Positive engagement and job resources in dental practice

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Abstract - Objectives: The aim of this study is to determine the level of engagement among dentists, and subsequently, to investigate which dental job resources are positively correlated with engagement. Methods: By stratifying on gender, age, and region, a representative sample of 848 general dental practitioners was drawn at random, plus an extra group of 95 female dentists for gender comparison purposes. *Engagement* was assessed using the Utrecht Work Engagement Scale (UWES), consisting of three subscales: Vigor, Dedication; and Absorption. *Job resources* were measured using the Dentists' Experienced Job Resources Scale (DEJRS). Results: Six hundred and thirty two dentists (67%) responded, 76% male and 25% female. Mean age: 44.6 years (SD = 9.0). Engagement: Dedication and Absorption mean scores were higher among dentists when compared with manual norm scores, based upon a variety of professions, whereas Vigor mean scores were comparable to manual norm scores. Job resources: 'Immediate results / Aesthetics' and '(Long term) Patient results' showed highest mean scores among all dentists. Gender differences were found on '(Long term) Patient results' and 'Patient care'. Engagement and job resources: All DEJRS subscales and the full scale showed statistically significant positive correlations (pmcc) with the UWES subscales. Conclusion: Dentists showed relatively high mean scores on an engagement measure when compared with manual norm scores. No gender differences in mean scores were found. Job resources most valued were 'Immediate results / Aesthetics'. The job resources, 'Idealism/Pride' and 'Patient care', showed most predictive value with regard to engagement among dentists. In order to prevent burnout, it is recommended to raise dentists' awareness of the importance to create sufficient time and space for stimulating aspects in their work.

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Working in a dental practice is recognized to be a both physically and mentally demanding activity. Occupational stress among dentists has regularly been topic of research (1–4). When reviewing empirical studies, the following categories of job demands among dentists emerge: Work Pressure, Financial Aspects, Patient Contacts, Work Contents, Career Aspects, Team Aspects, and Work and Private Life Interference (4, 5). Apparently, dentistry is a profession with a wide range of possible stressors.

One of the possible consequences of chronic occupational stress is professional burnout (6). The most commonly used definition of professional burnout consists of three dimensions: mental or emotional exhaustion, the development of a negative or cynical attitude towards one's patients or clients, and the tendency to evaluate oneself negatively (7). Factors closely associated with burnout among dentists are: difficult patient contacts, staff and management worries, work pressure and lack of career perspective (5).

Indeed, burnout can be considered a serious risk to the dental profession, causing both a threat to the work force and a tragedy to the individual dentist. At the same time, it should be understood that the majority of dentists does not suffer from burnout. Dentists at a certain risk of burning out are usually estimated to make up 11–15% of the population (8–11). Whereas a minority of dentists suffer from job demands, a certain percentage finds their work stimulating and engaging, as Hakanen et al. recently described (12). The question is which aspects of dental work are considered valuable resources by dentists. Or, to put it more precisely, which physical, psychological, social, or organizational aspects of the job (a) reduce job demands and the associated physiological and psychological costs; (b) are functional in achieving work goals; or (c) stimulate personal growth, learning and development (12).

The approach to search for resources in work closely fits with recent trends in organizational psychology. It is well understood that the path that may lead to burnout is not only characterized by too many job demands, but also by a lack of resources. For instance, the Conservation of Resources theory holds that people have a deeply routed motivation to obtain, retain, and protect that which they value (13). Other authors describe job resources as opposite to job demands (14). According to the Job Demands - Resources model of job stress, job resources are seen as a buffer protecting the professional from mentally collapsing under too many, or too heavy job demands (15). In most cases, resources are operationalized by profession independent indicators, such as personal growth, social support, or performance feedback, to name a few. Recently, Gorter et al. (16) described a series of job resources specific for the dental environment, grouped in a measuring instrument, referred to as the Dentists' Experienced Job Resources Scale (DEJRS). The psychometric qualities of the DEJRS are described in the Methods section of this paper. The topics addressed showed a positive correlation with job satisfaction, thus underscoring its value in measuring psychological well-being among dentists.

Maslach and Leiter (17) proposed a definition of engagement – characterized by energy, involvement, and efficacy – in which it was described as a unidimensional counter pole of burnout, representing the positive end of a continuum. Engaged employees have a sense of energetic and effective connection with their work activities and they see themselves as able to deal completely with the demands of their job. Schaufeli and Bakker (18) found evidence that burnout and engagement do not necessarily exclude each other and should be seen as a bi-dimensional phenomenon. They initiated a series of organizational psychological studies on work engagement among a variety of professions. Like burnout, engagement is also defined by three core dimensions: Vigor, Dedication, and Absorption. Vigor is characterized by high levels of energy and mental resilience while working, the willingness to invest efforts in one's work, and persistence even in the face of difficulties. Dedication is characterized by a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterized by being fully concentrated and deeply engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work (19). (Being fully absorbed from one's work comes close to what been described as 'flow' has by Cszikszentmihalyi (20), although the latter construct refers more to short-term peak experiences).

Given the fact that job resources can be seen as positively influencing one's well-being at work, it was hypothesized that job resources would relate positively to job engagement. The aim of the present study, therefore, was to investigate levels of job engagement among dentists and to determine which dental environmental job resources in particular could account for differences in dentists' engagement.

Methods

Subjects

In 2001, of all Dutch dentists, 77% (n = 4429) were insured for disability for work at Movir Insurances (Source: Movir Insurances, unpublished report, 2001). By stratifying on gender, age, and region, a sample of 848 general dental practitioners from the Movir files was drawn, which could be described as representative for the Dutch dental population. Additionally, in order to maintain power of analysis in examining gender differences, an additional, separate group of 95 female dentists was approached. Adhering to the recommendations by Dillman (21), the procedure included an announcement, several reminders, and a complete re-sending of the questionnaire when there was no response. As an incentive to return the questionnaire, each participant received a book on ethics in dentistry.

Measures

Engagement

Engagement was assessed using the Utrecht Work Engagement Scale (UWES) (22). The items of the UWES are grouped into three subscales: Vigor (six items, Cronbach's $\alpha = 0.84$; e.g. 'When I get up in the morning, I feel like going to work'); Dedication (five items, Cronbach's $\alpha = 0.90$; e.g. 'I am enthusiastic about my job'); and Absorption (six items, Cronbach's $\alpha = 0.82$; e.g. 'When I am working, I forget everything else around me'). All items were scored on a 7-point rating scale, ranging from 0 (never) to 6 (always). High scores are indicative of engagement. For each subscale, all items contributed to the internal consistency. The reliability of the full UWES as one engagement scale was Cronbach's $\alpha = 0.94$. Both subscale and full scale internal consistencies only deviate minimally from the UWES manual, the same goes for the subscale intercorrelations (23). Product moment correlation coefficients (pmcc) between subscales were positive and ranged from: 0.77 > r < 0.83 (P < 0.01). A more detailed description of the psychometric qualities of the UWES among dentists can be found in Te Brake (11).

Job resources

The DEJRS consists of 45 items, grouped into eight subscales, each tapping into a different aspect of dental work (see Gorter et al. (16), for a more detailed description of its psychometric development). The DEJRS categories are:

- Idealism/pride (e.g., being a good caregiver, or finding specific solutions for distinct problems);
- Immediate results/aesthetics (e.g., seeing a good treatment result, or delivering beautiful pieces of work);
- (Long term) patient results (e.g., patients daring to smile again, or gaining patients' trust);
- Craftmanship (e.g., working manually, or being happy to tinker);
- Professional contacts (e.g., keeping company with staff, or the abundant possibilities for post graduate education);
- Entrepreneurship (e.g., being one's own boss, or being independent with regard to time management);
- Patient care (e.g., satisfaction or gratitude shown by patients, or setting fearful patients at ease and make them ready for treatment);
- Material benefits (e.g., financial rewards, or the societal status and prestige of the profession).

The factor structure of the DEJRS was examined using explorative factor analysis (PCA) and applying varimax rotation. Eight factors with an Eigenvalue larger than 1 accounted for 62.8% of the variance. Internal consistency indices ranged from Cronbach's alpha 0.75 to 0.89. Removing any item would not improve a subscale's reliability. All items were rated on a 5-point Likert-scale, ranging from 1 (not satisfying) to 5 (very satisfying). An example of an item from the 'Entrepreneurship' scale is: 'To what degree do you get satisfaction from being your own boss?'. The relation between the subscales was investigated by examining the subscale intercorrelations, which ranged from r = 0.10 to r = 0.69. All correlations were positive and statistically significant, but vary in strength (for instance, the pmcc between 'Patient care' and 'Entrepreneurship', and between 'Patient care' and 'Material benefits' were lowest: r = 0.10, P < 0.05, and r = 0.13, P < 0.01, respectively). The correlations between several subscales and the total scale ranged from r = 0.57 to r = 0.88. These correlations are considered satisfactory, as subscales should measure separate aspects of work, but should also show a fair amount of common variance.

Analyses

Psychometric analysis of the UWES and the DEJRS consisted of examining principal component analysis, and reliability scores (Cronbach's alpha). Means and standard deviations of the (sub)scales were calculated, taking into account some person and practice characteristics. The predictive value of job resources on engagement was examined using multiple linear regression analysis. All analyses were carried out with the Statistical Package for the Social Sciences (SPSS), version 11.0. Analyses were based on the representative sample; the extra drawn females were only included when comparing gender differences in order to obtain more statistical power.

Results

Response

Of the 943 dentists approached in the survey, a total of 632 (67%) responded. For various reasons, such as the indication not to be willing to take part in the study, or no longer practicing dentistry a group of 561 dentists remained for data analysis (59% useable response): Four hundred and ninenty seven dentists from the representative group, plus 63 dentists from the extra drawn females, and one dentist of whom gender was unclear. Mean age was 44.6 years (SD = 9.0). A comparison with data from the Dutch Dental Association shows that the sample reflects the Dutch dental population on gender with a margin of eight percent or less: males

in the sample formed 76%, in the population 82%; females in the sample 25%, in the population 17% (24). When age groups were compared with the Dutch population, deviations ranged from 0.4% to 3.9%. Finally, the regional dispersion differed from the population with a variation from 0.2% to 2.3%, with one exception: in one region 5.7% less than expected was included in the response group.

Positive engagement

Mean scores (and standard deviations) per UWES subscale were as follows: Vigor: M = 3.95 (1.13); Dedication: M = 4.32 (1.09); Absorption: M = 3.86 (1.09). No statistically significant gender differences in mean scores were found. When compared with preliminary manual norm scores based upon a variety of professions, dentists showed higher mean scores on Dedication and Absorption (P < 0.05) (22).

Eight age categories were formed, showing that mean scores decline gradually, until age group 60 years onwards, when a remarkable increase is found. (Most Dutch dentists have retirement pensions starting between age 60–65) Differences between highest and lowest age group mean scores were statistically significant (Fig. 1).

In order to differentiate between highly engaged dentists and those who are not, percentile scores were calculated. Five categories per subscale were created: scores in the lowest 5% were considered 'very low', scores between 5th and 25th percentile were considered 'low', scores between 25th and 75th percentile were considered 'moderate', scores between 75th and 95th percentile were considered 'high', and scores in the upper 5% were considered 'very high'. Subjects were categorized under 'low engagement' when they had 'low' or 'very low'



Fig. 1. Engagement among dentists by age group.

scores on at least both Vigor and Dedication, subjects were categorized under 'high engagement' when they had 'high' or 'very high' scores on at least both Vigor and Dedication. In all other cases, subjects were categorized under 'moderate engagement'. (The categorization described allows the subscales Vigor and Dedication to be more influential in determining one's total engagement score than the Absorption subscale. The theoretical rationale lies in the fact that these two dimensions are operationalized as opposites of the two most prominent burnout dimensions, namely emotional exhaustion and depersonalisation). Fifteen percent of the dentists could be categorized as highly engaged (n = 73; M = 5.38, SD = 0.38), 12% fell in the low engagement category (n = 58; M = 2.46, SD = 0.62), leaving 73% of the dentists in the moderately engaged category (n = 360; M = 4.03, SD = 0.78).

Job resources

Means and standard deviations are shown for the total DEJRS, as for each subscale (Table 1). Highest

Job resources	All Dentists $N = 491$		Male dentists $N = 371$		Female Dentists † N = 182	
	М	SD	М	SD	М	SD
Idealism / Pride	3.65	0.59	3.64	0.58	3.65	0.61
Immediate Results / Aesthetics	4.04	0.52	4.00	0.53	4.09	0.51
(Long term) Patient Results*	4.03	0.59	3.98	0.59	4.16	0.57
Craftmanship	3.77	0.72	3.72	0.70	3.80	0.78
Professional Contacts	3.03	0.69	3.03	0.71	3.06	0.68
Entrepreneurship	3.55	0.85	3.55	0.83	3.50	0.88
Patient Care*	3.90	0.59	3.81	0.57	4.12	0.56
Material Benefits	3.05	0.74	3.03	0.76	3.11	0.72
Total scale	3.65	0.46	3.62	0.46	3.70	0.46

Table 1. Mean scores (and standard deviations) of subscales and total scale DEJRS (range 1-5)

*Statistical significant gender differences (P < 0.01)

(†Note: The female column included the extra group of 63 females in the gender comparison analysis in order to obtain more statistical power).

mean scores are found at 'Immediate results/ Aesthetics' (M = 4.04), and '(Long term) Patient results' (M = 4.03). Multivariate analyses using MANOVA indicated statistical significant gender differences in means: F(8,541) = 5.272, P < 0.001. Subsequent univariate analyses showed female dentists having higher means than males on: '(Long term) patient results' (F(1,548) = 10.428, P = 0.001), and 'Patient care' (F(1,548) = 11.036, P < 0.001). Remarkably, female dentists showed higher absolute mean scores on all subscales but one ('Entrepreneurship').

Relation between positive engagement and job resources

All DEJRS subscales and the full scale showed positive correlations with the three engagement subscales, indicating that the more one values each of the job resources the more positive engagement one experiences (Table 2). Lowest correlations were found between the UWES subscales and 'Entrepreneurship', and 'Material benefits'. No gender influenced differences in correlation patterns between DEJRS and UWES subscales could be detected.

For dentists categorized under each of the three levels of engagement (low, moderate, and high) DEJRS mean scores and standard deviations were calculated (Table 2). As expected, mean scores increased from low, through moderate, to high engagement. Mean scores differed most between low and high engagement on 'Idealism/Pride'. All differences in mean scores on a DEJRS subscale between the three engagement levels were statistically significant (P < 0.01).

In order to determine whether job resources could explain differences in engagement scores, a regression analysis was conducted (Table 3). 'Ideal-

Table 2. Mean scores and standard deviations on Job Resources by Level of Engagement (low, moderate, and high), and product moment correlation coefficients (*r*) between Job Resources and Engagement subscales (Vitality, Dedication, and Absorption)

Engagement	Low $N = 58$		Moder $N = 3$	Moderate $N = 360$		High $N = 73$		DED	AB
Job resources	М	SD	М	SD	М	SD	r	r	r
Idealism / Pride	3.16	0.64	3.63	0.53	4.12	0.45	0.56	0.63	0.57
Immediate Results / Aesthetics	3.68	0.62	4.02	0.47	4.39	0.46	0.46	0.51	0.46
(Long term) Patient Results*	3.60	0.71	4.03	0.54	4.39	0.47	0.44	0.51	0.47
Craftmanship	3.44	0.76	3.73	0.69	4.22	0.63	0.38	0.45	0.46
Professional Contacts	2.55	0.67	3.03	0.65	3.44	0.69	0.46	0.52	0.46
Entrepreneurship	3.14	1.00	3.53	0.79	3.93	0.84	0.27	0.29	0.25
Patient Care	3.45	0.67	3.91	0.55	4.20	0.46	0.39	0.46	0.40
Material Benefits	2.74	0.81	3.08	0.72	3.20	0.73	0.28	0.27	0.25
Total	3.24	0.48	3.64	0.41	4.03	0.35			

All pmcc's: P < 0.01

Table 3. Explained	variance DEJRS subscal	e scores on UWES in	percentages	(cumulative)
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Vigor	% Dedication	% Absorption	% Engagement (full scale) %	%
All				
Idealism / Pride	31 Idealism / Pride	40 Idealism / Pride	33 Idealism / Pride 3	;9
Professional contacts	33 Patient Care	44 Patient Care	36 Patient Care 4	3
Patient care	36 Professional contacts	46 Craftmanship	38 Professional contacts 4	6
	(Long term) Patient results	47 Professional contacts	39 Craftmanship 4	6
	-		(Long term) 4	7
			Patient results	
Men				
Idealism / Pride	31 Idealism / Pride	43 Idealism / Pride	33	
(Long term) Patient results	34 (Long term) Patient results	46 (Long term) Patient results	36	
Professional contacts	36 Professional contacts	49 Professional contacts	37	
	Patient care	49 Craftmanship	38	
Women				
Idealism / Pride	31 Idealism / Pride	36 Idealism / Pride	36	
Professional contacts	36 Professional contacts	42 Patient care	39	
Patient care	39 Patient care	44 Professional contacts	41	

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ism/Pride' appeared most predictive for engagement; the higher one's score on 'Idealism/Pride', the higher one's score on Vigor, Dedication, and Absorption. Besides, 'Professional contacts', and 'Patient care' could also predict outcomes on all three UWES scales, although to a lesser degree. Job resources could best predict scores on Dedication (47% of explained variance), and slightly less on Absorption (39%), and Vigor (36%).

When comparing males and females, 'Idealism/ Pride' showed to be the main predictive factor for both genders. With regard to the other predictive factors, it can be noticed that 'Long term patient results' is capable of predicting each of the three UWES scales to some degree among men, whereas this is not the case among women.

Finally, when the total UWES is taken as one engagement measure, it is confirmed that 'Idealism / Pride' and 'Patient care', appear to be the main factors in predicting engagement.

Discussion

The aim of the present study was to investigate the levels of positive engagement among dentists and, subsequently, to determine which job resources from the dental environment could account for differences in dentists' engagement levels. It appeared that engagement scores among dentists were relatively favorable. The general hypothesis that job resources would relate positively to job engagement was confirmed. Certain aspects from the dentists' work environment could explain differences in engagement scores, in particular dentists' idealism and the pride they feel about their profession, patient care, professional contacts, craftmanship, and long term patient results.

The measurement of engagement as interplay between vigor, dedication and absorption, as operationalized in the UWES, proved to be reliable among dentists. The subscale mean scores could be interpreted clearly and compared favorable with manual norm scores. Vigor among dentists showed to be on the same level as found among other professions. Dedication and Absorption, on the contrary, showed higher mean scores than found elsewhere. These findings are an indication that, on the whole, dentistry appears to be a healthy profession. This conclusion was also drawn earlier in studies on burnout among dentists (10). Mean levels of burnout among dentists appeared favorable when compared with manual norm scores based upon other professions. It should be noted, however, that, although burnout and engagement are usually negatively correlated, the two concepts do not exclude each other *per se* (23).

Not only comparisons between professions can be made, also within the profession comparisons are helpful in understanding patterns. An interesting aspect of the engagement distribution is found among age categories. From their twenties up to the age of sixty, dentists show a steady decline in engagement scores. However, those dentists aged sixty plus show a sudden raise in levels of vigor, dedication, and absorption. It is possible a selection occurs in which those who are least engaged, find it possible to leave their practices. Indeed, most Dutch dentists have retirement insurances which make it possible to leave the profession somewhere between ages 60 and 65. Once again, a similar pattern was found in previous burnout studies among dentists, where it was found that dentists aged sixty plus showed a sudden decline in burnout levels (10).

Another within-group comparison is made by dividing the group into high, low, and moderate levels of engagement. (The procedure for doing so is described in the Methods section of this paper). It appeared that 15% of the dentist could be described as highly engaged; roughly speaking one in seven dentists. On the contrary, 12%, or one in eight, could be described as hardly engaged, which is similar to the 11-15% of the dentists described to be at burnout risk (8-11). This leaves three-quarters of the dentists in the medium group, being characterized by neither low nor high engagement. This medium group may be the grateful audience for activities creating awareness for a satisfying work environment. Dental schools, dental associations, post graduate course organizations, professional journals, and others can play a role in raising its awareness.

An aspect that was not included in the present study is whether specialization could enhance one's engagement. From burnout studies, it is known that lack of career perspective is a major source for burnout risk among dentists (5, 11). It would be helpful to learn if developing one's abilities in certain subdirections could play a role in prevention of burnout and establishing or enhancing positive engagement. So far, very few studies were found on burnout, and only one on engagement, among dentists. Among dental specialists, results are even more sparse. From medical specialisms, it can be learned that results tend to differ among specialisms with regard to burnout levels (25). It is, therefore, recommended to extend burnout and engagement studies beyond general dental practices to dental specialisms and specializations.

The present study was based upon a representative sample of Dutch dentists. A number of characteristics of the typical Dutch dentist should be kept in mind when interpreting the present results. For instance, in The Netherlands at the turn of the millennium, the majority of general dental practitioners was practice owner (73%, plus 17% shared ownership), 53% worked as a solo practician, whereas 20% worked in a group practice, and another 20% had a solo practice, but in a shared building. Also, other aspects characterize the Dutch dentist, such as the fact that less than 10% worked without any assistant in the dental office, or the fact that the mean number of chairside hours in a working week was 33, plus 6.5 hours nonchairside in the office (5). However, there is no straightforward reason to assume that practice characteristics per se influence job resources and engagement outcomes in a significant way. From studies on experienced work stress and burnout among dentists, we know that practice characteristics hardly make a difference in mean scores. Most importantly, it is the fit between the professional and his or her work environment that is decisive for one's well-being, and the feeling of control one has to influence the environment. Only the total number of patients in practice, and the number of patients per week showed a 'trend' indicating that the higher these numbers, the higher the risk for burnout. The same was true for a high percentage of sick fund patients in one's practice (5). Future studies on engagement and job resources among dentists could further investigate these aspects.

Theoretically, it is interesting to notice that research on dentists' well-being at work has shifted from merely measuring stress to a variety of possible indicators of well-being. Since the 1970s, the measurement of experienced stress, in combination with descriptions of demanding work characteristics was a key aspect in attention for dentists' well-being (26,27). Professional burnout, as a result of chronic work stress, came into the picture in the nineties (8–10). Today, it is well understood that not only work stress and job demands should be dealt with in order to avoid dentists from dropping out, it is also considered important to create attention for those aspects of work that are experienced to be stimulating. That is where job resources and engagement come into view. There is some overlap between job satisfaction aspects and job resources, the difference lies in the fact that job satisfaction is first of all an innerly felt state, whereas job resources refer to identifiable aspects of the work environment. Resources function as a 'buffer' against stress and burnout by actually delivering energy. Whereas job resources are often measured using abstract terms, suitable for multiple professions, the present study may be the first in dentistry to actually categorize aspects of the dental environment that can be labeled 'dental job resources'.

The topic of engagement among dentists has not, with one exception, been studied previously. In Finland, the members of the Finnish Dental Association were surveyed and among the variables measured were levels of engagement and job resources (12). The Finnish job resources scale was adapted from the Dutch measure DEJRS (16). Although there were some deviations from the Dutch sample – the majority of the Finnish dentists were female, and Finnish dentistry is differently organized compared with the Dutch situation when it comes to treatment insurance policies, for example - an interesting comparison is possible. First of all, in Finland, job resources could also be held responsible for differences in engagement. In Finland, it was also found that job resources could function as a 'buffer', protecting dentists from burnout. This was an interesting aspect not included in the present study. Given the Finnish and Dutch outcomes, it is encouraging to continue working on the exploration of dental environment job resources and their meaning for gaining positive engagement and prevention of job burnout.

Summarizing, the central research aim was to find out which aspects of the dental environment may be held accountable for differences in positive engagement among dentists. The present study provided a straightforward overview of some of the challenging aspects that are part of the dental environment. From organizational psychology, it is known that certain job related aspects, such as decision latitude or social support, are decisive for one's well-being at work (15). In most studies, these aspects are described in such a general way, that they can be applied to a wide range of professions. In the present study, a more detailed analysis was made, explicitly aimed at the dental work environment. The strength of this analysis lies in the fact that it supplies the dental profession with a number of easily identifiable aspects. In order to

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stimulate well-being at work, and to help prevent burnout among dental professionals, it may serve as a useful tool. It is up to dental organizations to point out at these aspects of work in their communications with the profession. The preventive message from this study should be to have each dentist reflect upon their work occasionally and stimulate them to actively include those aspects of work that they value in their practice. Once more it is shown that dentistry is a profession that holds many opportunities for those being part of it.

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