Significantly more women than men referred dental occupation to be hazardous to their general health ($\chi^2=5.31$, $p=0.02$). After adjustment for

Lithuanian dentists' age, all work related wellbeing complains were significantly more prevalent among women than among men (Table 1).

Overall, there were no significant differences between general dentists and specialists regarding psychological well-being. However, after adjusting for Lithuanian dentists' age all complains were significantly more prevalent among general practitioners than among specialists.

Chronic complains of wellbeing were similarly distributed among general dental practitioners and specialists (Fig. 2). When standardized by age, there were significantly less specialists than general dentists suffering from all chronic conditions, except for the chronic stress and awakenings at night (Table 1).

Most dentists (69.8%) worked more than 33 hours per week, 7.9% more than 50 hours and 0.4% of them worked more than 60 hours per week. Working long hours is one of occupational hazards

Table 1. Distribution of chronic psychological work related complains according to gender and specialization standardized by age, %

Complains	Respondents' groups			
	Men	Women	General practitioners	Specialists
Occupational hazards affect general health:	20.9	30.4*	29.6**	24.5
Long working hours affect general health:	18.1	23.6*	23.4**	19.1
Much stress because of work:	13.4	16.5*	16.2	15.0
Nervousness & anxiety after work:	11.4	14.3*	14.3**	11.5
Fatigue:	4.8	8.2*	8.0**	5.9
Tension before work:	5.2	8.1*	8.0**	5.6
Job related awakenings at night:	4.5	7.8*	7.2	7.2

* $p<0.05$ in comparison with men; ** $p<0.05$ in comparison with specialists.

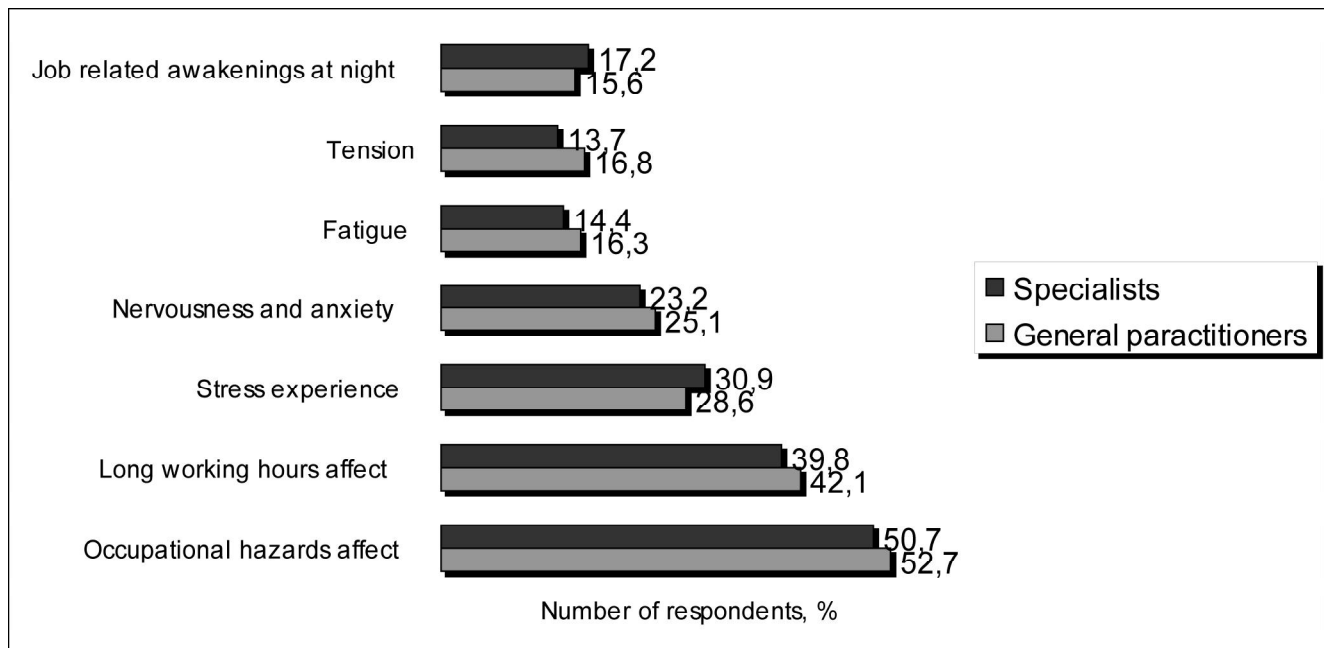


Fig. 2. Chronic psychological wellbeing complains because of work among general practitioners and specialists, %

which may affect dentists' general health and wellbeing. Only each twelfth dentist has indicated overwork, but 94.2% of respondents indicated that long working hours affected their general health with as much as 41.7% of them reported experiencing the hazardous effects of working long hours on a frequent or very frequent basis. There were no gender differences regarding the occupational hazards of working long hours ($\chi^2=7.25$, $p=0.12$).

Most respondents (66.7%) noted working in one institution, 29.1% worked in two and 3.5% of them practiced in three or more places. There were no significant differences between wellbeing complains and number of working places. Similarly, there were no differences between dentist working in different

type of dental practice (private vs. public and vs. private and public).

The multiple logistic regression analysis of occupational hazards to psychological wellbeing of Lithuanian dentists was performed. The dependent variables were the existence of referred different complains. Age, working hours, institution type, number of work places, specialization, and gender were included into the multiple logistic regression models as independent variables. Only significant results are presented in Table 2.

According to multiple logistic regression analysis, increasing age significantly lessens possibility of occupation affect to dentists' general health, nervousness and anxiety after work day, tension before work and increases possibility of

Table 2. The multiple logistic regression analysis of occupational hazards to psychological wellbeing of Lithuanian dentists

Dependent variables	Independent variables	p	OR (95% CI)
Occupational hazards affect general health:	Age	0.042	0.98 (0.96-1.00)
	Working hours	0.021	1.02 (1.00-1.04)
	Women	0.007	2.08 (1.22-3.54)
	Men		1.00
Long working hours affect general health:	Working hours	0.000	1.03 (1.02-1.04)
Much stress because of work:	Working hours	0.018	1.02 (1.00-1.04)
Nervousness & anxiety after work:	Age	0.022	0.97 (0.95-1.00)
	Age	0.024	0.99 (0.98-1.00)
Tension before work:	Working hours	0.016	1.01 (1.00-1.02)
	Working hours	0.000	1.04 (1.03-1.05)
Job related awakenings at night:	Age	0.000	1.04 (1.03-1.05)
	Women	0.037	1.39 (1.02-1.90)
	Men		1.00

p – significance level, OR – odds ratio, CI – confidence interval.

awakenings at night because of work-related problems. Each additional working hour increases occupation affect to dentists' general health by 2%, long working hours affect to general health by 3%, stress experience because of work by 2% and tension before work by 1%. Occupation specificity affected women's general health twice more than men's and women suffered from awakenings at night because of work-related problems 39% more than men (Table 2).

DISCUSSION

The present study is a first national study about self-perceived psychological wellbeing of Lithuanian dentists and its relationship to occupational hazards. The results indicate that dental profession related occupational hazards exist which negatively influence the well being of Lithuanian dentists. This is in accordance to other studies where occupational hazards such as interactions with patients, physical strain and financial pressure negatively related to psychological wellbeing of dental professionals [7, 8, 9, 10, 11].

The main finding of the present study is that the majority of Lithuanian dentists referred dental occupation to affect negatively their general health and that more than half experienced this deleterious effect on a frequent or very frequent basis. Among all inquired impairments the most prevalent ones were: nervousness and anxiety after the work day. Stress experience was the second most prevalent self-perceived work related psychological complaint as only 25% of dentist didn't indicate it. These aforementioned conditions were indicated as attendant conditions among dental practitioners and among all studied wellbeing impairments were likely to be more hard to control i.e. mostly tended to become chronic. Our findings confirm the findings from other studies where the derangement of mental health of dental specialists was also reported [12, 13, 14].

The present study noted high prevalence of fatigue and awakenings at night due to work-related problems as only every fifth dental practitioner didn't indicate such complains. Fatigue i.e. low activity, loss of energy, depressive mood or sleep disturbances indicate serious impairments of mental health, thus should be considered as an outcome due to occupational dental profession related hazards. The present study found that occupational hazards affect negatively the psychological well being of

dental professionals not only after a hard work day, but their negative influence extends throughout the day, i.e. the majority of dental professionals felt tension before the working day. Unsurprisingly, high numbers of dental practitioners indicated chronic psychological complains.

In the present study substantial gender differences were found. This gender difference could not be explained by age as after adjustment for age, all work related wellbeing complains were still significantly more prevalent among women than among men. Possible differences in gender roles and biological factors have been previously reported [15, 16]. A few possible explanations for gender differences might be suggested. Lithuanian female dentist compared to males might taken an increased burden of responsibility, for example to function in two roles one being a mother and or wife, another one to be a family supporter. Another explanation might be that biological differences in vulnerability of mental health exist between two genders. These gender differences could be due to higher woman's susceptibility to mental stressors, lower adaptation possibilities, paying more attention to mental matters. Interestingly, a study of physicians in Denmark [17] suggested the opposite trend between genders. It has been shown that female physicians more often experience stressors in relation to daily life and health while male physicians experience stressors in relation to their working life. An American study also showed that female dentists experienced more personal/domestic stress than men [18]. It is also possible that women tend more than men to report psychological complains.

An important finding of the present study is that all wellbeing complains were significantly more prevalent among general practitioners than among specialists even after standardizing by age. However when multiple logistic regression with different features was performed the difference became not significant. A study in Sweden also found similar results [19].

In our study awakenings at night because of work-related problems increased with age. It is known that getting older is accompanied with difficulties in sleeping and the increase of awakenings at night. It is unclear whether the age related pattern as observed in the present study is the result of aging, or is an outcome of dental profession related occupational hazards or is it a consequence of both. Further studies are needed in order to answer this question.

A finding that younger dentists indicated more tension and stress than their older counterparts needs a special consideration. One possible hypothesis might be that dentists adjust to occupational demands with increased age. Given this is a case, the health impairments due to occupational hazards may decrease with aging. Other explanations such as generational differences can not be excluded. Therefore, further inquiries may be needed to clarify why younger professionals report more psychological problems.

The Lithuanian study showed no significant differences between two genders in detrimental effects of working long hours. Our findings are different from other studies which have shown that women dentists tend to work fewer hours and treat fewer patients than males [20-23]. Different findings may be explained by cultural differences between countries like Lithuania on one side and Western countries on the other side. Another possible explanation is that a woman's role as a mother and/ or wife is valued differently in Lithuanian society compared to Western countries. Another possible explanation is that burdens brought by transition towards Western oriented economy affected women to a higher degree than men. Historically, the dental profession was traditionally chosen more frequently by women than men and only recently this pattern is changing with more men entering the dental profession. This trend of more women than men among dental professionals, namely 85% versus 15% was also reflected in our study findings. The dental practice is frequently the main source of income for the family, consequently women dentists feel obliged to contribute to the family income as well as perform their expected gender roles i.e. to be a mother and a wife.

Some consideration is needed to discuss the controversial findings. A very high percentage of 94.2% of Lithuanian dentists indicated that long working hours affect their general health with as

much as 41.7% of them having referred to it on a frequent or very frequent basis. However, this finding is not in accordance to the fact that only every twelfth respondent reported overwork. This controversy may be related to a possible bias in self reports. As the legislation in Lithuania allows working no more than 33-35 hours a week, it is likely that Lithuanian dentists underreported their working hours. At present, there is no control over dentists' working hours and this is difficult too because private practices are very scattered and often dentists work in solo practices or in small teams. Working hours also tend to be longer amongst dentists than the standard working week in other countries also [24].

Occupational health hazards are unavoidable in many professions. In order to be a productive professional one must be healthy. High production demands in combination with stressful working conditions will affect health. Safety management that focuses only on the occupational hazards will fail to eliminate many accidents because accidents arise from many factors including technology, safety climate, social influences, production, and safety demands [25]. Therefore, dentists should control their working hours, pace of work, be aware of occupational hazards and observe their mental health. Strategies for improving mental health and reducing the effects of occupational hazards should be developed and implemented in order to secure the well being of dentists.

CONCLUSIONS

Based on the present study, we concluded that;

1. Dentists in Lithuania do experience impairments of psychological wellbeing.
2. These psychological impairments relate to occupational risks.
3. Strategies for improving mental health and reducing the effects of occupational hazards should be developed.

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