

## Scientific Research Report

# Stress Coping Strategies, Burnout, Secondary Traumatic Stress, and Compassion Satisfaction Amongst Israeli Dentists: A Cross-sectional Study



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## ARTICLE INFO

## Article history:

Received 20 March 2021

Received in revised form

22 August 2021

Accepted 25 September 2021

Available online 14 November 2021

## Key words:

Dentistry

Coping strategies

Burnout

Secondary traumatic stress

Professional quality of life

Compassion satisfaction

## ABSTRACT

**Objective:** Being a member of the dental profession is often associated with stress and high levels of burnout. Stress coping strategies may significantly help mediate burnout. The present cross-sectional study sought to examine the role of stress coping strategies on burnout, secondary traumatic stress, and compassion satisfaction amongst Israeli dentists.

**Methods:** The study was carried out amongst Israeli dentists with the use of the following questionnaires: (1) the Professional Quality of Life Scale 5 (ProQOL), referring to burnout, compassion satisfaction, and level of secondary traumatic stress; (2) the Coping Inventory for Stressful Situations–Situation Specific Coping Inventory (CISS-SSC), referring to coping strategies (task-focused, emotion-focused, or avoidance-focused coping); and (3) demographic and professional variables (eg, specialisation, workload). Participants included 243 Israeli dentists. Univariate analyses and linear regressions were conducted to evaluate the relationships amongst coping strategies and burnout, secondary traumatic stress, and compassion satisfaction.

**Results:** Female dentists had higher emotion-focused and avoidance coping scores than male dentists. Burnout could be explained by higher emotion-focused coping scores and lower task-focused and avoidance-focused coping. Secondary traumatic stress could be explained by higher emotion-focused scores, having fewer years of professional experience, and younger ages. Compassion satisfaction could be explained by lower emotion-focused coping as well as by higher task-focused coping and workload scores, specialisation, and gender.

**Conclusions:** The findings suggest that emotional coping may cause dentists to be vulnerable to burnout and to secondary traumatic stress.

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## Introduction

Medical professions in general, and the dental profession in particular, often involve severe levels of stress. An important factor related to stress is the individual's responses to stressful or negative situations, that is, coping.<sup>1,2</sup>

One of the central models for coping was suggested by Lazarus and Folkman.<sup>3</sup> According to Lazarus and Folkman's<sup>3</sup>

transactional model of stress and coping, mental health and well-being are not merely direct functions of the amount and level of stress a person encounters but depend on how people appraise critical situations. The model considers coping as a process that is defined as ongoing cognitive and behavioral efforts aimed at managing internal and external demands evaluated by the person as taxing or exceeding his or her resources.

Two central coping strategies were proposed: task-focused coping (TC) and emotion-focused coping (EC).<sup>3,4</sup> TC concentrates on acting in order to change the circumstances that caused the distress (eg, doing something to solve the

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<https://doi.org/10.1016/j.identj.2021.09.006>

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problem). EC aims to regulate stress through an attempt to understand and express emotions and/or change the meaning of the event and thus downscale the emotional response, for example, self-preoccupation.<sup>5,6</sup>

Carver et al.<sup>7</sup> presented a multidimensional coping inventory to measure problem-focused coping (eg, active coping, planning); EC (eg, seeking of emotional social support, positive reinterpretation, acceptance), and scales defined as less useful coping responses (eg, focus on and venting of emotions, behavioral disengagement). Endler and Parker<sup>6,8</sup> suggested to measure an avoidance-focused coping (AC), which is based on avoiding confrontations with the source of stress and includes such behaviors as seeking out other people or engaging in substitute tasks (eg, distraction).

People tend to adopt certain coping tactics as relatively stable preferences that derive from personality, or they may develop for other reasons.<sup>7</sup> Moreover, coping, be it TC, EC, or AC, can be productive or counterproductive according to the circumstances.

Some studies pointed out that amongst health professionals, TC is associated with relatively low levels of burnout (BO), whereas EC is associated with relatively high levels of BO.<sup>5,9</sup>

Chapman et al.<sup>10</sup> showed that dentists experience a diverse range of negative emotional responses including anxiety, anger, and sadness. A subsequent paper reported that dentists experience stress at work from a wide variety of sources; some fall within their control and others, such as regulations, fall completely outside their control.<sup>11</sup>

The notion that the dental profession is associated with high levels of stress is widely accepted.<sup>12,13</sup> The profession is perceived as very stressful by 34% to 84% of dentists,<sup>14</sup> and a high percentage of practicing dentists (7.8% to 30%) report being "very worn out."<sup>15,16</sup> Nangle et al.<sup>17</sup> showed that rates of BO amongst dental professionals and dental students are significantly higher relative to normative standards.

The designation of a situation as stressful or otherwise is dependent on the dentist's personal interpretation of the event.<sup>10</sup> A lot of the occupational stress and BO that affects dentists originates in the doctor–patient interaction.<sup>18</sup> Previous dental-related trauma may cause patients to present severe phobic reactions, which may, in turn, affect the treating dentist.<sup>19,20</sup>

Chapman et al.<sup>10</sup> characterised the situations associated with negative emotions in the dental practice as belonging to either anxiety/fear, anger, disgust/guilt/shame, or sadness/depression groups of emotions. Anxiety is associated with fear of the unknown, a sense of not being in control in clinical situations, anxious patients, striving to maintain high standards, and managing workload. Anger is mostly provoked by a sense of injustice about patient complaints, a failure to achieve self-imposed standards (perfection), patient behaviors such as lack of cooperation, failing to keep appointments, and so on. Disgust/guilt/shame could be viewed as a response to physical conditions, whilst guilt is usually associated with a failure to meet high clinical standards. Sadness/depression is sometimes reported as sympathy for patients, often leading to compassionate action.

Usually, studies that investigate BO amongst dental professionals use the Maslach Burnout Inventory (MBI).<sup>15,16,21,22</sup>

However, an important aspect of stress in the dentists' lives, the issue of interpersonal relationships that can lead to secondary traumatic stress (STS), is not properly addressed by the MBI.<sup>23</sup>

Work-related stress is an acknowledged issue studied in relation with various occupations. Medical and dental practitioners, who are constantly exposed to the physical and/or psychological suffering of their patients, are not exempt from it. Various terms have been used to describe the effect of others' suffering on their caregivers, such as vicarious traumatization or STS.

STS, a special form of a caregiver BO, was originally presented as a concept that marks the changes that occur in mental health professionals, specifically in trauma workers, as a result of working with trauma survivors. In the context of patient–doctor interactions amongst health professionals, STS was observed as a secondary influence amongst physicians who work in challenging contexts and was used to address the secondary vicarious influences of patients' pain and discomfort that influence clinicians. It was mainly studied with regard to health professionals treating individuals such as oncology patients and victims of violence and sexual abuse.<sup>24,25,26</sup>

The Professional Quality of Life Scale 5 (ProQOL) is an accepted measure to study BO amongst caretaking professionals.<sup>27</sup> The ProQOL evaluates positive measures of work gratification, defined as compassion satisfaction (CS), as well as negative aspects of professional life, STS, and BO. CS refers to gratification generated by positive feelings about colleagues and the pleasure derived from helping others through work and from effectively completing work, whilst STS refers to indirect work-related exposure to stress and trauma due to interactions with patients.<sup>27,28</sup>

Hamid and Musa<sup>9</sup> employed the ProQOL (and other) questionnaires to examine the relationship amongst STS, BO, and coping strategies amongst professional caregivers who work in schools, hospitals, charity institutes, and welfare centres. Their findings showed that coping partially mediated the relationship between BO and STS.<sup>9</sup> Nangle et al.<sup>17</sup> identified significant associations between dentists' and dental students' rates of BO with emotion dysregulation as well with the empathic disposition to experience discomfort in response to the distress of others (personal distress).

A recent review suggested exploring alternatives such as the ProQOL measure to evaluate factors that contribute to BO.<sup>29</sup> Previous report that used the ProQOL amongst Israeli dentists showed that dentists' professional quality of life is closely associated with a personality trait known as sensory processing sensitivity.<sup>30</sup>

The present study aimed to evaluate the relationship amongst dentists' stress coping strategies and BO, STS, and CS, as measured by the ProQOL.

## Methods

A detailed explanation of the sampling procedure was described previously.<sup>30</sup> In brief, the study was based on random sampling. Invitations to participate in the study were distributed during 2016 by email to all the dentists listed on

the websites of 4 professional dental associations in Israel (The Israeli Dental Association, Association of Prosthodontic Dentistry, Association of Pediatric Dentistry, and Association of Periodontology and Osseointegration) via posts in 4 professional Facebook groups and through LinkedIn. Eligible to participate was any dentist licensed to practice dentistry in Israel by the Ministry of Health, State of Israel. Dentists who responded to the invitation received the research questionnaires, including an informed consent form, and submitted their responses anonymously via a professional survey site. The ethics committees of the Haifa and Tel Aviv Universities approved all the study procedures (063/16- Haifa).

A power calculation (WinPepi ver. 11.65<sup>31</sup>), based on data published in the literature of standard deviations (SDs) of relevant variables, indicated that in order to detect a minimal difference of 2.5 points between means of men and women, a sample size of 169 participants will yield 80% power with significance level of .05. The reference was the work by El-Shafei et al.<sup>32</sup> in which the SD values of the ProQOL scales were as follows: CS scale, 5.22 in men and 5.54 in women; BO scale, 5.1 in men and 4.07 in women; and STS scale, 6.17 in men and 5.93 in women. Additionally, in order to detect a Pearson correlation of  $r = \pm 0.2$  between variables, by using a one-sided significance level of .05, a sample size of 153 participants will yield 80% power whilst a sample size of 211 participants will yield 90% power.

Of the 498 dentists who responded to the initial letter, 243 completed and submitted the questionnaires (49% response rate). It is noteworthy that although the estimated number of members of the approached dental associations is approximately 3500 professionals, it is well acknowledged that their vast majority do not follow the website announcements or the professional Facebook or LinkedIn groups.

The following questionnaires were used:

1. **Professional profile and demographic data questionnaire:** The questionnaire collected demographic information as follows: gender (male/female); age (years); country of birth; specialist training (yes/no, if yes, specify clinical field); professional experience (no. of years in practice); workload (no. of working hours per week); workplace (private practice/public clinic/hospital/university, if more than one workplace, specify % of time in each one); type of employment (self-employed/salaried employee, if more than one, specify % of income from each).
2. **Professional Quality of Life:** The Hebrew version of the ProQOL questionnaire was used.<sup>33</sup> The questionnaire includes 30 items, rated on a 1 to 5 Likert scale. It measures the following factors<sup>27</sup>:
  - (i) BO
  - (ii) CS
  - (iii) STS

The internal consistency of the ProQOL subscales (Cronbach's  $\alpha$ ) was as follows: CS, 0.89; BO, 0.75; and STS, 0.83, which is consistent with the ProQOL manual.<sup>27</sup>

3. **Coping Inventory:** Coping styles were measured by the short version of the Coping Inventory for Stressful

Situations (CISS), the CISS–Situation Specific Coping inventory (CISS-SSC),<sup>1,8</sup> which is widely used.<sup>34-36</sup>

The CISS-SSC measures 3 coping dimensions:

- (i) TC refers to direct actions to affect the situation and to reduce the stress it evokes (problem orientation).
- (ii) EC measures the efforts that are directed towards emotionally reframing the problem so it elicits less stress (personal orientation).<sup>37</sup>
- (iii) AC measures how much an individual tends to avoid confrontations with the source of stress.

The instrument includes 21 items, rated on a 5-point Likert scale with 7 items for each factor. Respondents are asked to rate the extent to which they employ each strategy when confronted with stress related to providing care to patients.<sup>8</sup> The Hebrew version used in the present study is based on a translation by Zevulun.<sup>38</sup> In order to ensure accuracy, the Hebrew version was translated into English and back into Hebrew; no significant discrepancies were found.

The internal consistency of the CISS-SSC subscales was satisfactory (Cronbach's  $\alpha$ : TC, 0.78; EC, 0.86; and AC, 0.75).

**Statistical Analyses:** Descriptive statistics (frequencies, means, and standard deviations) were calculated for the variables.

Pearson's  $r$  correlations were used to analyse bivariate associations. Univariate analyses were performed to measure the underlying relationships between the independent variables (gender, age, specialisation, years of experience, workload, and coping styles) and the dependent variables (ProQOL subscale scores).

To evaluate the sampling distribution, skewness and kurtosis were calculated for each of the study variables. The absolute value for each of the variables was  $< 1$  at both tests. Further Kolmogorov-Smirnov goodness-of-fit tests yielded significance  $> .05$ . Therefore, the independent variables were subjected to linear regression analyses with each of the ProQOL-5 factors as dependent variables. The data were coded and analysed using SPSS version 23 (SPSS Inc.).

## Results

Details regarding the participants' demographics and professional data are shown in Table 1. The mean age of the participants was 46.05 years (SD, 11.32), and their mean work experience was 18.18 years (SD, 11.61). Data regarding coping styles according to gender and to professional specialty are presented in Tables 2 and 3. Detailed results concerning the ProQOL scales, demographic information, and professional work stressors have been published previously.<sup>30</sup> Data regarding the ProQOL factors according to gender are presented in Table 4.

### Univariate analyses

Female dentists had higher EC and AC scores than male dentists (Table 2). There were no differences in the coping styles of general dentists as compared to residents and specialists

**Table 1 – Demographics, professional status, and workload.**

Variable		n (N = 243)	% (100%)
Gender	Male	136	56%
	Female	107	44%
Birthplace	Israel	169	69.5%
	Outside Israel	74	30.5%
Sector	Private clinic	160	66.1%
	Public clinic	66	27.3%
	Other	17	6.6%
Employment	Self-employed	153	63.0%
	Salaried employee	80	32.9%
	Other	10	4.1%
Specialisation	None (general dentists)	150	61.7%
	Residents	17	7.0%
	Specialists	76	31.3%
Workload (hours per week)	<20	46	18.9%
	20–40	147	60.5%
	>40	50	20.6%

**Table 2 – Coping styles according to gender (one-way analysis of variance).**

Coping strategy	Male (n = 136)	Female (n = 107)	P
TC (task-focused coping)	29.49 ± 3.83	29.59 ± 3.36	.82
EC (emotion-focused coping)	15.50 ± 5.23	17.31 ± 5.78	.01
AC (avoidance-focused coping)	12.21 ± 4.65	13.38 ± 4.20	.04

(Table 3). The EC and AC coping styles were negatively correlated with age and years of work experience. No correlations were found between the TC coping style and any of the other professional or demographic factors (Table 5).

The CISS-SSC subscales correlated with the ProQOL subscales as follows: TC was negatively correlated with BO and STS and positively correlated with CS. EC was positively

**Table 3 – Coping styles according to participants' professional speciality.**

Coping strategy	General practitioners (n = 150)	Specialists and residents (n = 93)	P
TC (task-focused coping)	29.59 ± 3.90	29.45 ± 3.15	NS
EC (emotion-focused coping)	16.47 ± 5.73	16.02 ± 5.24	NS
AC (avoidance-focused coping)	12.64 ± 4.49	12.86 ± 4.50	NS

**Table 4 – ProQOL5 factors: total values and gender comparisons.**

	Total score (N = 243)	Male (n = 136)	Female (n = 107)	P
Burnout	23.08 ± 5.62	23.22 ± 5.81	22.90 ± 5.39	NS
Secondary traumatic stress	18.96 ± 6.11	18.75 ± 6.09	19.22 ± 6.17	NS
Compassion satisfaction	39.79 ± 6.87	39.35 ± 7.04	40.34 ± 6.65	NS

Normative data 23-41 for all scales.

correlated with BO and STS and negatively correlated with CS. AC was positively correlated with STS (Table 5).

### Regression analysis

Linear regression analyses were employed to investigate the relationship between different stress coping styles and professional quality of life, as expressed in dentists' BO, STS, and CS. The following factors were entered as possible explanatory factors for each of the ProQOL subscales (BO, STS, and CS): gender, age, years of work experience, specialisation, workload, and the separate scores from the 3 CISS-SSC subscales (TC, EC, and AC; Table 6).

Whilst taking into account all 8 variables included in the model, BO could be explained by higher EC scores and by lower TC and AC scores. An increase of 1 point in the EC score increases the subjects' BO by 0.57 units of the BO standard deviation (SD) value, whilst an increase of 1 point in the TC and the AC scores reduces the BO by 0.14 and 0.12 SDs, respectively. The model explains 35% of BO's variance.

STS could be explained by higher EC scores as well as by having fewer years of experience and a younger age. An increase of 1 point in EC score increases the participants' STS by 0.51 SD, whilst an increase of 1 year in age and/or in years of experience reduces STS by 0.44 and 0.47 SDs, respectively. The model explains 28% of STS's variance.

CS could be explained by lower EC scores and by higher TC and workload scores as well as by specialisation and gender. An increase of 1 point in the EC scale reduces the CS by 0.43 SD, whilst an increase of 1 point in the TC score increases the CS by 0.12 SD. Additional factors included gender (being a female increases participants' CS by 0.19 SD), specialisation (being a specialist increases CS by 0.12 SD), and workload (each additional hour of work per week increases CS by 0.14 SD). The model explained 22% of CS's variance.

### Discussion

The report was designed to analyse the influence of stress coping strategies on dentists' BO, STS, and CS.

Previous studies showed that BO is significantly related to the personality variable of locus of control.<sup>39</sup> DiMatteo et al.<sup>40</sup> showed that dentists' self-reported general life stress, dental practice-related stress, and mental health can be predicted by locus of control, nonverbal expressiveness, age, gender, income, hours worked per year, social desirability, and occupational stress and satisfaction. According to Chipchase et al.<sup>41</sup> dentists' anxiety in clinical situations not only affects

**Table 5 – Pearson correlation coefficients between ProQOL5 factors and coping styles, age, gender, work experience, and specialisation (N = 243).**

	ProQOL			CISS-SSC		
	BO	STS	CS	TC	EC	AC
Burnout (BO)						
Secondary traumatic stress (STS)	0.60**					
Compassion satisfaction (CS)	-0.61**	-0.23**				
Task-focused coping (TC)	-0.19**	-0.13*	0.16*			
Emotion-focused coping (EC)	0.55**	0.50**	-0.39**		-0.10	-0.12
Avoidance-focused coping (AC)	0.11	0.15*	-0.08		0.36**	
Gender	0.01	0.38	0.07	0.01	0.16*	0.13*
Workload (hours per week)	0.07	0.07	0.06	0.06	0.06	0.07
Age	-0.23**	-0.12	0.15*	0.08	-0.28**	-0.23**
Years of experience	-0.20**	-0.08	0.15*	0.1	-0.26**	-0.23**
Specialisation	-0.10	-0.04	0.14*	0.02	-0.10	-0.02

ProQOL, Professional Quality of Life; CISS-SSC, Coping Inventory for Stressful Situations–Situation Specific Coping.

\*  $P < .05$ .

\*\*  $P < .01$ .

the way that dentists work clinically but is also associated with BO and decision-making style.

A previous report from the present study group showed the effects of demographic variables, professional status (eg, specialisation), and workplace stressors (eg, workload) on the different parameters of the professional quality of life (ProQOL), namely, on BO, STS, and CS.<sup>30</sup> In general, the BO and STS scores exhibited by the present study group were at the lower spectrum of the normative range, whilst their CS scores were rather high. This may suggest that this sample of Israeli dentists actually enjoys comparatively good mental well-being in relation to work. The present discussion will focus on the relationships between stress coping styles and the ProQOL domains.

Comparisons of coping styles between men and women report conflicting results. In the present study, women's coping was more emotional and more avoidant than men's. This is in accordance with reports regarding undergraduate

students and community-dwelling adults in the US<sup>34</sup> and the general population in Spain.<sup>42</sup>

Similar to Ayers,<sup>43</sup> who studied New Zealand dentists, but in contrast to Cohan,<sup>34</sup> no differences between genders were found in their tendency towards TC. Possibly, this may be due to the type of person who is drawn to dentistry as a career. It is, however, noteworthy that the differences between genders in the EC and AC subscales reported in the present study are small (<2 points on a total of maximum 35 points per subscale). Although statistically significant, these differences may not be of a clinical/practical difference.

The data also showed a negative correlation between EC and age, unlike a recent work by Kościelak<sup>44</sup> that presented no such association. Whilst preliminary, the results suggest that EC behaviors amongst female dentists tend to decrease with professional experience and prolonged exposure to professional stressors.

**Table 6 – Linear regression analyses for coping styles and demographic variables explaining professional quality of life as expressed in the CS, BO, and STS factors.**

Explanatory variable	Burnout (BO)		Secondary traumatic stress (STS)		Compassion satisfaction (CS)	
	$\beta^{\dagger}$	SE	$\beta^{\dagger}$	SE	$\beta^{\dagger}$	SE
Gender	-0.10	1.16	-0.06	1.22	<b>0.19**</b>	1.29
Age	-0.25	0.18	<b>-0.44*</b>	0.19	0.24	0.19
Years of experience	0.15	0.17	<b>-0.47*</b>	0.18	-0.16	0.19
Workload (hours per week)	0.01	0.90	0.04	0.95	<b>0.14*</b>	1.00
Specialisation	-0.43	0.58	-0.01	0.61	<b>0.12*</b>	0.64
Task-focused coping (TC)	<b>-0.14**</b>	0.15	-0.10	0.16	<b>0.12*</b>	0.16
Emotion-focused coping (EC)	<b>0.57**</b>	0.11	<b>0.51**</b>	0.11	<b>-0.43**</b>	0.12
Avoidance-focused coping (AC)	<b>-0.12*</b>	0.13	-0.03	0.14	0.09	0.14
R <sup>2</sup>	0.35		0.28		0.22	
F	<b>15.97**</b>		<b>11.20**</b>		<b>8.37**</b>	

<sup>†</sup> $\beta$  values of the estimated coefficients of the explanatory variables indicating a change on response variable (BO, STS, CS) caused by a unit change of respective explanatory variable, keeping all the other explanatory variables constant. A negative  $\beta$  value implies that an increase in the independent variable's value leads to reduction in the dependent variable, whilst a positive  $\beta$  value implies that an increase in the independent variable's value leads to an increase in the dependent variable. The influence is expressed through units of standard deviation (SD).

Significant results appear in bold and are marked with asterisks as follows:

\*  $P < .05$ ;

\*\*  $P < .01$ .



Apparently, coping strategies have significant effects on dentists' BO, STS, and CS. In particular, dentists who use more TC experience less BO and less STS and are more satisfied with their work. Dentists who use more EC experience more BO and STS and are less satisfied with their work.

These results are in line with previous research that demonstrated a link between problem-focused coping strategies and reduced BO amongst nurses, mental health workers, and physicians.<sup>5,45-48</sup> The results are also in agreement with studies that suggested that EC strategies are positively correlated with BO.<sup>5,47-49</sup>

In the present study, dentists' AC strategies were correlated with STS, but AC was not related to BO or higher satisfaction at work. Studies amongst dentists suggest that most dentists tend to avoid ambiguity and prefer practical and concrete thinking.<sup>50</sup> Additionally, dentists usually lack awareness of the sources of their stress and have little knowledge concerning how that stress can be managed.<sup>42</sup> Dentists often deny their emotions, including anxiety, and lack awareness of the impact of anxiety on their clinical decisions.<sup>10,51</sup> Chipchase et al.<sup>41</sup> showed that the types of situations causing anxiety amongst dentists include uncertainties in clinical practice, threats to sense of control, challenging patients, and ethical dilemmas.

It seems that dentists who direct their actions to affect the situation and to reduce the stress it evokes experience less BO and STS and consequently are more satisfied with their work. On the other hand, dentists who direct their efforts towards emotionally reframing the problem experience more BO and STS and are less satisfied with their work. It is, however, important to point out that not all TC is good and all EC is necessarily bad. Coping strategies are broader concepts than the items on the CISS questionnaire. Self-awareness can bear positive effects in some instances and be inappropriate in others. A qualitative study by Bretherton et al.<sup>11</sup> showed that dentists experience a large variety of stressful situations and that coping mechanisms that are likely to be useful in one set of circumstances may not be helpful in another.

Norms of the ProQOL scales, as set by the ProQOL manual, range between 23 and 41.<sup>27</sup> In a study conducted on emergency medicine physicians in Egypt, the CS, BO, and STS scales showed scores of around 30 in all 3 scales.<sup>32</sup> In a study carried out amongst Spanish and Brazilian palliative care professionals, mean STS scores were around 12.5 and 14, respectively.<sup>52</sup> In the present study, the mean STS score of the study population was about 19. This is slightly lower than the STS scores reported by Nangle et al.<sup>17</sup> (around 20) for English dental professionals and dental students. Comparing the STS scores of the present population to other professions should be evaluated carefully because a range of research has been performed studying various caring professionals, including professionals who experienced exposure to severe trauma that was more difficult to cope with than that of the dentists'. Thus, there is no way of judging dentists' STS in comparative terms. It seems, however, that dentists' STS levels tend to be at the lower range of the accepted STS scores.

This is a continuous report of a wider study that evaluates the effect of personal factors on BO, STS, and work satisfaction amongst Israeli dentists.<sup>30</sup> Previous results showed that the sensory processing sensitivity, a trait expressing

sensitivity to internal and external stimuli, is closely associated with dentists' BO and satisfaction at work.<sup>30</sup> The present results show that coping strategies (and to a lesser degree some demographic and professional factors) have buffering or amplifying effects on dentists' professional quality of life in general and BO in particular. It seems that stress in dentistry is not necessarily expressed directly through BO or work satisfaction. Mediation by personality factors such as sensory processing sensitivity and by some demographic and professional factors can act as triggers for the development of BO and STS and alter work satisfaction.

Future research can help us consolidate these findings and formulate them as information that can be used to build specific BO prevention programmes. Such programmes, if integrated into the dental school curriculum, can help future dentists become more resistant to interpersonal work-related stressors.

### Study limitations

The study was carried out as a cross-sectional study with a relatively low (49%) response rate. Moreover, the dentists in the present study exhibited BO and STS values that are towards the bottom of the normative range and reported top-of-the-range scores for CS. As such, the study sample might not be representative of dental practitioners in general. Apparently, the study included 2 levels of self-selection which may have influenced the results: (1) individuals who missed the original announcement and (2) those who encountered it but chose not to respond. Possibly those who completed the questionnaire were those who saw themselves as more resilient to BO.

A study of associations amongst variables under such conditions should be considered with caution. Additionally, using the CISS-SSC questionnaire to assess coping styles enables looking only at generic coping strategies and does not necessarily represent the one used to cope "in the moment" in the clinic. Further research should be conducted by using wider definitions of coping styles and possibly recording coping modes "in vivo," namely in the dental office itself. Furthermore, there is a need for an in-depth examination of why different coping modes are used by dentists and whether key psychological factors, such as controllability of the dental situation, play a role in the reduction of BO and STS and improvement of work satisfaction.

### Conclusions

Repeated studies have shown that people handle working conditions and work stress differently. The present findings suggest that emotional coping may lead dentists to be vulnerable to BO and to STS.

### Acknowledgements

The research was supported by a research grant from the Goldschleger School of Dental Medicine, Tel Aviv University.

## Conflict of interest

None disclosed.

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