

Professional burnout among Dutch dentists

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Abstract – Professional burnout, a long-term consequence of occupational stress, is considered to be a factor that explains a substantial proportion of incapacity for work. Burnout is defined as emotional exhaustion, depersonalization, and diminished personal accomplishment. **Aims:** To investigate levels of burnout among Dutch practising dentists, to compare dentists' scores with norm scores, and to determine the percentage of dentists "at risk". **Methods:** The instrument used was the Dutch version of the Maslach Burnout Inventory (MBI-NL), a 20-item modified version of the original MBI. A highly representative group of Dutch dentists participated ($n=709$, 75% response rate). **Results:** Mean levels (and standard deviations) of burnout were: emotional exhaustion 13.7 (8.6); depersonalization 5.9 (3.9); personal accomplishment 30.8 (5.9). Dentists had more favourable means compared with standard scores, although in the 95th percentile dentists showed more emotional exhaustion than standards indicate. While no overall sex differences were found, male middle-aged dentists tended to show more burnout. Of the working Dutch dentists, 21% had a certain risk, 13% had high overall levels of burnout, and 2.5% were highly burned out. **Conclusion:** It is concluded that Dutch dentists have relatively favourable mean levels of burnout, but those who are exhausted are extremely exhausted. The male dentist in his forties appears to be most vulnerable to burnout.

Key words: behavioral sciences; occupational stress; professional burnout; social dentistry

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In the Netherlands, annual figures show that psychological factors explain more than 30% of incapacity for work among professionals (1). As a result, both from the governmental and the scientific point of view, research into these factors is considered vital (2). Professional burnout, a long-term consequence of occupational stress, is considered one of the major determinants of psychological incapacitation, and is therefore receiving growing scientific attention (3). The term *burnout* itself was introduced in the 1970s to refer to what happened to social workers who had high expectations of themselves which they could not reach (4). They showed symptoms such as fatigue, sleeplessness, headaches, low resistance, irritation, suspicion, overconfidence, drug abuse, negative attitude, boredom, and lack of challenge.

Nowadays, burnout is not limited to the "social professions", but a syndrome to be expected among all professionals who work with people (5, 6). Still, the syndrome is most strongly linked to those professionals who work in institutional settings (7). According to Maslach & Jackson (6), becoming mentally or emotionally exhausted is the key characteristic of burnout. Another aspect concerns the development of a negative, cynical attitude towards one's clients or patients. This is called depersonalization. A third dimension of burnout is the tendency to evaluate oneself negatively. Professionals feel unhappy about themselves and feel dissatisfied with their accomplishments.

Maslach & Jackson's definition of burnout resulted in a validated instrument to assess burnout, the Maslach Burnout Inventory (MBI). It is the in-

strument most widely used to study burnout in groups. It consists of three separate scales to measure the three dimensions mentioned above: emotional exhaustion (EE), depersonalization (D), and diminished personal accomplishment (PA). From this instrument, a somewhat modified, validated Dutch version was recently developed: the MBI-NL (8). Neither the MBI nor the MBI-NL give a single burnout score. The three dimensions are not equivalent and represent different aspects of burnout. Although in general, emotional exhaustion is seen as the core element, different views on the process of burnout do exist (9, 10).

The topic of burnout among dentists has been described several times, indicating that burnout is felt to be highly relevant for the profession. Yet these reports are usually based on case studies, personal views, or opinions (11–19). Most authors conclude that factors like work pressure, difficult patient relations, insurance and government policies, and lack of career perspective are relevant topics in burnout among dentists. So far, only a few empirical, quantitative studies on burnout among dentists in general practice have been conducted (20–25). These studies differ greatly in instruments used and elaboration of results. For example, in most cases the MBI is used, but usually no basic psychometric qualities are described. In some studies the original scales are completely reformed. Besides, cross-cultural differences and modifications within the scales or items used make direct comparisons difficult (26). With the exception of the Osborne & Croucher (23) and Croucher et al. (25) studies, no indication can be obtained from the literature of the prevalence of burnout among dentists. Since it is well documented, as mentioned above, that burnout is a serious phenomenon that can lead to incapacitation for work, a thorough investigation of burnout among dentists is needed.

The aim of the present study, therefore, was threefold. First, levels of burnout among Dutch dentists in general practice were investigated. More specifically, gender, age, and region were taken as independent variables. Generally, men show higher levels of depersonalization, while on emotional exhaustion and personal accomplishment no gender differences are observed (27). Furthermore, for European countries, burnout appears to be more prevalent in older age groups (27). There is no information about regional differences, such as urbanization or industrialization of the region. Therefore, it was hypothesized that male dentists will show higher levels of depersonalization,

while on emotional exhaustion and personal accomplishment no gender differences were expected. It was further hypothesized that older dentists will show higher overall levels of burnout, while there was no reason to expect differences by region.

Second, to put findings in perspective, comparisons were made with norm scores. And third, in order to gain insight into the prevalence of burnout among dentists, percentages of dentists "at risk" were determined.

Material and methods

Pilot study

In a pilot study the MBI-NL was examined for its suitability for measuring burnout among dentists. Reliability scores (Cronbach's alpha) of the three scales were: EE $\alpha=0.83$; D $\alpha=0.79$; and PA $\alpha=0.78$. In general, the results of the pilot study and the comments of the participants justified the use of the MBI-NL for measuring burnout among dentists.

Main study

Sample

Over a period of 6 weeks in March and April 1997, dentists received the MBI-NL as part of a more comprehensive questionnaire on their perception of various aspects of their work. Together with the common paper-and-pencil version of the questionnaire, an identical floppy disk version was also sent, so subjects were free to choose the medium they preferred. The complete questionnaire was sent to 950 Dutch dentists; 800 (84%) men and 150 (16%) women. All were active general practitioners, registered in the files of MOVIR Insurance, where up to 90% of the Dutch dentists have an insurance policy in case of incapacity for work. From this file, every sixth dentist was selected after stratification by gender, region (12 provinces), and age group (four 10-year clusters by birth year). This procedure guaranteed a representative selection of the Dutch dental profession.

A total of 735 (77%) dentists responded to the questionnaire; 614 (77%) of the men and 121 (81%) of the women. Participation per region was between 73% and 89%. Participation per 10-year age group was between 76% and 83%. The data of 26 dentists were not usable (less than 3% of the total sample), leaving a total of 709 respondents, or a 75% response rate. After a check for active practice of the profession, 689 respondents filled in the

MBI-NL, 575 males (83%) and 113 females (16%) (for one person sex was not known). This is 73% of the full sample. The mean age was 43 years (range: 21–62 years), and the mean number of years of professional experience was 18 years (range: 0–38 years).

Instrument

The MBI-NL used here is a modification of the original MBI, validated by Schaufeli & van Dierendonck for Dutch populations (8, 9). It consists of 20 items that can be answered on a 7-point Likert scale, ranging from 0 (“never”) to 6 (“every day”). Three subscale scores can be derived – emotional exhaustion (EE), depersonalization (D), and personal accomplishment (PA) – by summing the appropriate items. Examples of items on the three scales are: EE scale, “At the end of a working day I feel empty”; D scale, “I feel I treat some recipients as if they were impersonal objects”; PA scale, “I am capable of adequately solving my patient’s problems.” EE consists of eight items, with a score range from 0–48; D consists of five items, with a score range from 0–30; and PA consists of seven items, with a score range from 0–42. High scores on EE and D and low scores on PA are indicative of burnout. The MBI-NL provides no overall burnout score.

The psychometric qualities of the MBI-NL, as used in this study, were found to be satisfactory and fairly equal to the qualities mentioned in the Dutch manual (8), which are given in brackets; Cronbach’s alpha: EE $\alpha=0.89$ (0.87); D $\alpha=0.69$ (0.70); PA $\alpha=0.79$ (0.78); interscale correlations (pmcc): EE-D $r=0.61$ (0.56); EE-PA $r=-0.22$ (-0.34); D-PA $r=-0.38$ (-0.42). From principal components analysis, a three-factor structure as indicated emerged, which could explain 53.3% of the variance (with EE explaining 32.2%, PA explaining 14.6%, and D explaining 6.4%). Furthermore, confirmatory factor analysis using LISREL 8 (28), which was conducted at a later stage to test the best-fitting structure, showed that the three-factor structure as indicated was superior to alternative models. For a more comprehensive description of the psychometric characteristics see Gorter et al. (29).

Analyses

Levels of burnout were examined on the basis of three demographic characteristics: gender, age, and region. Hypotheses were analysed by means of one-way analysis of variance (ANOVA) and *t*-tests.

Differences were tested with an overall significance level of 0.05, using a Bonferroni-Holm correction for the number of tests. The percentage of dentists at risk was estimated using percentile scores and by applying categories according to the MBI-manual (5).

Results

Burnout levels of dentists

Table 1, part I, shows MBI-NL mean values and standard deviations for all dentists, and for men and women separately. No statistically significant differences in mean scores, on either scale, between men and women were found (using *t*-tests). Therefore, the hypothesis that men would show higher levels of depersonalization was rejected, and the hypothesis that no differences would appear on emotional exhaustion and personal accomplishment was confirmed. The frequency distribution on EE, D, and PA is shown in Fig. 1, 2, and 3.

No statistically significant correlations were found between age and levels of EE, D, or PA. In order to test the hypothesis that older dentists show more burnout, eight age groups were created parallel to those used by the insurance company: ages ≤ 29 ; 30–34; 35–39; 40–44; 45–49; 50–54; 55–59; 60–64 (see Table 2). Using ANOVA, no statistically significant differences in means were found, on either scale. Therefore, the hypothesis that older dentists experience more burnout was rejected.

A closer look at the mean scores, as shown in Table 2, seemed to suggest that on EE and D, middle-aged dentists experienced more burnout. To

Table 1. Means and standard deviations on the three scales of the MBI-NL

	All		Men		Women	
	Mean	SD	Mean	SD	Mean	SD
Part I: Present study: all ($n=685$), men ($n=575$), and women ($n=109$) (one case gender unknown)						
EE	13.7	8.6	13.9	8.7	12.8	7.9
D	5.9	3.9	6.1	4.0	5.3	3.5
PA	30.8	5.9	31.0	5.8	29.9	6.0
Part II: Dutch manual: men ($n=1622$), and women ($n=2043$)						
EE			15.9	7.6	15.3	8.1
D			7.9	4.3	6.8	4.2
PA			27.0	4.6	27.4	5.6

Note: High scores on emotional exhaustion (EE) and depersonalization (D) and low scores on personal accomplishment (PA) are indicative of burnout.

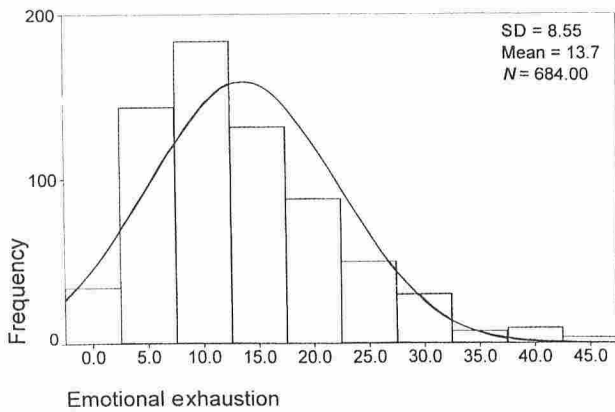


Fig. 1. Histogram of emotional exhaustion of dentists (1997) vs normal distribution.

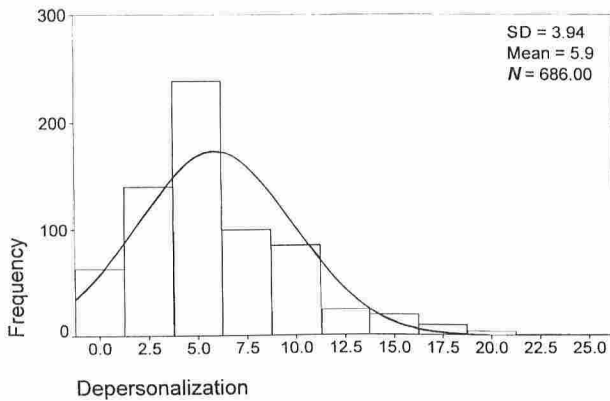


Fig. 2. Histogram of depersonalization of dentists (1997) vs normal distribution.

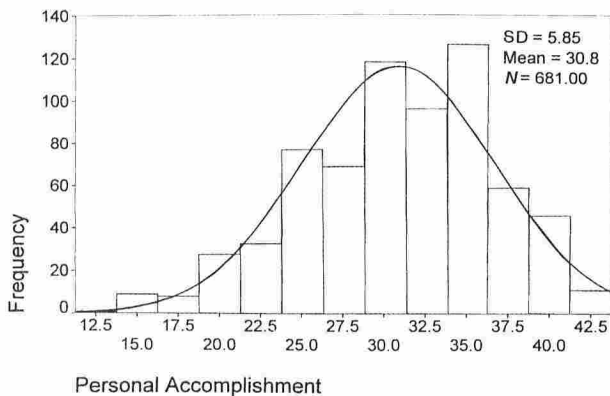


Fig. 3. Histogram of personal accomplishment of dentists (1997) vs normal distribution.

provide information for future preventive use, this finding was elaborated by tentatively testing whether age groups with highest mean scores would differ significantly from all other age groups. For all dentists, on EE and on D this ma-

Table 2. Means and standard deviations by age group on the three scales of the MBI-NL. All dentists ($n=689$), men ($n=575$), and women ($n=109$)

Age	Emotional exhaustion		Depersonalization		Personal accomplishment	
	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)	<i>n</i>	Mean (SD)
All dentists						
≤29	30	12.0 (6.7)	31	5.7 (2.5)	31	27.8 (5.7)
30–34	84	11.5 (7.3)	83	5.7 (3.8)	81	31.5 (5.2)
35–39	127	13.4 (7.9)	127	5.8 (3.7)	125	31.5 (5.6)
40–44	151	14.5 (8.0)	151	6.4 (4.2)	150	30.2 (6.2)
45–49	134	15.3 (9.9)	134	6.4 (4.6)	132	30.9 (6.0)
50–54	83	14.0 (9.2)	86	5.6 (3.8)	87	31.1 (5.8)
55–59	60	13.0 (8.9)	59	5.2 (3.2)	60	30.6 (6.0)
≥60	10	8.5 (7.7)	10	3.6 (3.0)	10	32.6 (4.5)
Men						
≤29	17	11.3 (6.2)	17	5.3 (2.4)	17	28.3 (5.6)
30–34	55	11.5 (6.9)	54	5.5 (3.6)	52	31.9 (4.9)
35–39	105	13.7 (8.1)	105	6.2 (3.9)	105	31.4 (5.7)
40–44	127	14.6 (8.0)	127	6.6 (4.3)	126	30.6 (6.1)
45–49	123	15.4 (9.9)	123	6.5 (4.6)	121	31.0 (6.1)
50–54	76	14.1 (9.2)	79	5.7 (3.7)	80	31.0 (5.9)
55–59	56	13.2 (9.2)	55	5.2 (3.3)	56	30.4 (6.1)
≥60	10	8.5 (7.7)	10	3.6 (3.0)	10	32.6 (4.5)
Women						
≤29	13	12.8 (7.3)	14	6.2 (2.7)	14	27.3 (6.0)
30–34	29	11.6 (8.1)	29	6.0 (4.2)	29	30.7 (5.6)
35–39	22	12.5 (7.1)	22	4.3 (2.3)	20	32.0 (5.1)
40–44	24	13.9 (8.2)	24	5.3 (3.5)	24	28.0 (6.6)
45–49	11	13.9 (10.4)	11	4.9 (3.6)	11	30.4 (5.9)
50–54	7	13.1 (10.0)	7	4.6 (5.2)	7	32.1 (5.4)
55–59	4	10.3 (2.2)	4	5.0 (2.2)	4	34.0 (3.9)
≥60	--	-- (-.-)	--	-- (-.-)	--	-- (-.-)

nipulation showed that ages 40–54 had significantly higher means: EE $t(677)=3.30$, $P<0.002$; D $t(679)=2.07$, $P<0.05$. The distribution of PA scores was too irregular to justify this procedure.

When gender and age were both taken as independent variables, statistically significant differences on EE were found for men aged 40–54 compared with the other age groups: $t(549)=2.94$, $P<0.001$; no age differences for women were found on EE. On D, for men the age groups 35–49 had higher mean scores: $t(524)=3.13$, $P<0.003$, whereas for women the age groups ≤29–39 had higher mean scores: $t(109)=1.91$, $P≤0.05$.

Regional differences were also studied by a comparison of the twelve provinces of the Netherlands. One-way analysis of variance showed no statistically significant differences, thereby confirming the hypothesis that levels of burnout do not differ per region.

Mean burnout levels of dentists compared with norm scores

An indication of the level of burnout among dentists was obtained by comparing the scores of this sample with standard scores as provided by the MBI-NL manual (8), derived from a large national sample of (mainly) nurses (see Table 1, part II). Compared to these standard scores, dentists as a group experienced significantly less emotional exhaustion ($t(4575)=5.46$, $P<0.001$), less depersonalization ($t(4575)=9.08$, $P<0.001$), and more personal accomplishment ($t(4575)=-15.91$, $P<0.001$). In other words, dentists exhibited significantly fewer burnout symptoms on all three dimensions.

When mean percentile scores were taken into account, an interesting pattern emerged. Table 3 shows that, in general, dentists had favourable mean percentile scores in comparison with norm scores. However, those who were in the 95th percentile on EE had higher mean scores than the standard indicates. No standard mean percentile scores by gender are available, but further inspection shows that female dentists also differed from the standard on the 5th percentile of the PA scale. Lack of information on standard deviations in the MBI-NL manual (8) meant that no statistical testing of differences could be done.

Table 3. Mean percentile scores; MBI-NL manual* ($n=3892$), all dentists ($n=685$), male dentists ($n=575$), and female dentists ($n=109$)

	5%	25%	75%	95%
MBI-NL manual				
EE	4	9	20	28
D	0	3	10	14
PA	18	24	30	35
All dentists				
EE	2	7	18	30
D	1	3	8	14
PA	21	27	35	40
Men				
EE	3	7	19	31
D	1	3	8	14
PA	21	27	35	40
Women				
EE	2	7	16	29
D	1	3	7	13
PA	17	26	34	38

* Schaufeli & van Dierendonck (8).

Note: High scores on EE and D and low scores on PA are indicative of burnout.

Identifying risk groups

Neither for the MBI nor the MBI-NL do validated criteria exist to distinguish high scores from low scores. In order to present a well-balanced picture, three ways of determining risk percentages among dentists will be presented. First, the percentage of dentists relatively "at risk" will be determined, and second, the same will be done for a group with "overall high levels of burnout". These methods are chosen to allow comparability with other studies. It must be kept in mind, however, that these are relative criteria, since they are based on percentile scores within the population. Therefore, as a third criterion, the interpretation of score categories according to the MBI-NL manual (8), and percentages of dentists within each category, will be presented.

First, a high and a low risk group were created by taking the median on the three scales as a dividing point. This procedure has been followed before in a burnout study among Dutch physicians, and for reasons of comparison adapted to the present study (30). Dentists in the unfavourable 50% on all three scales were the "high risk group", while dentists in the favourable 50% on all three scales were the "low risk group", leaving a "neutral group" of dentists not meeting either criterion. In a check of the manipulation, t -tests showed significant differences between high and low risk groups on all dimensions: EE $t(316)=23.8$, $P<0.001$; D $t(316)=25.7$, $P<0.001$; PA $t(316)=25.2$, $P<0.001$. As a percentage of all respondents, the high risk group by median included 21% of all dentists; 21% of the men, and 23% of the women. On the other hand, the low risk group by median included 25% of all dentists; 25% of the men, and 29% of the women. (Among physicians the percentages were: high risk group 22%, low risk group 22%.)

The second way to distinguish highly burned-out dentists from those who are not is to follow the convention described in the original MBI manual (5). Usually, low, average, and high burnout subgroups are distinguished for each scale separately. The ranges of each group (low, average, high) are, once again, inferred from the sample surveyed, since the MBI does not provide for epidemiologically identifiable "burned-out cases". Dentists who are in both upper tertiles on EE and D, and in the lower tertile on PA are considered to have "overall high burnout levels". It appeared that 13.0% of the dentists belonged to this "overall high burnout levels" category.

The third way to distinguish risk groups is to

Table 4. MBI-NL: interpretation of scores* and valid percentages of dentists

	Very low	Low	Average	High	Very high
EE score	≤3	4–9	10–20	21–28	≥29
% dentists	10.8	24.5	45.4	12.1	6.1
D score	0	1–3	4–10	11–14	≥15
% dentists	2.2	27.3	60.6	7.9	3.1
PA score	0–18	19–24	25–30	31–35	≥36
% dentists	2.6	12.5	29.3	33.1	22.5

* MBI-NL manual (8).

adopt the – sample-independent – interpretation of categories given in the MBI-NL manual (8). Table 4 shows that 2.5% of the dentists had a score in the “high” or “very high” categories on EE and D, and “low” or “very low” on PA.

Conclusion and discussion

It can be concluded that mean levels of burnout among active Dutch dentists are favourable in comparison with norm scores. However, those dentists who are most burned out, especially with regard to emotional exhaustion, have extremely unfavourable mean scores. Men and women showed similar levels on all three dimensions, and no regional differences were found. The hypothesis that older dentists have higher levels of burnout is rejected, but from tentative analysis it appears that dentists aged 40–54 tend to have higher levels of burnout related to emotional exhaustion and depersonalization. It appears that 21% of the Dutch dentists are “at risk” of burnout, 13% have “high overall levels of burnout”, and 2.5% are, according to objective standards, extremely burned out but still working.

Some remarks can be made about these conclusions. Most noteworthy is the distribution of EE scores. Emotional exhaustion is considered to be the core element of burnout (10). Percentile scores show that in the 95th percentile, male – and to a lesser degree female – dentists had unfavourable mean scores in comparison with norm scores. Stated differently, dentists that are exhausted are severely exhausted. Furthermore, more than 18% were in the category “high” or “very high” on EE. This is an important finding, since among the exhausted dentists may very well be those who, sooner or later, will become incapacitated for work.

The depersonalization aspect had a more normal distribution. In general, dentists, both men and

women, showed a favourable pattern. Still, it must not be ignored that 11% had a D score that is considered “high” or “very high”. With regard to the consequences for the quality of work, high levels of depersonalization may have a negative impact on the social aspects of patient treatment, for example dental health education.

The PA scores in this study are rather curious. Psychometric analysis shows that the scale is a firm one, it has a normal distribution, and overall levels are favourable in comparison with norm scores. But, when age is taken into account, the pattern was not consistent with the other two scales. While on the other two scales the 40–50 age group seemed to become the “risk age”, on PA it was the young professional, the dentist under 30, who came into focus. Another complication was that among women, scores in the 40–45 age group were also unfavourable. In a sense, diminished personal accomplishment is the least typical burnout dimension. When the original MBI was first developed, EE and D were primary dimensions. Only later was PA included. From this study, there is strong evidence that the personal accomplishment dimension may not be relevant for measuring burnout among dentists, but merely is a function of time spent in the profession.

In the Osborne & Croucher (23) and Croucher et al. (25) study among British dentists, it was reported that 10.6% of the dentists suffered “high overall levels of burnout”, by which they meant that this percentage of the dentists had scores in the unfavourable tertile on each scale. No specific age groups were identified as risk groups. Using the same criteria, it appears in our study that 13.0% of the Dutch dentists have “high overall levels of burnout”. In this study, a representative group of working Dutch dentists participated. The results of this study are to be considered highly representative of active Dutch dentists. (Those who stopped temporarily, or left the profession, for any reason, were not included in the survey.) Percentages as we mentioned are indications of dentists at various levels of risk.

From the authors’ experience in surveys among Dutch dentists, a 75% response rate is unusually high. Recent literature on response rates among dentists confirms the exceptional response in this study (31). Nevertheless, one should examine the question whether non-participants would have given different answers, i.e., would be more or less burned out. Taking into account that late respondents (defined as those who responded after the

4th week of the 6 weeks of data collection) had had at least four mailings before responding, it is reasonable to assume that non-respondents resemble late respondents more than early respondents. The *t*-tests for mean differences between early and late respondents showed no statistically significant differences on either MBI-NL scale. Together with the high response rate, this further supports the generalizability of the results.

In conclusion, the present study offers valuable information on the levels and prevalence of burnout among Dutch dentists. It is expected that much can be learned from a variety of variables that may correlate with the three dimensions of burnout. From studies on occupational stress in dentistry it is well known that certain risk factors are recognized (32–36). These risk factors can be personal, such as the often-mentioned type A personality, or more workplace-oriented, such as work overload or difficult patient relations. The relationship of such risk factors with burnout is currently being analysed. First findings, on the relation between burnout, dental work place characteristics and experienced work stress, are described by Gorter et al. (37). Most important, however, is thorough empirical and theoretical research into burnout among dentists as a basis for effective consultancy and preventive measures. Ignoring the risk of burnout may have serious negative implications for the dentist personally, the patient, the quality of work, and the professional image in general.

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