Burnout among dentists: Identification and prevention

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CHAPTER 6

WORK PLACE CHARACTERISTICS, WORK STRESS AND BURNOUT AMONG DUTCH DENTISTS

6.1 Introduction

Occupational stress among dentists has regularly been the subject of research in the last two decades. In several studies, conducted in the United States, United Kingdom, Belgium, Switzerland, Germany, and The Netherlands, a wide range of possible causes for stress among dentists was identified. When reviewing empirical studies, published from 1976 to 1996, the following categories emerge: Work Pressure, Financial Aspects, Patient Contacts, Work Contents, Career Aspects, Team Aspects, and Professional and Private Life. Apparently, dentistry is a profession with many possible stressors.

One of the possible consequences of chronic occupational stress is professional burnout. The most widely accepted definition of burnout consists of three aspects. It emphasises becoming mentally or emotionally exhausted. At the same time, the development of a negative, cynical attitude towards one’s clients or patients is crucial. This is called depersonalisation or dehumanisation. The third aspect is the tendency to evaluate oneself negatively. Professionals feel unhappy about themselves and feel dissatisfied with their accomplishments. Burnout is known to have dramatically negative consequences for quality of work, professional relationships, and personal well-being.

For many professions it is well-known that burnout is a major problem; it has been studied among teachers, nurses, policemen, psychologists, physicians, human service professionals, managers, and many other professionals. Although many publications have appeared on the subject of burnout among dentists, ventilating personal views and opinions, empirical research on professional burnout among general dental practitioners has been conducted and described only occasionally. These studies differ strongly in instruments used and presentation of results, which makes comparison difficult. In only one of these studies, the incidence of burnout among dentists and factors associated was under investigation; it was reported that 10.6% of the dentists in the United Kingdom suffered from “high overall levels of burnout”. Work place factors associated with aspects of burnout among these
dentists were: lack of personal contact, size of practice, and level of commitment to the National Health Service. Recently, a secondary analysis of the same data was published, underlining the necessity of investigating dental work place characteristics.22

The aim of the present study was to investigate whether occupational factors are related to burnout levels among Dutch dentists. A distinction was made between actual work place characteristics and pressure experienced by dentists from specific work conditions. In line with the Osborne & Croucher20, and Croucher et al.22 findings, the first hypothesis was that certain work place characteristics are associated with higher burnout levels. Secondly, it was hypothesised that work pressure, as it was experienced, differs among dentists with high and low levels of burnout. When indeed certain work place characteristics, or experienced work stress, appear to be related to higher burnout levels, a fruitful entry is obtained for preventive action in order to avoid burning out.

6.2 Material and methods

6.2.1 Sample

In March and April 1997, a comprehensive questionnaire on the subject of dentists’ perception of various aspects of their work was sent to 950 active Dutch general dental practitioners (800 men and 150 women). All were 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 (twelve provinces), and age group (four 10-year clusters by birth year). Dentists could choose between filling in identical versions using paper and pencil, or on diskette. An advance-notice letter, the actual questionnaire with a pre-stamped envelope, two reminders, and a health education book on nursing bottle caries - as an incentive for those who participated - were part of the procedure that was inspired by the “total design method”.23

6.2.2 Instruments

Three variables were studied: dental work place characteristics; experienced work stress; and burnout. Work place characteristics were measured by means of a self-constructed questionnaire consisting of 10 items, selected from two pilot studies on work stress among 47 and 28 Dutch dentists respectively. The work place characteristics concerned are shown in Table 6.1. Since these items measure separate constructs that are answered on different nominal answering scales, no sum score was computed.
Experienced work stress was measured by means of the Dentists' Experienced Work Stress Scale (DEWSS), a questionnaire constructed by the authors. The DEWSS consists of 94 items, derived from publications on work stress in dental practice (as referred to in the Introduction of this chapter), and from the two pilot studies mentioned above. Each item represents a work characteristic of which the respondent is asked to state the amount of pressure it gives. The 94 work characteristics are part of the following seven subscales: Work Pressure (WP); Financial Aspects (FA); Patient Contacts (PC); Work Contents (WC); Career Perspective (CA); Team Aspects (TA); and Professional and Private Life (PL). An example from the PC-subscale is: “To what extent do dissatisfied patients give you pressure?”. The pressure experienced is rated on a five point Likert-scale, ranging from 1 (“no pressure”) to 5 (“very strong pressure”). Summation of all item scores results in a total score for experienced work stress. In chapter 3 of this thesis, the contents and basic psychometric qualities of the DEWSS are described extensively. In summary: internal consistency of the scales, as determined by Cronbach’s alpha, ranged from $\alpha = 0.77$ to $\alpha = 0.96$; scale intercorrelations ranged from $r = 0.39$ to $r = 0.67$; principal components analysis, conducted to further examine the factorial structure of the questionnaire, resulted in the extraction of seven components with an Eigenvalue larger than 1 (i.e., the seven scales), accounting for 42% of the variance within the DEWSS.

Burnout was measured by the Maslach Burnout Inventory (MBI)$^{24}$, of which a Dutch version was developed by Schaufeli & van Dierendonck, the MBI-NL.$^{25}$ The MBI-NL consists of 20 items (item 12 and 16 of the original MBI were excluded to enhance psychometric qualities) that can be answered on a seven-point Likert-scale, ranging from 0 (“never”) to 6 (“every day”). Three subscale scores are acquired: Emotional Exhaustion (EE); Depersonalisation (D); and Personal Accomplishment (PA). The MBI-NL provides no overall burnout score. High scores on EE and D, and low scores on PA are indicative for burnout. Psychometric characteristics of the MBI-NL among dentists, as described in chapter 4 of this thesis, were considered satisfactory, and fairly equal to the manual. In summary, internal consistency of the scales, as determined by Cronbach’s alpha, ranged from $\alpha = 0.69$ to $\alpha = 0.89$; scale intercorrelations ranged from $r = -0.22$ to $r = 0.61$; principal components analysis resulted in the extraction of three components with an Eigenvalue larger than 1 (i.e., the three scales), accounting for 53% of the variance.

6.2.3 Data Analyses

First, results concerning work place characteristics, experienced work stress, and burnout will be presented independently. Second, the relations between work place
characteristics and burnout, and between work stress and burnout were examined by means of crosstabs (using Chi-square) and correlations. Also, the predictive value of both sets of variables on burnout were examined using multiple linear regression analyses (method: Stepwise) and discriminant analyses (Wilks' lambda). Given the large number of tests conducted, a Bonferroni-Holm correction was used to retain an overall significance level of \( p = 0.05 \).²⁶

6.3 Results

6.3.1 Response

Three questionnaires could not be delivered, leaving a total of 735 (77%) dentists who responded on the questionnaire: 614 (77%) of the men and 121 (81%) of the women. The participation per region was between 73% and 89%. The participation per 10-year age group was between 76% and 83%. Questionnaires of 26 dentists were not usable (less than 3% of the total sample), mainly caused by reluctance to answer personal questions, or not being able to create time to do so. This left a total of 709 respondents (75% response rate), highly representative for the Dutch general dental practitioner with respect to gender, age, and regional dispersion. From these respondents, 594 were male (84%) and 114 female (16%) (for one person gender was not known). Mean age was 43 year (range: 21-62 year). Mean number of years of professional experience was 18 (range: 0 - 38 year).

Table 6.1 Work place characteristics (N=709)

<table>
<thead>
<tr>
<th>1. Ownership of practice:</th>
<th>exclusive ownership</th>
<th>73.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>shared ownership</td>
<td>17.0%</td>
</tr>
<tr>
<td></td>
<td>working on salary</td>
<td>7.2%</td>
</tr>
<tr>
<td></td>
<td>unknown</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Combination practice / residence:</th>
<th>yes</th>
<th>32.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no</td>
<td>62.8%</td>
</tr>
<tr>
<td></td>
<td>unknown</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. One or more other staff members:</th>
<th>yes</th>
<th>88.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no</td>
<td>9.0%</td>
</tr>
<tr>
<td></td>
<td>unknown</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Mean number of working hours per week:</th>
<th>spent on treatment</th>
<th>32.6 (SD = 7.8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>spent on management</td>
<td>6.5 (SD = 5.9)</td>
</tr>
</tbody>
</table>

(cont. next page)
5. Planning for emergencies:
   yes 65.9%
   no 30.8%
   unknown 3.3%

6. Frequency evening / weekend service:
   never 11.3%
   < once a month 80.2%
   ≥ once a month 5.1%
   unknown 3.4%

7. Number of inhabitants practice community:
   < 15,000 17.1%
   15,000-14,999 32.1%
   25,000-49,999 33.0%
   ≥ 75,000 14.1%
   unknown 3.7%

8. Number of patients registered:
   < 100 7.2%
   100-199 29.3%
   200-299 39.0%
   300-399 15.4%
   400-499 4.1%
   ≥ 500 2.0%
   unknown 3.0%

9. Number of consults per week:
   < 20 1.3%
   20-49 12.0%
   50-74 18.4%
   75-99 22.5%
   100-124 19.0%
   ≥ 125 22.9%
   unknown 4.0%

10. Mean percentage private vs. health service patients:
    private 56.6%
    health service 43.3%

6.3.2 Work place characteristics

Of all respondents, 94.1% worked in a general dental practice, leaving 5.2% miscellaneous (with 0.7% unknown). Their answers on the questions concerning work place characteristics are presented in Table 6.1.
### Table 6.2 DEWSS: Descriptive statistics, correlations with, and regression analysis on the MBI-NL scales

<table>
<thead>
<tr>
<th></th>
<th>DEWSS:</th>
<th>DEWSS / MBI-NL:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>(range: 1-5)</td>
<td></td>
</tr>
<tr>
<td>Patient Contacts</td>
<td>2.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Work Pressure</td>
<td>2.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Financial Aspects</td>
<td>2.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Work Contents</td>
<td>2.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Professional and Private Life</td>
<td>2.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Career Perspective</td>
<td>2.0</td>
<td>0.8</td>
</tr>
<tr>
<td>Team Aspects</td>
<td>2.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Total scale DEWSS</td>
<td>2.4</td>
<td>0.5</td>
</tr>
</tbody>
</table>

All correlations: p < 0.0001, except $^{*}$: p = 0.03
6.3.3 Work stress

The seven scales of the DEWS show a rank order of what dentists experienced as the most stressful aspects of work (Table 6.2). Most stress was experienced from Patient Contacts and Work Pressure. A “strong” or “very strong” pressure on Patient Contacts was experienced by 15%, and on Work Pressure by 13% of the dentists.

6.3.4 Burnout

The MBI-NL provides scores on three scales, each indicative for burnout. Table 6.3 shows the results for all dentists, and for men and women separately. Furthermore, a comparison was made with Dutch standard scores as provided by the manual.\textsuperscript{25} Compared to these standard scores, dentists experienced less Emotional Exhaustion ($t(4575) = 5.46; p < 0.001$), less Depersonalisation ($t(4575) = 9.08; p < 0.001$), and more Personal Accomplishment ($t(4575) = -15.91; p < 0.001$). In other words, dentists exhibited less burnout symptoms on all three dimensions. When comparing male and female dentists, using $t$-tests, no statistically significant gender differences were found on either scale.

Table 6.3 Descriptive statistics of the three scales of the MBI-NL: all dentists (N=685), men (N=575), and women (N=109) (one case gender unknown)

<table>
<thead>
<tr>
<th>range</th>
<th>All</th>
<th></th>
<th>Men</th>
<th></th>
<th>Women</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>0-48</td>
<td>13.7</td>
<td>8.6</td>
<td>13.9</td>
<td>8.7</td>
<td>12.8</td>
<td>7.9</td>
</tr>
<tr>
<td>0-30</td>
<td>5.9</td>
<td>3.9</td>
<td>6.1</td>
<td>4.0</td>
<td>5.3</td>
<td>3.5</td>
</tr>
<tr>
<td>0-42</td>
<td>30.8</td>
<td>5.9</td>
<td>31.0</td>
<td>5.8</td>
<td>29.9</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Note: The MBI-NL consists of 20 items; high scores on EE and D, and low scores on PA are indicative for burnout

6.3.5 Work place characteristics and burnout

The relation between burnout and work place characteristics was investigated by creating three categories in levels of burnout. Since no independent clinical criteria have been developed to categorise subgroups on the MBI-NL so far, relative, that
is sample dependent, criteria are convention. Corresponding with a previous study on burnout among Dutch physicians, on each scale of the MBI-NL, the median was taken as the dividing point between dentists with relatively favourable and dentists with relatively unfavourable MBI-NL scores. Dentists who had unfavourable scores on all three scales formed the “risk group” (n = 144 or 21%). Dentists who had favourable scores on all three scales formed the “non-risk group” (n = 172 or 25%). Dentists who had (un-)favourable scores on only one or two scales formed the “neutral group” (n = 371 or 54%). On each of the ten work characteristics, a Chi-square statistic was calculated. No statistically significant differences between risk, non-risk, or neutral groups on any of the actual work place characteristics were found.

Since in future research attention may be directed to a smaller number of actual work characteristics, it is noteworthy that some of these work characteristics nearly met the statistical criteria: ($\chi^2(10) = 18.22, p = 0.051$), indicating that the “risk group” had more patients registered; number of patients per week ($\chi^2(10) = 19.72, p = 0.032$), indicating that the “risk group” had more patients in practice per week, and number of health service patients ($\chi^2(82) = 103.70, p = 0.053$), indicating that the “risk group” had more patients with health service insurance.

The predictive strength of work characteristics on the level of burnout was examined using regression analyses. For work characteristics, the regression analyses revealed no substantial predictive value for any characteristic on the three aspects of burnout. The proportion explained variance (adjusted $R^2$) on EE was no more than 1%, while on D no more than 2% could be explained.

### 6.3.6 Work stress and burnout

The relation between work stress and burnout was examined using correlations between both variables. As can be seen in Table 6.2, Career Perspective was most consistently and strongly related to Emotional Exhaustion, Depersonalisation, and Personal Accomplishment.

The predictive strength of work stress on the appearance of burnout was examined using regression analyses. The regression analyses revealed different sets of predictors for each of the three burnout scales. Emotional Exhaustion was best predicted by Work Pressure, Professional and Private Life, and Career Perspective. This set of predictors accounted for 48% of the variance (adjusted $R^2$) in Emotional Exhaustion. Depersonalisation was best predicted by Career Perspective and Patient Contacts, which accounted for 30% of the variance. For the Personal Accomplishment dimension, Professional and Private Life, Career Perspective, Work Contents, and Patient Contacts together explained 20% of the variance.
To further explore the potential of work stress as a contributor to the prediction of burnout, a stepwise discriminant analysis was conducted (using Wilks’ method). The five aspects of work stress that were revealed in the regression analyses were selected for the discriminant function. The burnout risk-group variable was used as the grouping variable. Using the discriminant function ($\chi^2(10) = 269.87, p = 0.000$; Eigenvalue = 0.51; Wilks’ $\lambda = 0.66$), the respondents were classified as described above into three groups representing high burnout risk, low burnout risk and a neutral group. Overall, 54% of the respondents were correctly classified into one of the risk groups on the basis of their work stress scores. Of special interest is the proportion of respondents correctly classified as being at risk for burnout. Of the group defined as a high risk group, 72% were correctly classified on the basis of their work stress scores.

Since the work place characteristics had no predictive value on burnout, no effort was taken to combine these characteristics with work stress in a joint regression analysis.

6.4 Discussion

In this study, contrary to the first hypothesis, no relation between dental work place characteristics and burnout was found. The second hypothesis, regarding the relationship between experienced work stress and burnout, was confirmed. Lack of career perspective emerged as the aspect of experienced work stress most strongly related to burnout among dentists, whereas the interaction between professional and private life, pressure from patient contacts, work contents, and general work pressure also play a role in relation to aspects of burnout. When compared to Dutch norm scores, mean burnout levels of all dentists are favourable. From the potential work stressors, patient contacts and work pressure had highest mean scores.

It may be argued that a relation between work stress and burnout is no surprise, since burnout is usually seen as a long term consequence of occupational stress. The value of this study, however, is in showing what elements exactly are associated with high burnout scores. A decade ago, Cooper et al.\textsuperscript{10,11} detected time pressure, patient related problems and staff affairs to be main stressors for dentists. In our study, it was shown that these aspects are still relevant with regard to dental work stress, but that lack of career perspective is the aspect most crucial in the development of burnout. Aspects that are part of the Career Perspective scale are, among other things: lack of content related development, realisation of having to continue for many more years, the feeling of being a prisoner in one’s own practice, or the small possibility of change in a career. Furthermore, the study revealed that actual dental work place conditions can not explain burnout among
dentists. For example, it certainly is not the case, as sometimes is suggested, that working in a solo practice, with a large number of patients, and with long chair side working hours will guarantee to burn out. This is in line with the Osborne & Coucher study, where it was reported that certain work place conditions were associated with one or two aspects of burnout, while no work place condition was correlated with all three defining aspects. This finding once more underlines the relevance of the theory, as proclaimed by Lazarus, that it is the interaction between the individual and work environment, more than the work environment per se, that determines whether occupational stress, or burnout, occurs. The individual perception of and coping with work conditions appear to be decisive for the development of burnout. From stress literature, it is well-known that, for example, social support at work and at home, and feelings of equity in investment and outcome are factors influencing stress and burnout to a large degree. Further research on (un-)favourable matches between person characteristics and dental office conditions is being elaborated upon.

Attention should be given to the 21% of our respondents who showed relatively unfavourable scores on all three burnout dimensions, here defined as the burnout risk group. Among the 21% are dentists with rather extreme scores, an indication of high overall levels of burnout. Since the MBI-NL is not to be used for individual diagnosis, but is developed for measurement among groups, no conclusions can be drawn on an individual level. However, those with highly unfavourable scores should realise the necessity of serious reflection on how they work, as burnout is certainly a risk factor for incapacity for work.

To put these relative indications into another perspective, a comparison can be made with results from a survey among Dutch physicians. Dutch physicians show surprising similarities with regard to the burnout risk group: also 21% of the physicians had relatively unfavourable scores (by median) on all three MBI-NL dimensions. An interesting outcome among physicians was that work place characteristics had no relation to burnout, as in our study. Among these physicians, it appeared that experienced work load, and negative patient contacts were the stress factors most strongly associated with burnout. It must be noted, however, that mean scores of the physicians indicated higher levels of burnout when compared with dentists’ scores.

The participants were highly representative for the Dutch general dental practitioner. This is not only visible by studying the response rate, which is unusually high in comparison with current response rates, but is also underlined by comparing respondent’s work place characteristics with recent figures from the Dutch Dental Association (NMT) in collaboration with the Netherlands Statistics (CBS). These figures show, for example, that in The Netherlands, 18% of the practising dentists are female (in our study: 16%), that 89% of the dentists have
exclusive or shared ownership of practice (in our study: 90%), and that the proportion of private versus health service patients is 41% vs. 59% (in our study: 43% vs. 57%). In other words, the findings of this study can very well be generalised to the Dutch dentist in general.

Research on burnout among dentists, as described, always serves a scientific goal, since it provides information on the prevalence of burnout and associated factors. But, research on burnout serves another goal too, namely to provide information for prevention. From this study, it appears that in particular the lack of career perspective deserves attention. Therefore, the most important recommendation following from this study is to promote more activities concerning satisfactory career development. In this respect, dental schools, dental associations, and individual practitioners share a responsibility.
References


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