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Title: Insight on variables leading to burnout in cancer physicians

Running title: Burnout in cancer physicians

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Abstract

Background. Although communication skills training programs have been recommended to reduce physicians' burnout, few studies have investigated their efficacy. This study assessed the impact of two training programs on cancer physicians' burnout. Especially, it identified some variables leading to burnout in order to develop effective interventions.

Methods. Burnout was assessed with the Maslach Burnout Inventory.

Results. No statistically significant impact of training programs on burnout was observed. The amount of clinical workload and the overuse of some facilitative communication skills were associated with cancer physicians' burnout.

Conclusions. The content of such programs must be redefined to reduce burnout.

Introduction

Physicians dealing with cancer patients experience a high level of stress which can lead to burnout (1). Burnout is a specifically work-related syndrome defined by three aspects: emotional exhaustion (feeling emotionally spent), lack of personal accomplishment (experiencing a low sense of efficacy at work) and depersonalization (displaying a detached attitude toward patients) (2). Between one-quarter and one-third of cancer physicians report high emotional exhaustion, low personal accomplishment and high depersonalization (3, 4). One study which examined changes in the mental health of UK hospital consultants showed that the proportion of consultants with psychiatric morbidity rose in the last ten years (5, 6).

Variables leading to burnout in cancer physicians have not been clearly identified. Some sociodemographic variables (younger age (1, 5), being single (1, 5)) and socioprofessional variables (frequency and quantity of interactions with patients (1, 5), feeling poorly resourced (5)) have been reported. Moreover, cancer physicians have to face highly emotional contexts and to deal with complex communication issues such as breaking bad news, informing patients about highly complex treatment procedures, and asking for informed consent (7-10). The stress experienced in these contexts coupled with the feeling of being inadequately trained in communication skills may increase the risk of burnout among cancer physicians (3, 5, 11). In theory, the use of effective communication skills when facing these highly emotional clinical contexts should reduce burnout.

A body of evidence shows that physicians' communication skills can be improved following well-designed, skill-focused, practice-oriented, and learner-centered communication skills training programs (3, 12-17). However, results of studies assessing the impact of communication skills training on burnout are inconsistent (18-21). There is therefore still a need to investigate the impact of communication skills training programs on cancer physicians' level of burnout.

Thus, this study assessed the impact on cancer physicians' level of burnout of two communication skills training programs: a 19-hour basic training (BT) and the same training consolidated by six 3-hour consolidation workshops (CW). These training programs have already shown their effectiveness in terms of improvements in physicians' communication skills (e.g. asking more open and open directive questions, eliciting and clarifying psychological information more often) (13). We hypothesized that these improvements in their communication skills would lead to less burnout among cancer physicians. The paper especially focused on the detection of the variables leading to burnout in cancer physicians (among contextual variables and communication skills) in order to develop effective interventions to reduce burnout.

Materials and Methods

Recruitment procedure

To be included in the study, physicians had to be specialists and to be working with cancer patients (part time or full time). This study is thus not targeting selected participants suffering from burnout. All Belgian specialists working in cancer care were invited by mail to take part in the training program (n=3706) and all institutions devoted to cancer care were asked to deliver an internal mail (n=2741). Due to the low response rate (only 90 potentially interested subjects responded spontaneously to the two types of mailing), physicians were actively contacted either by phone, met in individual information sessions or through group information sessions. Those contacts were aimed at explaining the rationale for the study, the training program and its assessment procedure. Recruitment procedure, study design, training and assessment procedures are shown in the Figure.

Study design

The efficacy of the training programs was assessed in a study allocating physicians randomly after a basic training (BT), to consolidation workshops (CW) or to a waiting list, using sealed opaque envelopes containing group allocation that the physicians were invited to pick out. The study was approved by the local ethics committee. The BT was spread over a 1-month period. The CW started 2 months later for participants who were immediately assigned to the workshops. The bimonthly CW were spread over a 3-month period. Subjects assigned to the waiting list were invited to take part in the CW 6 months after the end of the BT.

Training Programs

The 19-hour basic training program (BT) consisted of two 8-hour day sessions and one 3-hour evening session. The program included a 2-hour plenary session focusing on theoretical information in the form of two lectures and 17 hours of small-group role-playing sessions. Lectures covered the aims, functions, and specificity of physician-patient communication in cancer care, and how to handle cancer patients' distress. Physicians were then split into small training groups to practice the communication tasks discussed in the lectures through predefined role plays, with immediate feedback offered by experienced facilitators. The next sessions focused on role plays based on the clinical problems brought up by the participants. The role plays also led to case discussions.

Each of the six consolidation workshops (CW) consisted of a 3-hour evening training session (limited to six participants). Each session was led by an experienced facilitator and was based on role plays, with systematic feedback based on clinical problems brought up by the participants. Sessions were spread over a 3-month period to allow physicians to further practice the communication skills they learned during the basic training program.

Assessment procedure

Assessments were scheduled before BT (T1) and after CW for the CW-group and approximately 6 months later after the end of BT for the BT-without-CW group (T2) Physicians' burnout level was assessed with the Maslach Burnout Inventory. Their communication skills were assessed in a Standardized Breaking Bad News Simulated Interview. Contextual variables were assessed with a socio-professional questionnaire and the Job Stress Survey.

Maslach Burnout Inventory (MBI) (22, 23). The MBI is a 7-point 22-item self-report instrument that assesses three aspects of the burnout syndrome on three separate subscales: emotional exhaustion, depersonalization and personal accomplishment. The burnout scores may be conceptualized either as continuous variables or as something that is low, average or high (23). As this study was not specifically directed towards burned-out physicians, the continuous scores were used.

The Standardized Breaking Bad News Simulated Interview. This has the benefit of being a standardized highly emotional context allowing to assess physicians' communication skills (24). The Standardized Breaking Bad News Simulated Interview was recorded on audio tapes. The same actress was used for all of the assessments, and the same case was used for pre- and post-intervention assessments. The actress was trained to maintain the same behavior and high emotional depth carefully over the entire study (24). Before the Standardized Breaking Bad News Simulated Interview, each physician had enough time to learn the case description. The physician was then introduced to the simulator in the recording room and was told that, after 20 minutes, the interview would be put to an end. All audiotapes were transcribed. Transcripts were assessed for their quality

and then rated by trained psychologists. Rating was based on the French translation and adaptation of the Cancer Research Campaign Workshop Evaluation Manual (CRCWEM) (25). The CRCWEM was used to assess the form and function of each utterance. Eliciting and clarifying psychological information are considered as assessment skills, giving appropriate information, introducing and closing as information skills and educated guesses, empathy, alerting to reality and confronting as supportive skills. The construction of these categories has been tested in previous studies (12, 13, 18, 26).

Socioprofessional questionnaire. Data were collected about physicians' age, gender, marital status, medical specialty, number of years of practice in medicine and in oncology, number of cancer patients treated in the last week, their type of medical practice and whether or not they had had some previous communication skills training in the last year.

Job Stress Survey (JSS) (27). Each physician completed the French version of the JSS. The JSS is a 30-item self-report instrument that assesses the perceived intensity and frequency of occurrence of several working conditions.

Statistical analyses

Statistical analyses consisted of a comparative analysis of both groups at baseline using *t* tests and χ^2 tests. Group-by-time changes in physicians' level of burnout were processed using repeated measures analysis of variance (MANOVAs). All tests were two-tailed and the alpha was set at 0.05. To identify variables leading to burnout, we investigated communication skills and contextual variables at baseline (predictors) and the changes in these skills and variables (correlates). So, changes in physicians' level of burnout, communication skills and contextual variables were computed through the difference between physicians' scores at T2 and physicians' scores at T1 (baseline). A

preliminary correlational analysis was used to identify predictors and correlates among communication skills and contextual variables. Then Backward Stepwise Multiple Regression Analysis was computed to examine predictors and correlates of changes in physicians' burnout. Three models have been tested respectively for changes in emotional exhaustion, personal accomplishment, and depersonalization. Considering that communication skills were all linked together and that certain skills were significantly correlated with burnout ($p < .10$), all the communication skills were retained in the regression models. Contextual variables were entered in the regression analyses if they satisfied the inclusion criteria (ie, $p < .10$).

Results

Socioprofessional data

As shown in the Figure, 550 physicians were contacted actively, 113 physicians registered to the training program and 72 attended the first training day. Barriers to participation included mainly personal and institutional reasons, time limitations, training duration and time consuming assessment procedures. Comparison of included and excluded physicians showed no statistically significant differences for age, gender and years of practice. All physicians have a hospital practice. No statistically significant differences were found at baseline between physicians who participated to the CW and physicians assigned to the waiting list.

Impact of the training programs on level of burnout

The results of the MANOVAs showed no significant group-by-time effects on the three subscales of physicians' level of burnout between T1 and T2 (See Table 1).

Please insert Table 1

Variables leading to burnout in cancer physicians

Changes in emotional exhaustion had a mean of .58 (SD = 7.3), changes in personal accomplishment had a mean of .42 (SD = 3.9), and changes in depersonalization had a mean of .39 (SD = 4.4).

The preliminary correlational analysis showed that changes in physicians' emotional exhaustion were correlated significantly with changes in clinical practice assessed through the number of cancer patients treated in the last week ($r=.36$; $p<.001$) and in the use of supportive functions ($r= .26$; $p=.045$). Changes in physicians' personal accomplishment were correlated with the baseline level of clinical practice ($r=.31$; $p=.014$), personal accomplishment ($r=-.68$; $p<.001$) and the use of false reassurances ($r=-.31$; $p=.015$), and with changes in the use of introducing/closing ($r= -.29$; $p=.022$) and in false reassurances ($r= .33$; $p=.008$). Changes in physicians' depersonalization were only correlated with the baseline level of depersonalization ($r=-.26$; $p=.044$).

As shown in Table 2, when all the independent variables were combined, 19% of the variance in changes in emotional exhaustion, 61% of the variance in changes in personal accomplishment and 15% of the variance in changes in depersonalization were explained by the Backward Stepwise Multiple Regression Analysis. Changes in physicians' emotional exhaustion were associated significantly with changes in the number of cancer patients treated in the last week. Changes in physicians' personal accomplishment were significantly predicted by the baseline level of the personal accomplishment, the number of cancer patients treated in the last week and the use of appropriate information giving.

Changes in physicians' personal accomplishment were associated significantly with changes in the use of introducing/closing and in appropriate information giving.

Please insert Table 2

Discussion

Although our communication skills training programs have already shown their effectiveness in terms of improvements in physicians' communication skills (13), these improvements did not lead to less burnout among cancer physicians. This lack of effect could be due to the fact that few physicians experienced high levels of burnout. Burned-out physicians are likely the ones for whom such training might be the more effective. This lack of effect could also be due to the fact that increasing the use of effective communication skills does not reduce physicians' level of burnout. So the study investigated the variables leading to burnout in cancer physicians in order to develop effective interventions.

Concerning personal accomplishment, cancer physicians who had an important clinical practice in oncology at baseline, assessed in this study by the number of cancer patients treated in the last week, reported a more important development of their personal accomplishment. It could be hypothesized that these physicians were strongly motivated to learn skills which could be used in their everyday practice and that their personal accomplishment improved consequently. Concerning communication skills, those who frequently used facilitative communication skills (i.e. appropriate information giving) during the Standardized Breaking Bad News Simulated Interview before training were those who reported a more important decrease in their personal accomplishment. Moreover, the amount of some learned facilitative communication skills (i.e. appropriate information

giving function) are correlates of a decrease in physicians' personal accomplishment. First, it may be hypothesized that the overuse of these learned facilitative communication skills led to an increase of the emotional level of clinical interviews which may be difficult to manage for some physicians and may have a detrimental effect on their personal accomplishment. Second, it may be hypothesized that training has weakened some of physicians' beliefs, built by numerous years of clinical practice, about the way they should communicate. These physicians may not have been used to focus on the emotional dimension of their clinical practice. This result may indicate the need to implement person-directed interventions aimed to develop physicians' empathic concern and to manage their own stress in interviews (28). This result may also indicate the need to organize interventions early in the medical curriculum before the implementation of the before-mentioned physicians' beliefs.

Concerning emotional exhaustion, the independent variables considered in this study explained only 19% of their variance. Physicians who had to cope with an increase of clinical practice (number of cancer patients treated in the last week) were those who reported a significant increase of their emotional exhaustion. This result is comparable to some other results reported in the literature showing a link between clinical workload and the development of burnout (1, 5). This result may indicate the need to implement work-directed interventions aimed at decreasing workload or changing work organization.

Finally, concerning depersonalization, the independent variables considered in this study explain only 15% of their variance. None of the variables tested in this study was a predictor or a correlate of depersonalization. It may be hypothesized that other variables than those tested in the study may be associated with physicians' depersonalisation. In fact, studies have showed that physicians' depersonalisation was associated with their

personality (high neuroticism (29, 30) and low agreeableness (30)) and was predicted by work-family conflict (31). Future studies should include these variables among the potential predictors of burnout.

It is particularly surprising that no work-related variable measured with the Job Stress Survey is associated with burnout. It may be hypothesized that the use of other questionnaires may be more appropriate. It may be interesting to use a questionnaire based on the Job Demands-Resources Model (32) assessing specific job demands and resources regarding medical profession in order to evaluate the work environment.

This study has some limitations related to the content of the training (use of role-play with direct feedback focusing mainly on the acquisition of communication skills oriented towards patient benefit) and to the study assessment method (use of simulated interviews, voluntary participation – and thus highly motivated physicians –, small number of participants).

To conclude, there are not yet well-designed psychological interventions recognized to reduce cancer physicians' level of burnout. The association of different types of person-directed interventions could lead to better results (e.g. communication skills training, stress management interventions) (33). The question of starting some of these interventions early in the medical curriculum – compulsory or not - should be considered. Moreover, such interventions may be partly or totally organized at the workplace in order to increase participation rate and colleague support when implementing the use of the learned skills. These person-directed interventions should be associated with work-directed interventions aimed at decreasing workload or changing work organization. Moreover, it may be interesting to use questionnaires assessing physicians' personality such as NEO-PI (34) to investigate other variables leading to burnout. Finally, in this resilient population, future

studies should consider as outcome measure instead of burnout a measure of quality of work life.

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Table 1. Physicians' Level of Burnout

	Basic Training Without CW (n=29)		Basic Training With CW (n=33)		MANOVA	
	5 Months					
	At Baseline	After Basic Training	At Baseline	After CW	Group by Time	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	$F_{1,60}$	p
Maslach Burnout Inventory*						
Emotional exhaustion	21 (7)	22 (8)	18 (8)	18 (10)	.54	.464
Personal accomplishment	39 (5)	39 (3)	39 (6)	39 (4)	.00	.992
Depersonalization	7 (4)	8 (5)	6 (5)	7 (6)	.26	.611

Abbreviations: CW, consolidation workshops; MANOVA, repeated measures of variance; SD, standard deviation.

Table 2. Variables leading to burnout in cancer physicians (Backward Stepwise Multiple Regression Analysis)

	Changes in physicians' burnout* (n=62)					
	Emotional exhaustion		Personal accomplishment		Depersonalization	
	β	<i>p</i>	β	<i>p</i>	β	<i>p</i>
Contextual variables						
Predictors						
Emotional exhaustion	-.22	.071	-	-	-	-
Personal accomplishment	-	-	-.65	<.001	-	-
Depersonalization	-	-	-	-	-.27	.033
Number of cancer patients treated in the last week (Clinical practice)	-	-	.22	.013	-	-
Changes*						
Clinical practice	.28	.026	-	-	-	-
Communication skills						
Baseline						
Introducing, closing	-	.952	-	.207	-	.414
Eliciting and clarifying general information	-	.591	-	.201	-	.174
Eliciting and clarifying psychologic information	-	.232	-	.590	-	.571
Appropriate advice/information giving	-	.379	-.29	.016	-.20	.106
Inappropriate advice/information giving	-	.912	-	.496	-	.714
Educated guesses, empathy, alerting to reality and confronting	-	.694	-	.759	-	.396
Premature (False) reassurance	-	.849	-	.716	-	.930
Changes*						
Introducing, closing	-	.411	-.18	.036	-	.170
Eliciting and clarifying general information	-	.378	-	.200	-	.126
Eliciting and clarifying psychologic information	-	.403	-	.451	-	.618
Appropriate advice/information giving	-	.903	-.28	.023	-	.979
Inappropriate advice/information giving	-	.299	-	.293	-	.187
Educated guesses, empathy, alerting to reality and confronting	-	.331	-	.880	-	.918
Premature (False) reassurance	-.20	.093	-	.507	-.24	.061
Constant		.104		<.001		.165
<hr/>						
Multiple R (% of variance explained - R ²)	.44 (.19)		.78 (.61)		.39 (.15)	
F (<i>p</i>)	4.52 (.007)		17.29 (<.001)		3.51 (.021)	

*These values were computed through a difference between physicians' scores after the consolidation-workshops for the consolidation-workshops group and about 6 months after basic training for the basic-training-without-consolidation-workshops group and physicians' scores before basic training.