

# Predictors and Correlates of Burnout in Residents Working With Cancer Patients

Isabelle Bragard · Anne-Marie Etienne · Yves Libert · Isabelle Merckaert ·  
Aurore Liénard · Julie Meunier · Nicole Delvaux · Isabelle Hansez · Serge Marchal ·  
Christine Reynaert · Jean-Louis Slachmuylder · Darius Razavi

Received: 23 September 2009 / Accepted: 8 January 2010 / Published online: 26 February 2010  
© Springer 2010

**Abstract** There are few studies which have investigated variables associated with the development of burnout among residents working with cancer patients. The aim of this study is to identify variables leading to residents' burnout in order to develop effective interventions. Burnout was assessed with Maslach Burnout Inventory. Person- (i.e., emotional-focused coping) and work-related (i.e., changes in lack of organizational support index) variables explain 28% of the variance in changes in emotional exhaustion. Training programs may be improved by adding specific

modules for residents, about problem-focused coping in interviewing patients, and for supervisors, about effective team management.

**Keywords** Predictors · Correlates · Burnout · Residents · Cancer

## Introduction

Burnout is defined by three dimensions: emotional exhaustion (feeling emotionally spent), depersonalization (displaying a detached attitude toward patients), and personal accomplishment (experiencing a low sense of efficacy at work) [1]. Literature focusing on residents' burnout is relatively scarce [2]. Widely varying burnout rates are reported among residents ranging from 18% to 82% depending on burnout criterion used [2]. Some person- and work-related variables are reported to be related to residents' burnout. Among person-related variables, being male [3], young [4], unmarried [5] and introverted [6] have been reported to be weakly or moderately related to residents' burnout. Other variables such as stress about delivering bad news are reported by residents as preventing them from being effective in their roles [7] and may thus also contribute. Among work-related variables, organization-related variables such as work overload [8] and work-home interference [9] have been reported to be strongly related to residents' burnout.

There are, however, very few studies which have investigated person- and work-related variables associated with residents' burnout changes. In other words, there is a need to identify person- and work-related variables predicting or being associated with burnout in order to develop effective interventions. The aim of this study is to identify

---

Supported by the Fonds National de la Recherche Scientifique—Section Télévie of Belgium and by the C.A.M., training and research group (Brussels, Belgium).

---

I. Bragard (✉) · A.-M. Etienne · I. Hansez  
Faculté des Sciences Psychologiques et de l'Éducation,  
Université de Liège,  
Bld du Rectorat, B33,  
4000 Liège, Belgium  
e-mail: isabelle.bragard@ulg.ac.be

I. Merckaert · D. Razavi  
Université Libre de Bruxelles,  
Brussels, Belgium

Y. Libert · A. Liénard · J. Meunier · D. Razavi  
Institut Jules Bordet,  
Brussels, Belgium

N. Delvaux  
Hôpital Universitaire Erasme,  
Brussels, Belgium

S. Marchal · J.-L. Slachmuylder  
C.A.M. (Training and Research group),  
Brussels, Belgium

C. Reynaert  
Université Catholique de Louvain,  
Louvain-la-Neuve, Belgium

predictors and correlates personal- (socioprofessional, psychological and communicational) and work-related variables—of factors related to burnout in residents.

## Methods

### Subjects and Design

Residents were from various specialties (e.g. oncology, radiotherapy). To be included in this study, residents had to work with cancer patients, speak French, show an interest in a psychological training and be willing to participate in the training program and its assessment. Two assessment times were scheduled at 8-month intervals. The study was approved by the local ethics committee.

### Assessment of Burnout

Residents' burnout was assessed with Maslach Burnout Inventory [10]. This validated French-translated 22-item questionnaire assesses individuals' burnout. It uses a seven-point Likert scale ranging from never (0) to daily (6) assessing the three dimensions of the burnout syndrome with three separate subscales: emotional exhaustion, depersonalization, and personal accomplishment.

### Assessment of Person-Related Variables

Assessment of person-related variables included socio-professional (a socioprofessional data questionnaire), psychological (General Health Questionnaire (GHQ), State-Trait Anxiety Inventory-Trait (STAI-T), and Rotter I-E Scale) and communicational variables (Stress to Communicate Scale, Self-Efficacy Scale, Ways of Coping Checklist (WCC) and Assessment of Communication Skills).

*Socioprofessional Data Questionnaire* Data were collected about resident's age, gender, marital status, medical specialty, years of work experience, whether or not they have had previous communication and/or stress management training in the last year.

*GHQ* [11] This validated French-translated 28-item questionnaire assesses short-term changes in mental health. It uses a four-point Likert scale ranging from "better than usually" (0) to "much less than usually" (3). Factor analysis showed four main factors: somatic symptoms, anxiety, social dysfunction, and depression.

*STAI-T* [12] This validated French-translated 20-item questionnaire measures general trait anxiety, referring to

relatively stable individual differences in anxiety-processes. It uses a four-point Likert scale ranging categories from "almost never" (1) to "almost always" (4).

*Rotter I-E Scale* [13] This validated French-translated 30-item questionnaire measures residents' locus of control (LOC), referring to their perceived ability to influence events in their own life. This scale has a scoring range from 0 (internal LOC) to 23 (external LOC).

*Stress to Communicate Scale* This scale assesses residents' stress to communicate with cancer patients on a validated ten-point visual analogue scale (VAS) ranging from 0 (not at all stressful) to 10 (extremely stressful). [14].

*Self-Efficacy Scale* This 13-item scale adapted from that of Parle et al. [15] assesses residents' self-efficacy to communicate (nine items) and to manage stress (four items) in interviewing cancer patients. It uses a five-point Likert scale ranging from "not at all able" (1) to "extremely able" (5). A factorial analysis has organized the nine items into three factors: elicitation of concerns, detection of distress and complex communication skills such as breaking bad news. The four-item part is organized into one factor.

*WCC* [16] This validated French-translated 27-item scale assesses coping responses. It uses a four-point Likert scale ranging from "no" (1) to "yes" (4) self-reported instrument. It includes three subscales: problem-focused coping aiming at solving the problem that faces the person, emotion-focused coping involving cognitive processes directed at lessening emotional distress, and social-support-focused coping aiming at finding others' support. The scale's instructions were adapted to assess residents' specific coping responses in the context of a patient interview.

*Communication Skills* The communication skills were assessed by analyzing the transcripts of a standardized simulated breaking bad news interview with a French communication analysis software 'LaComm'. It was adapted from the French translation and adaptation of the Cancer Research Campaign Workshop Evaluation Manual [17]. LaComm classifies utterances in terms of assessment, information and supportive skills.

### Assessment of Work-Related Variables

Assessment of work-related variables included Job Stress Survey (JSS) and Quality of Work Life Systemic Inventory (QWLSI).

**JSS [18]** This validated French-translated 30-item questionnaire assesses the perceived intensity and frequency of occurrence of job-related stressor events that are likely to affect the psychological well-being of those exposed to them during the preceding 6 months. Summing the ratings provides an overall Job Stress Index and indexes of Job Pressure and Organizational Support.

**QWLSI [19]** This validated French-translated 33-item questionnaire measures individuals' areas of work likely to influence their quality of work life. The lower the score, the more the quality of work life is high. Items are organized into eight subscales: compensation and benefits, career path, arrangement of work schedule, atmosphere with colleagues, atmosphere with superiors, characteristics of physical environment related to task, factors influencing appreciation of tasks and support offered to employee.

#### Statistical Analysis

*t* tests for paired sample were conducted to compare residents' burnout at an 8-month interval. Changes in residents' burnout, person-, and work-related variables were computed through the differences at baseline and 8 months later. Stepwise Multiple Regression Analyses were computed to examine predictors and correlates of changes in residents' burnout. Three models have been tested, respectively, for changes in emotional exhaustion, depersonalization, and personal accomplishment. A preliminary analysis was used to identify predictors and correlates among person- and work-related variables (Spearman correlations, *t* tests for independent sample or one-way ANOVA as appropriate). Variables were entered in the regression analyses if they satisfied the inclusion criterions (i.e.,  $p < 0.05$ ). The analyses were performed with SPSS 12.0 for PC (SPSS Inc, Chicago, IL).

## Results

### Recruitment

A total of 544 residents were contacted by phone and 351 were met in person. Following this process, 113 registered for the study. Barriers to participation included personal and institutional reasons, time limitations, training duration, and time-consuming assessment procedures. Eleven were excluded because they did not complete the assessment at 8 months. The final sample included 102 residents. Comparison of included and excluded residents showed no statistically significant differences for age, number of years of practice, and gender.

### Changes in Residents' Burnout

Nearly 50% had high emotional exhaustion or depersonalization at baseline. Twenty-four percent had a low personal accomplishment. The *t* test for paired sample was statistically significant for emotional exhaustion showing a significant decrease at 8-months. No statistically significant results were found for depersonalization and personal accomplishment means and for categorization of emotional exhaustion, depersonalization, and personal accomplishment.

### Predictors and Correlates of Changes in Residents' Burnout

Changes in emotional exhaustion had a mean of  $-1.7$  ( $SD = 7.5$ ); changes in personal accomplishment had a mean of  $0.9$  ( $SD = 4.8$ ); and changes in depersonalization had a mean of  $0.2$  ( $SD = 4.3$ ).

A preliminary correlational analysis was used to identify predictors and correlates of changes in residents' burnout. Concerning person-related variables (Table 1), changes in residents' emotional exhaustion were significantly correlated with LOC ( $r = 0.20$ ;  $p = 0.049$ ), emotional-focused coping at baseline ( $r = 0.27$ ;  $p = 0.007$ ), assessment skills at baseline ( $r = 0.21$ ;  $p = 0.035$ ), and with changes in GHQ ( $r = 0.31$ ;  $p = 0.001$ ). Changes in residents' depersonalization were signif-

**Table 1** Changes over time in medical residents' emotional exhaustion (n=102)

	Descriptive analysis				Changes over time	
	At baseline		8months later		<i>t</i>	<i>p</i>
	Mean (SD)	<i>n</i> (%)	Mean (SD)	<i>n</i> (%)		
Burnout level (MBI)						
Emotional exhaustion	25.9 (8.6)		24.2 (9.4)		2.31	0.023
Low <19		18 (17.6)		25 (24.5)		
Average 19–26		34 (33.3)		36 (35.3)		
High >26		50 (49.0)		41 (40.2)		

*SD* standard deviation, *t* *t* tests for paired sample, *p* significance, *MBI* Maslach Burnout Inventory

icantly correlated with work experience ( $r=-0.20$ ;  $p=0.046$ ), problem-focused coping ( $r=0.20$ ;  $p=0.042$ ), and social-support-focused coping ( $r=0.22$ ;  $p=0.029$ ) at baseline and with changes in social-support-focused coping ( $r=-0.23$ ;  $p=0.019$ ). Changes in residents' personal accomplishment were significantly correlated with supportive skills at baseline ( $r=-0.21$ ;  $p=0.035$ ) and with changes in emotional-focused coping ( $r=-0.29$ ;  $p=0.003$ ).

Concerning work-related variables (Table 2), changes in residents' emotional exhaustion were significantly correlated with quality of work life concerning compensation and benefits ( $r=0.20$ ;  $p=0.047$ ) and atmosphere with colleagues ( $r=-0.23$ ;  $p=0.022$ ) at baseline, and with changes in lack of organizational support index ( $r=0.27$ ;  $p=0.006$ ), in job stress index ( $r=0.24$ ;  $p=0.014$ ) and in quality of work life concerning atmosphere with colleagues ( $r=0.30$ ;  $p=0.003$ ), factors influencing appreciation of tasks ( $r=0.21$ ;  $p=0.035$ ) and global score ( $r=0.27$ ;  $p=0.007$ ).

As shown in Table 3, three models of regression have been tested. Person- and work-related variables explained 28% of the variance in changes in emotional exhaustion, 4% of the variance in changes in depersonalization and 6% of the variance in changes in personal accomplishment.

Changes in emotional exhaustion were explained by both person- and work-related variables. Concerning person-related variables, changes in residents' emotional exhaustion were significantly predicted by emotional-focused coping at baseline ( $\beta=0.32$ ;  $p=0.001$ ) and associated with changes in GHQ ( $\beta=0.27$ ;  $p=0.005$ ). Concerning work-related variables, changes in residents' emotional exhaustion were significantly associated with changes in JSS-lack of organizational support index ( $\beta=0.31$ ;  $p=0.001$ ) and in quality of work life concerning factors influencing appreciation of tasks ( $\beta=0.23$ ;  $p=0.015$ ). Changes in residents' depersonalization were significantly predicted by social support-focused coping at baseline ( $\beta=0.22$ ;  $p=0.028$ ). Changes in residents' personal accomplishment were significantly associated with changes in emotional-focused coping ( $\beta=-0.26$ ;  $p=0.007$ ; see Table 3).

**Discussion**

The aim of this study was to identify predictors and correlates—person- and work-related variables—of changes

**Table 2** Influence of individual and work factors on changes in residents' emotional exhaustion ( $n=102$ )

	Descriptive analysis		Association <sup>a</sup>
	Mean	(SD)	Changes in emotional exhaustion
<b>Individual factors</b>			
<b>Psychological variables</b>			
Baseline			
Rotter I-E Scale	11.4	(3.2)	0.20*
Changes <sup>b</sup>			
GHQ	1.0	(11.9)	0.31**
<b>Communicational variables</b>			
Baseline			
WCC-Emotional-focused coping	21.8	(4.0)	0.27**
Assessment communication skills	27.6	(12.4)	0.21*
<b>Work factors</b>			
Baseline			
Quality of Work Life Systemic Inventory			
Compensation and benefits	6.1	(4.3)	0.20*
Atmosphere with colleagues	3.1	(4.1)	-0.23*
Changes <sup>b</sup>			
Job Stress Survey (JSS)			
Lack of organizational support index	0.6	(13.3)	0.27**
Job stress index	1.4	(28.1)	0.24*
Quality of Work Life Systemic Inventory			
Atmosphere with colleagues	0.2	(4.2)	0.30**
Factors influencing appreciation of tasks	0.0	(2.9)	0.21*
Global score	0.19	(3.6)	0.27**

SD standard deviation, GHQ General Health Questionnaire, WCC Ways of Coping Checklist  
\* $p \leq 0.05$ , \*\* $p \leq 0.01$ , \*\*\* $p \leq 0.001$

<sup>a</sup> Computed through Spearman correlation or *t* tests for independent sample or one-way ANOVA as appropriate

<sup>b</sup> Computed through the difference between residents' scores at baseline and 8 months later

**Table 3** Factors related to changes in medical residents' emotional exhaustion (Stepwise Multiple Regression Analysis;  $n=102$ )

	Changes <sup>a</sup> in emotional exhaustion <sup>b</sup>			
	<i>b</i>	$\beta$	<i>p</i>	
Individual factors				
Psychological variables				
Correlates <sup>a</sup>				
WCC Ways of Coping Checklist, <i>QWLSI</i> Quality of Work Life Systemic Inventory, <i>JSS</i> Job Stress Survey	General Health Questionnaire	0.160	0.265	0.005
Communicational variables				
Predictors				
	WCC-Emotional-focused coping	0.590	0.323	0.001
Work factors				
Correlates <sup>a</sup>				
	<i>JSS</i> -Lack of organizational support index	0.171	0.313	0.001
	<i>QWLSI</i> -Factors influencing appreciation of tasks	0.561	0.226	0.015
Constant		-14.53		0.000
Multiple <i>R</i>			0.554	
% of variance explained (Adjusted $R^2$ )			0.275	
<i>F</i> ( <i>p</i> )			9.42 (<0.001)	

<sup>a</sup> Computed through a difference between residents' scores at baseline and 8 months later.

<sup>b</sup> Variables entered in the regression and excluded: Rotter I-E Scale, assessment skills at baseline, *QWLSI*-Compensation and benefits at baseline, *QWLSI*-Atmosphere with colleagues at baseline and changes, changes in *JSS*-Job stress index, changes in *QWLSI*-Global score.

in burnout among residents working with cancer patients. Three regressions have been tested. Person- and work-related variables which have been selected for this study explain 28% of the variance in changes in emotional exhaustion, 4% of the variance in changes in depersonalization and 6% of the variance in changes in personal accomplishment. In view of these results, discussion will only focus on emotional exhaustion. We will first discuss on person-related (socioprofessional, psychological, and communicational) and secondly on work-related issues.

First, it must be recalled that nearly 50% of residents at baseline have high emotional exhaustion. High scores in emotional exhaustion have been considered indicative of clinically significant burnout [20]. Burnout prevention seems thus really necessary if this dimension is considered as the first phase of burnout development [21]. It must also be underlined that residents' emotional exhaustion decreases weakly over time.

Among person-related variables, improvement in general health (assessed with GHQ regrouping somatic symptoms, anxiety, social dysfunction, and depression) is associated with a decrease in emotional exhaustion. This confirms a study reporting that the GHQ score was a significant predictor of emotional exhaustion [22]. These scores might have a common background although they assess different aspects in that GHQ mainly reflects physical conditions, while emotional exhaustion reflects mental conditions. This result indicates the need to implement person-directed interventions aimed to enhance residents' stress management skills in order to better manage the physical and mental outcomes of stress.

Among communicational variables, low emotional-focused coping level at baseline (referring to a tendency

to cope with stress in interview in a passive way) predicts a decrease in emotional exhaustion. This confirms another study showing that lower emotion-oriented coping was associated with lower burnout [22]. This result indicates the need to implement person-directed interventions aimed to develop other kinds of coping such as problem-focused coping (i.e., positive orientation, working harder) in interviews and in the work in general.

Among work-related variables, enhancement in organizational support (i.e., supervisor support) and in factors influencing appreciation of tasks (i.e., participation in decision-making, autonomy in performance) is associated with a decrease in emotional exhaustion. The first result confirms another study showing that the best predictor of burnout appeared to be dissatisfaction with support received from supervisors [2]. The second result confirms studies showing that job demands lead to job strain (and in extreme cases to burnout), when certain job resources are lacking (i.e., autonomy) [23, 24]. These results indicate the need to implement organization-directed interventions aimed to ensure residents' supervision, to increase their participation in decision-making and to promote multidisciplinary team function. However, more links between the work-related variables (job demands and job resources) and changes in residents' burnout would be expected [25].

It is particularly surprising that only two work-related variables are associated with emotional exhaustion. Moreover, these are not associated with the two other burnout dimensions. It may be hypothesized that other variables than those tested in the study may be associated with physicians' depersonalization and personal accomplishment. In fact, studies have showed that physicians'

depersonalization was associated with their personality (high neuroticism [6, 22] and low agreeableness [6]) and was predicted by work–family conflict [26]. Studies have also shown that physicians' personal accomplishment was associated with greater extraversion and openness [6]. Future studies should include all these variables among the potential predictors of burnout. On the other hand, it may be hypothesized that the use of other questionnaires may be more appropriate. Concerning person-related variables, it may be interesting to use questionnaires assessing physicians' personality such as the NEO-PI [27]. Concerning work-related variables, our QWLSI integrates emotional (like happiness) and cognitive (like satisfaction) dimensions, in reference to the concept of quality of life. This concept is defined as a state changing from moment to moment: the person adjusts his/her expectancies, cognitions, and behaviors trying to maintain his/her quality of life in a satisfactory state. This questionnaire is thus very different from other questionnaires habitually used in work and organizational psychology. It may be interesting to add a questionnaire based on the Job Demands–Resources Model [25] assessing specific job demands and resources regarding medical profession in order to evaluate the work environment and also a questionnaire assessing work–home interaction [28].

This study also raises questions about the interrelationships of the burnout constituting components. According to Leiter and Maslach's model [29], emotional exhaustion arises first in response to environmental demands. Exhaustion, in turn, evokes negative attitudes toward recipients (depersonalization), as employees attempt to gain mental distance from their work as a way of coping with their exhaustion. Consequently, a negative attitude develops regarding one's accomplishment at work. In fact, in our study, high emotional exhaustion significantly predicts high depersonalization after 8 months ( $\beta=0.455$ ;  $p=0.000$ ) and high depersonalization significantly predicts low personal accomplishment after 8 months ( $\beta=-0.275$ ;  $p=0.014$ ). However, there are no links between emotional exhaustion and personal accomplishment after 8 months. This confirms Leiter and Maslach's process model of burnout. The early detection of emotional exhaustion seems to be essential to prevent burnout.

To conclude, results show the importance of investigating separately the three components of burnout. This study highlights that identifying person- and work-related variables predicting or being associated with changes in residents' emotional exhaustion is an essential step to further develop effective interventions to prevent burnout. Training programs may be improved by adding some specific modules for residents, about problem-focused coping in interviewing patients and in their work in general,

and for supervisors, modules about effective team management are important.

## References

- Maslach C, Schaufeli WB, Leiter MP (2001) Job burnout. *Annu Rev Psychol* 52:397–422
- Prins JT et al (2007) Burnout in medical residents: a review. *Med Educ* 41(8):788–800
- Hillhouse JJ, Adler CM, Walters DN (2000) A simple model of stress, burnout and symptomatology in medical residents: a longitudinal study. *Psychol Health Med* 5(1):63–73
- Nyssen AS et al (2003) Occupational stress and burnout in anaesthesia. *Br J Anaesth* 90(3):333–337
- Martini S et al (2004) Burnout comparison among residents in different medical specialties. *Acad Psychiatry* 28(3):240–242
- McManus IC, Keeling A, Paice E (2004) Stress, burnout and doctors' attitudes to work are determined by personality and learning style: a twelve year longitudinal study of UK medical graduates. *BMC Med* 2:29
- Dosanjh S, Barnes J, Bhandari M (2001) Barriers to breaking bad news among medical and surgical residents. *Medical Education* 35(3):197–205
- Biaggi P, Peter S, Ulich E (2003) Stressors, emotional exhaustion and aversion to patients in residents and chief residents—what can be done? *Swiss Med Wkly* 133(23–24):339–346
- Sargent MC et al (2004) Stress and coping among orthopaedic surgery residents and faculty. *J Bone Joint Surg Am* 86-A(7):1579–1586
- Maslach C, Jackson A, Leiter MP (1986) Maslach Burnout inventory manual. Consulting Psychologists, Palo Alto
- Goldberg DP, Hillier VF (1979) A scaled version of the general health questionnaire. *Psychol Med* 9:139–145
- Spielberger CD, Gorsuch RR, Lushene RE (1983) State-trait anxiety inventory test manual. PACP
- Rotter JB (1966) Generalized expectancies for internal versus external control of reinforcement. *Psychol Monogr* 80(1):1–28
- de Boer AG et al (2004) Is a single-item visual analogue scale as valid, reliable and responsive as multi-item scales in measuring quality of life? *Qual Life Res* 13(2):311–320
- Parle M, Maguire P, Heaven C (1997) The development of a training model to improve health professionals' skills, self-efficacy and outcome expectancies when communicating with cancer patients. *Soc Sci Med* 44(2):231–240
- Vitaliano PP et al (1985) The ways of coping checklist: revision and psychometric properties. *Multivariate Behav Res* 20:3–26
- Booth K, Maguire P (1991) Development of a rating system to assess interaction between cancer patients and health professionals. Cancer Research Campaign, London
- Spielberger CD, Reheiser EC (1994) The job stress survey—measuring gender differences in occupational stress. *J Soc Behav Pers* 9(2):199–218
- Martel JP, Dupuis G (2006) Quality of work life: theoretical and methodological problems, and presentation of a new model and measuring. *Soc Indic Res* 77:333–368
- Rafferty JP et al (1986) Validity of the Maslach Burnout inventory for family practice physicians. *J Clin Psychol* 42(3):488–492
- Maslach C (1982) *Burnout: the cost of caring*. Prentice-Hall, Englewood Cliffs
- Narumoto J et al (2008) Relationships among burnout, coping style and personality: study of Japanese professional caregivers for elderly. *Psychiatry Clin Neurosci* 62(2):174–176

23. Karasek RA (1979) Job demands, job decision latitude, and mental strain: implications for job redesign. *Adm Sci Q* 24(2):285–308
24. Siegrist J (1996) Adverse health effects of high-effort/low-reward conditions. *J Occup Health Psychol* 1(1):27–41
25. Bakker AB, Demerouti E (2007) The job demands-resources model: state of the art. *J Manag Psychol* 22(3):309–328
26. Adam S, Gyorffy Z, Susanszky E (2008) Physician burnout in Hungary: a potential role for work-family conflict. *J Health Psychol* 13(7):847–856
27. Costa TPJ, McCrae RR (1989) The NEO-PI/NEO-FFI manual supplement. Psychological Assessment Resources, Odessa
28. Geurts SAE (2000) SWING: survey work-home interaction Nijmegen (internal research report). University of Nijmegen, Nijmegen, the Netherlands
29. Leiter MP, Maslach C (1988) The impact of interpersonal environment on burnout and organizational commitment. *J Organ Behav* 9:297–308