

# Stress or Relief of Stress—Burnout in Pediatric Oncology Health Workers\*

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The objective of the study was to examine the impact of stress factors and relief factors on burnout in health professionals working in a pediatric oncology institute. There were 63 participants of both genders. They were administered anonymously questionnaires assessing sources of stress, sources of relief, perceived stress, quality of life, the Maslach burnout inventory, the Shirom-Melamed measure of burnout and Compassion fatigue. The results showed that stress and relief factors contributed to burnout together, but more often singly; that relief was a relatively more dominant factor in regard to burnout than stress; that the major sources of stress affecting burnout were stress due to family and daily issues; and that the major sources of relief were interacting with people and engaging in bodily activities. Major sources of stress for workers do not reside in the conditions of work but in other domains. Hence, organizational changes do not seem to be the conclusive remedy for reducing stress but perhaps some kind of psychosocial support addressing family and daily life worries. A further means for reducing burnout at work is cultivating various means of relief, major among which are interactions with others and bodily activities (e.g., sport).

*Keywords:* burnout, quality of life, stress, healthcare workers, compassion fatigue, pediatric oncology

## Introduction

The concept “burnout” was first used already in the 1970s (Freudenberg, 1974) in order to describe the state of emotional exhaustion, frustration, alienation and reduced work motivation that may occur in individuals working in helping professions. However in recent years it has evoked increased interest and concern because of its prevalence and consequences. It has been identified in health professionals of different domains, including physicians, nurses and paramedical workers (social workers, psychologists and art therapists), dealing with different kinds of patients, including children, mental health patients, geriatric patients

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and others (Ahola et al., 2009; Khamisa, Peltzer, & Oldenburg, 2013; Ptacek et al., 2013). The major manifestations of burnout are emotional, cognitive, social and motivational, as assessed by inventories, such as those devised by Maslach (1982) and by Shirom and Melamed (Shirom, 2003). Health professionals with burnout experience increased stress, exhaustion and compassion fatigue, as well as increased difficulties in doing their work (Maslach, Schaufeli, & Leiter, 2001). The consequences of burnout include affective tendencies, such as enhanced anxiety, anger and depression (Lliceto et al., 2013), cognitive difficulties (Deligkaris, Panagopoulou, Montgomery & Masoura, 2014), increased alcohol and drug consumption (Ahola et al., 2009), as well as physical symptoms, such as impaired reactivity of the immune system, increased cardiological, circulatory and digestive system symptoms and other diseases that may be responsible for more frequent sick-leave requests and absenteeism, and may possibly even contribute to increased mortality (Bargellini et al., 2000; Peterson, Demerouti, Bergström, Asberg, & Nygren, 2008; Shirom, Melamed, Toker, Berliner, & Shapira, 2006; Shirom, Toker, Alkaly, Jacobson, & Berliner, 2011).

Different determinants of burnout have been discussed in the literature. Many of the determinants are job-related and concern issues, such as time pressure, low salaries, multiple demands, or insufficient recognition of one's investments and achievements on the part of the management (Schaufeli & Bakker, 2004). Other factors that have been studied focus on the particular stresses in the health care context. Health care workers often deal with the most intense emotional manifestations of human beings in situations that may involve pain, suffering, fear, anxiety and death. Exposure to emotions of this kind tend to evoke similar emotional responses in the observers mediated by mirror-neurons and empathic tendencies (Rizzolatti & Craighero, 2004). Some are related to severe traumata that have been shown to produce secondary traumata in the helpers (Shiri, Wexler, Alkalay, Meiner, & Kreitler, 2008). Additionally, health care workers are required by the nature of their work to provide help to the patients, that involves emotional participation and giving of oneself (Maslach, 1982). A further factor that may exacerbate the distress of the health worker is related ideals and ideology. The health profession tends to cultivate the ideals of helping and supporting others. Hence, if a health professional has burnout that generates alienation from patients and cynicism toward suffering, the stress of the burnout may be exacerbated by the frustration of being unable to live up to one's ideals (Gabel, 2013). Thus, burnout is considered as a serious factor for attrition of the skilled and highly educated experts in the health professions, the need for whom increases in view of the increase in population and expansion of the need for health services.

The described situation called for the development and application of means for combatting burnout. This trend has become central in the emerging tendency of caring for the caregiver (Penson, Dignan, Canellos, Picard, & Lynch, 2000). A great variety of programs have been tried and studied. Notably, the majority of these means focus on the stress itself, in an attempt to moderate, combat, reduce or cope with it. This is the conception underlying attempts, such as improving work conditions for example by reducing working hours or giving the workers increased decision possibilities (Bourbonnais, Brisson, & Vézina, 2011; Jones, Wells, Gao, Cassidy, & Davie, 2013; Melamed, Kushnir, & Meir, 1991); teaching health professionals mindfulness (Irving, Dobkin & Park, 2009) and other coping skills (McGarry et al., 2013; Zolnierczyk-Zreda, 2011); providing peer support sessions (Eagle, Creel, & Alexandrov, 2012), trauma therapy (Deville, Wright, & Varker, 2009), emotion-oriented care (Schrijnemaekers et al., 2002) or behavior management (Carnevale, Anselmi, Busichio, & Millis, 2002).

Reviews of the major strategies of intervention for reducing burnout show that most are based on organizational changes and only a few are directed at the individual (Malgorzata, Merez, & Drabek, 2010). Both kinds show positive results in reducing burnout to some extent, but the positive effects require refreshers and last only for limited periods of time, actually less than a year (Awa, Plauman, & Walter, 2010).

It appears that the common intervention methods for reducing burnout in health professionals are effective to some extent but their maintenance requires a lot of effort, continuous investment and frequent refreshers. There may possibly be other procedures for reducing burnout, based on another kind of approach. The present study is an attempt to explore the possibility for affecting burnout not by attacking the phenomenon of stress but by counteracting it through another force. This force is hypothesized to be relief of stress. The reported study assesses the strength of stressors and relief producing factors, relative to each other in order to examine the possibility of combatting the former by means of the latter.

## **Materials and Methods**

### **Participants**

The sample included only health professionals employed in a children's pediatric institute specializing in hemato-oncology. The number of subjects was 63 (84.1% women, 14.3% men). Their mean age was 38.80 years ( $Sd = 10.16$ ), whereby 50% were in the age range of 23-34, and the rest in the range of 35-66 years. 87.3% were born in Israel and the rest immigrated from Russia (9.5%) or the U.S. and other countries (3.2%). 66.7% were married, and 66.6% had children (mean = 1.5,  $Sd = 1.5$ , range 1-7). The sample included 22.2% physicians, 41.3% nurses, 11.1% psychosocial therapists, and 14.3% research and other assistants. 98.6% had higher academic degrees (30.2% MD. or PhD, 23.8% a master's degree, and 44.5% a B.A. degree). They have been working in the institute for a mean of 9.04 years ( $Sd = 8.5$ ). The major part of their work was devoted to treatment of children (65.1% devoted 100% of their time to treatment, and another 25.4% 75% of their time). The sample was a convenience sample, and included individuals who responded to the questionnaires during the period of time (3 months) allotted for the study.

### **Tools**

The following questionnaires were administered to all participants unanimously: (1) A questionnaire of demographic background information (e.g., gender, age, profession and further variables described in "Participants"); (2) A questionnaire about stress and relief. The part that dealt with sources of stress included 41 items, each with 4 response alternatives concerning the degree to which it evokes stress in the respondent: "does not evoke any stress" (= 1) to "evokes a lot of stress" (= 5). The items referred to stressors at work (e.g., not being esteemed enough), in the family (e.g., relations with spouse), in daily life (e.g., difficulties with friends), and personal issues (e.g., health concerns). The other part that dealt with sources of relief included 32 items, each with alternatives concerning the degree to which it provides the respondent relief from stress: "certainly not" (= 1) to "certainly yes" (= 4). The items referred to states or activities referring to body activities (e.g. engaging in some sports activity), intellectual and entertainment acts (e.g., going to the theater, performing some artistic activity), interactions with people (e.g., meeting friends, spending time with the family), emotional acts (e.g., blaming others, shouting) and satisfying physical needs (e.g., sleeping, eating, drinking alcohol). The questionnaire has been validated and pretested for this study. (3) The questionnaire of

perceived stress (Cohen, Kamarck, & Mermelstein, 1983), which includes 10 items with 5 response alternatives concerning the frequency of experiencing various stressful states in the last month: never (= 0) to very often (= 4). It provides a total score and scores on two separate factors defined by the 10 items of the questionnaire: the first represents the experienced loss of control over events, and the second represents the experienced inability to handle one's life. (4) The Multidimensional Inventory of Quality of Life—short version (S. Kreitler & M. M. Kreitler, 2006) which includes 21 items, each with four response alternatives concerning frequency of occurrence during the last month: None at all (= 1) to there was a lot (= 4). It provides a total score and scores on two separate factors: the first represents quality of life dependent on one's feelings (e.g., fear, depression, enjoyment), and the second represents quality of life dependent on one's actions (e.g., taking care of oneself, performing tasks in the family and in daily life). (5) The Maslach Burnout Inventory (1982) which includes 32 items, with 7 response alternatives concerning the frequency of occurrence: never (= 1) to every day (= 7). It provides a total score and scores on three scales: emotional exhaustion, depersonalization and personal accomplishment; (6) The Shirom-Melamed Burnout Scale (Shirom, 2003), which includes 15 items, with 7 response alternatives concerning the frequency of occurrence: almost never (= 1) to almost always (= 7). It provides a total score and scores on three scales: physical fatigue, emotional exhaustion and cognitive weariness. (7) Compassion Fatigue test (Stamm, 2002), which includes 30 items, with 6 response alternatives concerning the frequency of occurrence: never (= 1) to very often (= 6). It provides a total score and scores on three scales: compassion satisfaction, burnout and secondary traumatic stress.

## Results

### Structure of the Variables

There were two groups of variables in the study: (1) The independent variables representing the sources of stress (four scores: work, family, daily life, personal issues) and of relief (five scores: body, intellectual and entertainment, people, emotional acts, physical needs); (2) The dependent variables representing the scores of the total sums and of the scales in the questionnaires of perceived stress, quality of life, Maslach burnout inventory, Shirom-Melamed burnout measure and compassion fatigue (see Table 1 for the means, Sds and reliability coefficients).

Table 1

*Means and Sds and Cronbach's Alpha Coefficients of the Major Stress Variables, Relief Variables and Dependent Variables*

Variables	No. of items	Means	Sds	Cronbach's alpha
Independent variables				
<b>Sources of stress questionnaire</b>				
Scale 1. Stress due to work	18	2.112	0.429	0.835
Scale 2. Stress due to family	8	2.067	0.580	0.846
Scale 3. Stress due to daily life	6	2.240	0.621	0.812
Scale 4. Stress due to personal issues	7	2.184	0.570	0.810
<b>Sources of stress relief questionnaire</b>				
Scale 1. Body activities	7	2.664	0.672	0.739

(Table 1 continued)

Variables	No. of items	Means	Sds	Cronbach's alpha
Scale 2. Intellectual & Entertainment	13	2.862	0.566	0.831
Scale 3. People	4	3.208	0.573	0.635
Scale 4. Emotional acts	2	1.999	0.788	0.684
Scale 5. Satisfying physical needs	5	2.417	0.674	0.666
Dependent variables				
<b>Perceived stress</b>				
Factor 1: Loss of control over events	4	3.094	0.351	0.865
Factor 2: Inability to handle one's life	6	3.569	0.259	0.812
Total scale	10	2.703	0.622	0.824
<b>Quality of Life</b>				
Factor 1: Emotional	9	3.094	0.351	0.756
Factor 2: Actional	11	3.569	0.259	0.748
Total scale	20	3.355	0.240	0.786
<b>Maslach Burnout Inventory (MBI)</b>				
Scale 1: Emotional exhaustion	10	3.305	1.082	0.865
Scale 2: Depersonalization	11	1.933	0.687	0.800
Scale 3: Personal accomplishment	11	2.538	0.618	0.675
Total scale	32	2.592	0.671	0.895
<b>Shirom-Melamed Burnout Measure (SMBM)</b>				
Scale 1. Physical fatigue	5	2.840	0.851	0.814
Scale 2. Emotional exhaustion	5	2.428	1.048	0.936
Scale 3. Cognitive weariness	5	2.538	1.083	0.955
Total scale	15	2.602	0.955	0.967
<b>Compassion fatigue</b>				
Scale 1. Compassion satisfaction	10	4.625	0.884	0.926
Scale 2. Burnout	8	2.760	0.733	0.777
Scale 3. Secondary traumatic stress	10	2.471	0.851	0.882
Total scale	28	3.504	0.451	0.783

*Note.* In the first column, "factor" represents scores based on scales defined on the basis of exploratory factor analyses, and "scale" represents scores defined in line with the authors responsible for the inventories.

In order to examine the relations between the independent variables and the dependent ones it was first necessary to determine the structure of the two sets of variables, on the basis of their internal interrelations.

Table 2 presents the results of the factor analysis of the two independent variables: sources of stress and of relief. The results show that the two variables are completely separate and form two distinct factors, each of which accounts for about 30% of the variance.

The dependent variables included various measures and aspects of burnout and stress. Table 3 presents the results of the factor analysis of the *total scores* in the five questionnaires used in the assessment of burnout and stress: Perceived Stress, Quality of Life, Maslach burnout inventory, Shirom-Melamed burnout measure, and

Compassion fatigue. The results show that the five measures define two separate factors: The first represents burnout, as defined by the two burnout measures of Maslach and Shirom-Melamed, the second represents experienced stress.

Table 2

*Factor Analysis of the Scales in the Sources of Stress and Sources of Stress Relief Questionnaires*

Variables	Factor 1	Factor 2
(Relief) Intellectual & Entertainment	<b>0.931</b>	-0.016
(Relief) Satisfying physical needs	<b>0.774</b>	0.123
(Relief) Body	<b>0.696</b>	0.163
(Relief) People	<b>0.654</b>	0.082
(Relief) Emotional	<b>0.639</b>	0.124
(Stress) Personal	0.109	<b>0.853</b>
(Stress) Work	0.011	<b>0.852</b>
(Stress) Daily life	0.181	<b>0.766</b>
(Stress) Family	0.133	<b>0.754</b>
Eigenvalues	2.850	2.671
Per cent of explained variance	31.663%	29.694%

*Note.* Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. The numbers in the columns represent the factor loadings. The numbers printed in bold are the highest loadings in the factor that constitute the basis for defining the factor's contents. Total explained variance 61.357%.

Table 3

*Factor Analysis of the Total Scores of the Dependent Variables: Maslach Burnout Inventory, Shirom-Melamed Burnout Measure, Quality of Life, Compassion Fatigue and Perceived Stress*

Variables	Factor 1	Factor 2
Maslach Burnout Inventory	<b>0.900</b>	0.030
Shirom-Melamed Burnout Measure	<b>0.849</b>	-0.333
Quality of Life	<b>-0.631</b>	-0.201
Compassion Fatigue	-0.099	<b>0.872</b>
Perceived Stress	0.538	<b>0.555</b>
Eigenvalues	2.228	1.329
Per cent of explained variance	44.565%	24.418%

*Note.* Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. The numbers in the columns represent the factor loadings. The numbers printed in bold are the highest loadings in the factor that constitute the basis for defining the factor's contents. Total explained variance 68.983%.

In order to be able to get a more precise and detailed image of the effects on burnout, a separate factor analysis was performed on all the *subscales* of the burnout and stress scales: the scores in the factors of the questionnaires of perceived stress and quality of life and the scales of the three measures of Maslach, Shirom-Melamed and Compassion fatigue. Table 4 shows that the 13 subscales define three factors: The first represents functional burnout, the second represents low compassion, and the third represents negative effects in regard to one's quality of life.

Table 4

*Factor Analysis of the Component Scores of the Dependent Variables: Maslach Burnout Inventory, Shirom-Melamed Burnout Measure, Quality of Life, Compassion Fatigue and Perceived Stress*

Variables	Factor 1	Factor 2	Factor 3
Shiron-Melamed: (3) Cognitive weariness	<b>0.940</b>	0.002	0.122
Shirom-Melamed: (2) Emotional exhaustion	<b>0.929</b>	-0.020	0.105
Shiron-Melamed: (1) Physical fatigue	<b>0.922</b>	0.056	0.123
Maslach: (2) Depersonalization	<b>0.770</b>	0.150	0.240
Maslach: (3) Personal accomplishment	<b>0.750</b>	0.339	0.129
Compassion fatigue: (2) Burnout	0.176	<b>0.884</b>	0.181
Compassion fatigue: (3) Secondary traumatic stress	-0.110	<b>0.861</b>	0.128
Compassion fatigue: (1) Compassion satisfaction	-0.330	<b>-0.703</b>	0.317
Perceived stress: (2) Inability to handle one's life	-0.029	0.126	<b>0.824</b>
Quality of life: (1) Emotional	-0.275	0.023	<b>-0.626</b>
Maslach: (1) Emotional exhaustion	0.548	0.201	<b>0.552</b>
Quality of life: (2) Actional	-0.093	0.041	<b>-0.547</b>
Perceived stress: (1) Loss of control	-0.265	-0.215	<b>-0.294</b>
Eigenvalues	4.362	2.262	2.026
Per cent of explained variance	38.551	17.403	15.586

*Note.* Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. The numbers in parentheses in the first column represent the order of the variables in Table 1. The numbers in columns 2-4 represent the factor loadings. The numbers printed in bold are the highest loadings in the factor that constitute the basis for defining the factor's contents Total explained variance is 66.539%.

### Regression Analyses with Sources of Stress and Sources of Stress Relief as Predictors

Tables 5 and 6 present the results of the regression analyses with the sources of stress and relief factors as predictors and the measures of perceived stress, quality of life, Maslach burnout inventory, Shirom-Melamed burnout measure and Compassion fatigue as dependent measures.

Table 5

*Results of Regression Analysis With the Scales of Sources of Stress and Sources of Stress Relief as Predictors and the Component Scales or Total Scores of Perceived Stress, Quality of Life, Maslach Burnout Inventory, Shirom-Melamed Burnout Measure and Compassion Fatigue as Dependent Variables*

Dependent variables	Predictors with significant contributions	Beta	B	SE	T	F (df = 9.53)	R <sup>2</sup>
Perceived stress							
Factor 1: Loss of control	None	0.393	0.508	0.216	2.353 (p = 0.022)	1.521 (p = 0.165)	0.205
Factor 2: Inability to handle one's life	Stress: Family	0.378	0.499	0.214	2.332 (p = 0.024)	1.967 (p = 0.062)	0.250
Total scale	Stress: Family	0.469	0.503	0.168	2.990 (p = 0.004)	2.493 (p = 0.019)	0.297

(Table 5 continued)

Dependent variables	Predictors with significant contributions	Beta	B	SE	T	F (df = 9.53)	R <sup>2</sup>
Quality of Life							
Factor 1: Emotional	Stress: Daily life	0.414	0.234	.089	-2.619 (p = 0.011)	2.480 (p = 0.019)	0.296
	Relief: People	0.364	0.223	.093	2.390 (p = 0.020)		
Factor 2: Actional	Stress: Personal issues	0.368	-0.167	0.090	-1.849 (p = 0.070)	1.566 (p = 0.150)	0.210
	Stress: Daily life	0.294	0.123	0.070	-1.759 (p = 0.084)		
	Relief: People	0.277	0.125	0.073	1.719 (p = 0.090)		
Total scale	Stress: Daily life	0.446	0.173	0.059	-2.912 (p = 0.005)	3.029 (p = 0.005)	0.340
	Relief: People	0.403	0.169	0.062	2.731 (p = 0.009)		
Maslach Burnout Inventory (MBI)							
Scale 1: Emotional exhaustion	Stress: Work	0.324	0.944	0.502	1.881 (p = 0.065)	1.880 (p = 0.075)	0.242
	Stress: Daily life	0.292	0.509	0.286	1.781 (p = 0.081)		
	Relief: Body	0.413	0.664	0.370	-2.150 (p = 0.036)		
Scale 2: Depersonalization	Relief: People	0.369	0.377	0.190	-1.989 (p = 0.052)	2.415 (p = 0.022)	0.291
Scale 3: Personal accomplishment	Relief: Emotional	0.269	0.211	0.119	1.764 (p = 0.080)	0.903 (p = 0.529)	0.133
Total scale	Relief: Body	0.402	0.402	0.189	-2.123 (p = 0.038)	2.076 (p = 0.048)	0.261
Shirom-Melamed Burnout Measure (SMBM)							
Scale 1. Physical fatigue	Relief: People	0.321	0.476	0.234	2.032 (p = 0.047)	1.900 (p = 0.072)	0.244
Scale 2. Emotional exhaustion	Relief: Body	0.418	0.652	0.299	-2.178 (p = 0.034)	1.865 (p = 0.078)	0.241
Scale 3. Cognitive weariness	Relief: People	0.327	0.618	0.327	2.079 (p = 0.042)	1.962 (p = 0.063)	0.250
Total scale	Relief: Body	0.359	0.510	0.271	-1.884 (p = 0.065)	1.986 (p = 0.059)	0.252
	Relief: People	0.299	0.497	0.261	1.902 (p = 0.063)		
Compassion fatigue							
Scale 1. Compassion satisfaction	None					0.608 (p = 0.785)	0.094
Scale 2. Burnout	None					0.909 (p = 0.525)	0.134
Scale 3. Sec. traumatic stress	None					1.599 (p = 0.140)	0.214
Total scale	Stress: Family	0.286	0.222	0.117	1.902 (p = 0.063)	3.226 (p = 0.003)	0.340



Table 5 provides a more detailed view of the specific effects of the sources of stress and relief. It shows that concerning perceived stress, there is only one source of stress and this is the family. It increases significantly the total score of perceived stress and to a somewhat lesser extent the two separate factors of loss of control over events and experienced inability to handle one's life. The stress due to family accounts for about 30% of the variance in experienced stress. There is no significant effect of any relief source.

Table 6

*Results of Regression Analyses With the Factors of Stress Sources and Relief Sources as Predictors and the Factors Based on the Total Scores or Component Scales of Perceived Stress, Quality of Life, Maslach Burnout Inventory, Shirom-Melamed Burnout Measure and Compassion Fatigue as Dependent Variables*

Dependent variables	Predictors based on the factors of relief sources and stress sources	Beta	B	SE	T	F	R <sup>2</sup>
Factors based on total scores <sup>a</sup>							
Factor 1a: Burnout	Factor 1: Relief sources	0.023	0.023	0.118	0.192 (p = 0.848)	5.827 (df = 2.60) (p = 0.005)	0.163
	Factor 2: Stress sources	0.403	0.403	0.118	3.408 (p = 0.001)		
Factor 2a: Experienced stress	Factor 1: Relief sources	0.261	0.261	0.113	2.317 (p = 0.024)	9.315 (df = 2.60) (p < 0.000)	0.237
	Factor 2: Stress sources	0.411	0.411	0.113	3.642 (p = 0.001)		
Factors of dependent variables based on scale scores <sup>b</sup>							
Factor 1b: Functional burnout	Factor 1: Relief sources	-0.004	-0.004	0.128	-0.033 (p = 0.974)	0.528 (df = 2.62) (p = 0.592)	0.017
	Factor 2: Stress sources	0.131	0.131	0.128	1.028 (p = 0.308)		
Factor 2b: Low compassion	Factor 1: Relief sources	0.206	0.206	0.126	1.633 (p = 0.108)	1.526 (df = 2.62) (p = 0.226)	0.048
	Factor 2: Stress sources	0.078	0.078	0.126	0.621 (p = 5.37)		
Factor 3b: Neg. effects on quality of life	Factor 1: Relief sources	0.060	0.060	0.109	0.549 (p = 0.585)	12.323 (df = 2.62) (p < 0.000)	0.291
	Factor 2: Stress sources	0.536	0.536	0.109	4.934 (p < 0.000)		

(Table 6 continued)

Dependent variables	Predictors based on the factors of relief sources and stress sources	Beta	B	SE	T	F	R2
Factors based on total scores <sup>a</sup>							
Factor 1a: Burnout	Factor of relief sources minus factor of stress sources	-0.269	-0.190	0.087	-2.178 (p = 0.033)	4.745 (df = 1.61) (p = 0.033)	0.071
Factor 2a: Experienced stress	Factor of relief sources minus factor of stress sources	-0.106	-0.075	0.090	0.830 (p = 0.410)	0.688 (df = 1.61) (p = 0.410)	0.011
Factors of dependent variables based on scale scores <sup>b</sup>							
Factor 1b: Functional burnout	Factor of relief sources minus factor of stress sources	-0.096	-0.068	0.090	0.567 (p = 0.454)	-0.753 (p = 0.454)	0.009
Factor 2b: Low compassion	Factor of relief sources minus factor of stress sources	0.090	-0.064	0.090	0.499 (p = 0.483)	0.706 (p = 0.483)	0.008
Factor 3b: Negative effects on quality of life	Factor of relief sources minus factor of stress sources	-0.337	-0.238	0.085	7.817 (p = 0.007)	-2.796 (p = 0.007)	0.114

Notes. <sup>a</sup> The factors are based on factor analyses presented in Table 3; <sup>b</sup> The factors are based on factor analyses presented in Table 4.

Concerning quality of life both the source of stress (i.e., daily life issues) and relief (i.e. interactions with people) have significant contributions (negative and positive, respectively) to determining the overall level of quality of life (accounting for 34% of the variance), and especially of the factor representing the emotional component. In regard to the action-based component of quality of life the same effects are evident but they are not quite significant.

Concerning the Maslach burnout inventory, the scale of emotional exhaustion was affected positively by the relief factor of body and slightly (borderline significance) negatively by stress of work and daily issues; the scale of depersonalization was affected positively only by the relief factor of interacting with people; the scale of personal accomplishment manifested a non-significant tendency to be affected positively by the relief factor emotional acts; and the total score was affected positively by the relief factor of body activities.

Concerning the Shirom-Melamed measure, there were significant effects only for relief factors: the scale of fatigue was affected positively by interacting with people; the scale of emotional exhaustion, by body activities; the scale of cognitive weariness, by interacting with people; and the total score, manifested non-significant tendencies to be affected positively by body activities and interacting with people.

Concerning compassion fatigue, the only finding is a non-significant tendency of a negative effect by family stress on the total score.

In contrast to Table 5, Table 6 deals only with variables based on factor analyses, namely, more general and summative variables. The first set of results concerns the factors of burnout and experienced stress based on factor analyses of the total scores in the five dependent measures. The results show that in regard to the

burnout factor, there is a significant and negative effect only by the overall sources of stress factor. Concerning the factor of experienced stress that relates more to quality of life, there are significant effects for both the overall sources of stress factor and the overall relief factor. Examining the results of the regression analyses for the factors of dependent variables based on scales, there is a significant effect of the overall sources of stress factor only in regard to the negative effects on quality of life (factor 3).

The final part of Table 6 (the last five rows of findings) examines the effects on the dependent variables of an index independent variable, computed by detracting the stress factor from the relief factor (both presented as standardized scores). This analysis was done in order to enable considering the findings from the point of view of the individual. The results show that when the factor of stress is bigger than that of relief there is a negative effect on burnout, that concerns mainly work. Further, when the factor of relief is bigger than that of stress, there is a significant effect on one's quality of life, reducing its negative components.

### **Discussion**

The study examined the effects of sources of stress and of relief on different aspects of burnout. Both the independent sources of stress and of relief and the dependent manifestations of burnout were considered in terms of total summative factors and from the point of view of specific scales, aspects or domains. This approach enabled a comprehensive analysis of the complex interrelations between stress, relief and burnout.

One important finding concerns the independence of the two independent factors in this study: the sources of stress and the sources of relief. This shows that each of these factors exists independently in the individual and each may be considered, dealt with or promoted independently of the other. Thus, for example, if an individual has a strong stress factor, this does not imply anything about his or her relief factor, and vice versa.

A second important finding of the study is that some domains of work and life are affected by both factors of stress and relief and some only by one of these factors. Thus, overall quality of life and especially the emotional component of quality of life (Table 5), as well as the overall experienced stress (Table 6) are affected by both the factors of stress and of relief. However, there are aspects affected only by one of the factors. Thus, perceived stress, both in terms of the total score as well as in terms of its two components of loss of control over events and experienced inability to handle one's life are affected only by the stress factor. Additionally, there is a not quite significant tendency of stress to affect negatively the burnout in terms of Maslach's scale of emotional exhaustion and the total score of compassion fatigue (Table 5), and a significant effect of the stress factor alone on the negative effects of quality of life (Factor 3, Table 5) and on overall burnout (Table 6).

There are also domains affected only by the relief factor: Each of the three scales of the Maslach measure and its total score, as well as each of the three scales of the Shirom-Melamed scales and its total score (Table 5) and the factor of negative effects of quality of life (Table 6).

Thus, the results indicate that there are only three dependent variables affected significantly by both the stress and the relief factors, in contrast to five variables affected significantly only by stress and nine dependent variables affected positively only by the relief factors. One conclusion thereof is that stress and relief do not necessarily act conjointly. A second conclusion is that relief may have a broader range of effects on burnout than stress.

Finally, let us consider the specific components of stress and of relief that affect burnout. Notably, the surprising finding is that only two aspects of stress were found to affect burnout significantly or almost significantly: These are stress due to family (in three cases) and daily life issues (in four cases). The former

affected significantly perceived stress, and the latter—quality of life. Work had a not quite significant effect on the scale of emotional exhaustion of the Maslach measure.

No less surprising are the findings concerning the components of relief that have significant beneficial effects: there were seven cases where interacting with people had a significant beneficial effect and four cases in which engaging in bodily activity had such an effect. None of the other components of relief had any significant effect on burnout.

The major implications of the study are that burnout at work is a function of both exposure to stress and to relief factors, whereby each of these two factors has an independent effect and each may play the dominant role in regard to one or another domain of burnout. In the framework of the study, the relief components seemed to play a more crucial role than the stress factors. Additionally, the major sources of stress were identified as family life and daily issues, whereas the major sources of relief were identified as interacting with people and engaging in bodily activities.

The results indicate that combatting burnout at work should best be handled by encouraging the health professionals to engage in the relief-producing acts—interacting with people and bodily activities.

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