

Burnout in cancer professionals: a systematic review and meta-analysis

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Burnout syndrome is typified by three dimensions: emotional exhaustion (EE), depersonalization (DP) and low personal accomplishment (PS), and is prevalent among cancer care providers. The objective is to conduct a systematic review and meta-analysis of studies that evaluated the presence of burnout syndrome in professionals dedicated to the care of cancer patients. A search was conducted of the MEDLINE, LILACS and COCHRANE databases. Articles were selected that had used the Maslach questionnaire to assess burnout syndrome prevalence, had evaluated at least 35 subjects (including physicians), had at least a 20% questionnaire response rate, and that were published in English, Spanish or Portuguese. Ten studies (2375 participants) were included in this analysis. Severe involvement by any one of the three dimensions ranged from 8% to 51%. The overall prevalence of EE was found to be 36% [95% confidence interval (CI) (31–41)], while for DP this was 34% [95% CI (30–39)] and for PS 25% [95% CI (0.16–34)], demonstrating considerable heterogeneity across studies. The prevalence of burnout syndrome is elevated among cancer professionals throughout the world but varies substantially among studies. Further research is needed to better understand and prevent this syndrome.

Keywords: burnout syndrome, cancer care, oncologists.

INTRODUCTION

Burnout is a stress-induced professional occupational disease that has been identified in many healthcare providers (Felton 1998). Burnout is defined as syndrome of

depersonalization (DP), emotional exhaustion (EE) and a sense of low personal accomplishment (PS) (Maslach *et al.* 2001).

Burnout commonly affects medical oncologists (Whippen & Canellos 1991; Ramirez *et al.* 1995; Tucunduva *et al.* 2006). In 1991, Whippen *et al.* surveyed the members of the American Society of Clinical Oncology and reported that 56% of them fulfilled the criteria for burnout syndrome (Whippen & Canellos 1991). The highly demanding tasks of dealing with acutely ill patients and their families, excessively bureaucracy, along

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with the emotional issues relating to death and palliative care number some of the challenges faced daily by medical oncologists that may predispose them to the burnout syndrome.

The importance of the early detection and prevention of burnout has been previously described. Burnout may often decrease quality of life of healthcare professionals causing symptoms such as anxiety, irritability, mood swings, insomnia, sense of failure, depression and drug addiction (Parker & Kulik 1995; Gundersen 2001; Shanafelt *et al.* 2002). This syndrome may be also associated with decreased job performance and stress-related health problems (Parker & Kulik 1995; Felton 1998). Ultimately, this syndrome can lead to the depersonalization of the provider–patient relationship (Shanafelt *et al.* 2002).

Our main objective in this study was to conduct a systematic review and meta-analysis of all studies that have been published regarding the prevalence of burnout syndrome. Our secondary objective was to identify potential preventable factors associated with the development of burnout.

METHODS

Selection of suitable questionnaire for diagnosing burnout

We believe that one of the key elements to accurately determine the prevalence of burnout amount cancer professionals is the use of a standardized questionnaire. Furthermore, in order to proceed with a meta-analysis, this same questionnaire had to have been employed by all studies included to allow pooling of results of the different studies. Extensive analysis of the literature in the field revealed that an increasing number of studies used the Maslach Burnout Inventory (MBI) as the method to measure burnout (Maslach & Jackson 1981). In fact, the MBI is the most widely used standardized measure of burnout (Cordes & Dougherty 1993).

The MBI comprises a 22-item questionnaire that evaluates and scores all three dimensions of burnout syndrome (EE, DP, PS), enabling researchers to categorize dimensions as severely, moderately or minimally affected, according to the scoring system (Maslach & Jackson 1981). The MBI scale has the strongest psychometric properties and has been validated in several languages (Kitaoka-Higashiguchi *et al.* 2004; Gil-Monte 2005; Goehring *et al.* 2005; Morais *et al.* 2006).

However, crude scores for EE, DP and PS provided by the MBI are difficult to interpret; therefore, several investigators have adopted the criteria proposed by Grunfeld *et al.* 2000 to diagnose the presence of burnout syndrome.

According to these criteria, the burnout syndrome is deemed present if at least one of the dimensions (EE, DP or PS) is severely abnormal (Grunfeld *et al.* 2000). For the purpose of pooling data, we have also adopted this criterion in our systematic review.

Literature search to identify evidence

To identify potential studies, a literature search for evidence in the MEDLINE/Pubmed, LILACS and COCHRANE databases was performed. Our search strategy contained the following search words: burnout, cancer, oncologists, oncology, Maslach and MBI. To ensure that all relevant studies were included, the reference list of trials identified in the above databases was also searched.

Selection process

All articles matching the inclusion criteria below were selected:

- 1 Only manuscripts published as a full papers;
- 2 Studies that evaluated at least 35 health care providers, including physicians, in the sample;
- 3 Studies published up to March 2007, written in English, Spanish or Portuguese; and
- 4 Studies that used the MBI in their survey.

In the case of duplicate papers or studies using the same sample of subjects in the survey, only the paper with the highest response rate was included.

Data extraction

Following data were extracted from each included paper: demographic aspects on the studied population; the absolute number of subjects who had severe involvement of any of the three dimensions evaluated by the MBI (EE, DP and PS); any reported significant correlation noted between demographic data and burnout dimensions; any factors that could have contributed to burnout according to the surveyed subjects in each study; and data drawn from the General Health Questionnaire (GHQ), whenever this instrument was employed. The GHQ is a questionnaire that evaluates the psychological morbidity on four subscales: somatic symptoms, anxiety, social dysfunction and depressive symptoms, with higher scores indicating a higher probability of psychological abnormality (Hobbs *et al.* 1984).

Data were extracted from each included study, according to a predefined protocol, independently by two authors

(DCT and CGB) and disagreements were resolved by a third author (ADG) through a consensus meeting. For studies that reported mean averages, averages were converted to absolute numbers of subjects by multiplying the average rate by the absolute number of subjects analysed for a given MBI dimension.

Data analysis

Statistical analysis was conducted using StatsDirect software version 2.5.6 (04/15/06) using the proportions meta-analysis package (<http://www.statsdirect.com>). The analysis utilized random effects model summaries as oppose to fixed effect model summaries.

RESULTS

Initially, 461 studies were identified, only 10 of which were included in our review (Ramirez *et al.* 1995; Catalan *et al.* 1996; Lopez-Castillo *et al.* 1999; Grunfeld *et al.* 2000; Elit *et al.* 2004; Catt *et al.* 2005; Taylor *et al.* 2005; Travado *et al.* 2005; Tucunduva *et al.* 2006; Glasberg *et al.* 2007), giving a final total of 2357 subjects for analysis. Figure 1 illustrates the screening process and Table 1 shows the main characteristics of the 10 selected studies. Table 2 lists those studies excluded (Whippen & Canellos 1991; Johnson *et al.* 1993; Barni *et al.* 1996; Ramirez *et al.* 1996; Kash *et al.* 2000; Lyckholm 2001; Escribà-Agüir & Bernabé-Muñoz 2002b; Olley 2003; Armstrong & Holland 2004; Isikhan *et al.* 2004) after detailed review and consideration of the inclusion and exclusion criteria outlined above.

Overall, the percentages of severe involvement of any one of the three burnout dimensions varied from 8% to

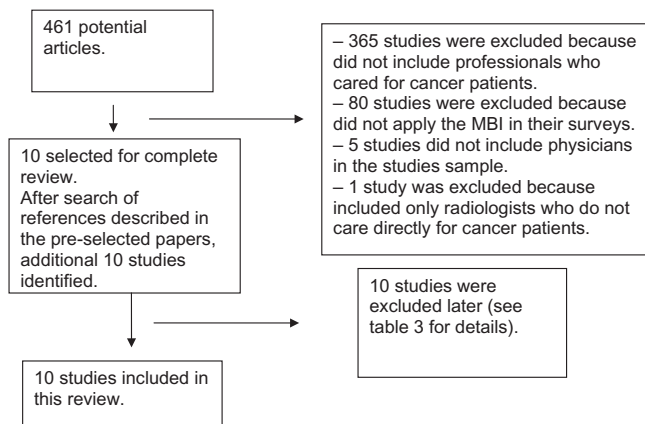


Figure 1. Flow chart of the screening process of search for the evidence. MBI, Maslach Burnout Inventory.

51% among studies. The prevalence of psychological morbidity ranged from 13% to 44%.

After pooling data from all studies (see Figures 2–4 for details), the overall prevalence of EE found was 36% [95% confidence interval (CI) (31–41)], while for DP this was 34% [95% CI (30–39)] and for PS was 25% [95% CI (0.16–34)]. Statistical heterogeneity was seen for all dimensions across trials. In a bid to identify the potential source of heterogeneity, a sensitivity analysis was performed excluding the two studies (Tucunduva *et al.* 2006; Glasberg *et al.* 2007) that had response rates for the MBI questionnaire of less than 40%. However, the results did not drastically change, where the overall estimated EE was 36% [95% CI (30–42)], with the estimated DP of 20% [95% CI (13–28)] and PS of 30% [95% CI (23–38)], again presenting heterogeneity.

For each study, factors associated with burnout were evaluated (see Table 3 for details), where these factors were classified according to their relationship with the provider's personal life issues and working conditions.

DISCUSSION

Although burnout syndrome is common among cancer care professionals, to the best of our knowledge no systematic review and meta-analysis on this issue had hitherto been conducted.

As outlined earlier, the first step in performing the present meta-analysis was to choose those studies that had all employed a similar instrument, previously validated in several languages, allowing us to compare scores obtained in different samples of subjects surveyed in various countries. The MBI was the instrument chosen due to its strong psychometric properties and also because it is the most widely used instrument by researchers to evaluate burnout in the literature (Maslach *et al.* 2001).

Since the interpretation of crude scores for EE, DP and PS provided by the MBI can be difficult, the absolute number of subjects with severe involvement of any one of these dimensions (EE, DP and PS) was extracted since according to the criteria proposed by Grunfeld *et al.* (2000) burnout syndrome is present when at least one of its dimensions is severely abnormal. Severe involvement of at least one MBI dimension was observed in 8–51% of the surveyed subjects. Surprisingly, at least one quarter of the physicians presented signs of burnout syndrome.

Further investigation to ascertain the sources of heterogeneity across the studies revealed at least three sources of

Table 1. Characteristics of the included studies in this systematic review

Author (year of publication)	Local where survey was applied	Type of interview	Total number of surveyed subjects	Type of healthcare professionals that participated in the survey*	Percentage of surveyed subjects who responded	General Health Questionnaire	Emotional exhaustion	Depersonalization	Low levels of personal satisfaction
Catalan <i>et al.</i> (1996)	UK	Mail	156 (71 from oncology staff)	70 aids staff, 7 oncology physicians and 34 oncology nurses	58% of oncology staff (41)	44% for oncology staff (18)	41% for oncology staff	23% for oncology staff	18% for oncology staff
Catt <i>et al.</i> (2005)	UK	Personal interview	144	Oncologists, gastroenterologists, radiologists, surgeons, palliative care physicians, nurses, other healthcare professionals	100%	Team sample: 18% physicians responsible for direct care (59): 14%	Team sample: 27% physicians responsible for direct care (59): 27%	Team sample: 19% physicians responsible for direct care (59): 27%	Team sample: 31% physicians responsible for direct care (59): 29%
Elit <i>et al.</i> (2004)	Canada	Mail questionnaire	50	Gynaecologic oncologists	70% (35)	26%	34%	14%	32%
Grunfeld <i>et al.</i> (2000)	Canada	Mail questionnaire	1015	216 physicians, 405 allied health professionals, 394 support staff	71% overall response rate (available data from 620 subjects) 63% (131/207) physicians	Overall: 12.3% physicians: 25%	Overall: 38% physicians: 53%	Overall 8% physicians: 22%	Overall: 45% physicians: 48%
Lopez-Castillo <i>et al.</i> (1999)	Spain	Handed questionnaire	242 (52 were oncology staff)	Infections disease, haemophilia, oncology and internal medicine staff units.	Overall: 81% oncology staff: 79% physicians (n = 13) and nurses (n = 28)	Oncology staff: 53%	50% for oncology staff	33% for oncology staff	25% for oncology staff
Ramirez <i>et al.</i> (1995)	UK	Mail questionnaire	476	69 medical oncologists, 253 clinical oncologists (also called radiation oncologists), 154 palliative care physicians	83% (n = 393)	28%	31%	23%	33%
Tucunduva <i>et al.</i> (2006)	Brazil	Mail questionnaire	645	Medical oncologist, surgeons, radiation oncologists, etc.	21% (n = 136)	Not applied	34%	37%	9%
Travado <i>et al.</i> (2005)	Spain, Portugal and Italy	Personal interview	125	Physicians working in cancer centres	100% (but data available for analysis from 121 subjects)	Not applied	26%	22%	21%
Taylor <i>et al.</i> (2005)	UK	Mail questionnaire	1794	Gastroenterologists, radiologists, surgical, clinical and medical oncologists	73% (1308) (surgical, clinical and medical oncologists = 724)	35% (surgical, clinical and medical oncologists)	44% (surgical, clinical and medical oncologists)	NR	NR
Glasberg <i>et al.</i> (2007)	Brazil	Mail questionnaire	458	Medical oncologists	22.3%	Not applied	39%	56%	15%

* As described in original papers. NR, not reported.

heterogeneity which could at least partially explain the results: (1) the different countries in which the included studies took place; (2) multi-professional nature of the teams from which the subjects for some studies were

recruited; and (3) different rates of response to the questionnaires in the included studies.

As seen in Table 1, subjects included in the studies selected for this review were drawn from different countries each with their particular healthcare systems which in turn determined the type of practice (private vs. state funded), physician and other health professionals' income, stressors such as patient load, vacation time, need to deal with insurers, access to teams of other professionals to assist with difficult cases, etc. Furthermore, subjects from different countries may also belong to diverse cultures dictating their personal philosophic background and the manner in which they face issues such as death, dealing with suffering, the point of living, etc. In fact, two studies conducted in Canada (Grunfeld *et al.* 2000; Elit *et al.* 2004) showed a similar prevalence of severe involvement of DP and PS whereas three studies from the UK (Ramirez *et al.* 1995; Catalan *et al.* 1996; Catt *et al.* 2005) revealed similarity in all three dimensions, except for the study by Catalan *et al.* which mirrored Canadian results in the DP dimension. These results corroborate the hypothesis of a geographical heterogeneity towards explaining in part, some of the heterogeneity observed among the selected studies.

Another factor that could possibly account for the heterogeneity observed is the involvement of several different professionals in the care of cancer patients, such as medical oncologists, surgeons and so forth. These professionals may be subject to different stressors and therefore

Table 2. Studies excluded from this systematic review and reasons for exclusion

Author	Year	Reason for exclusion
Armstrong & Holland (2004)	2004	Did not use MBI.
Isikham <i>et al.</i> (2004)	2004	Did not use MBI.
Lyckholm (2001)	2001	Did not use MBI.
Olley (2003)	2003	Did not distinguish in the sample the cancer care professionals from the other healthcare professionals.
Ramirez <i>et al.</i> (1996)	1996	The same group of investigators updated the survey in 2002 (Taylor <i>et al.</i> 2005). This updated analysis was included in this systematic review. In addition, we included in the review the paper (Ramirez <i>et al.</i> 1995) which reported burnout exclusively among cancer clinicians.
Whippen & Canellos (1991)	1991	Did not use MBI.
Escribà-Agüir <i>et al.</i> (2002a)	2002	Did not use MBI.
Kash <i>et al.</i> (2000)	2000	No details regarding the scores of the 3 MBI subscales.
Barni <i>et al.</i> (1996)	1996	Did not use MBI.
Johnson <i>et al.</i> (1993)	1993	Did not use MBI.

MBI, Maslach Burnout Inventory.

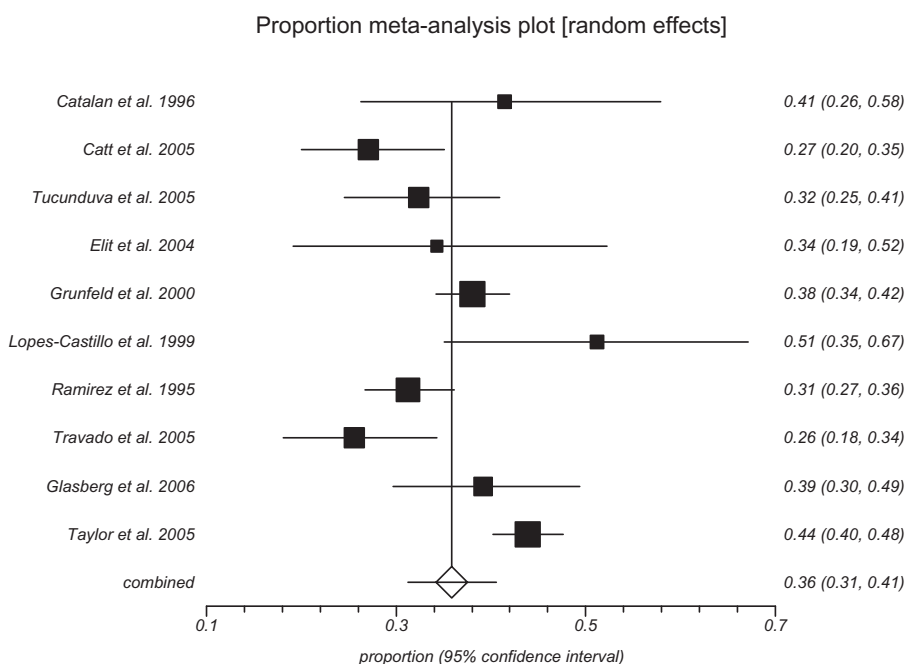


Figure 2. Overall prevalence for emotional exhaustion.

Proportion meta-analysis plot [random effects]

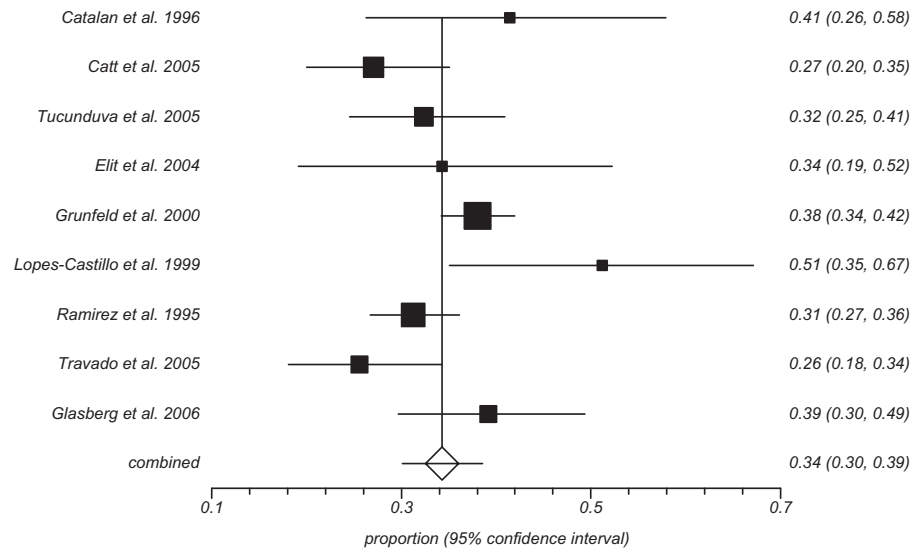


Figure 3. Overall prevalence for depersonalization.

Proportion meta-analysis plot [random effects]

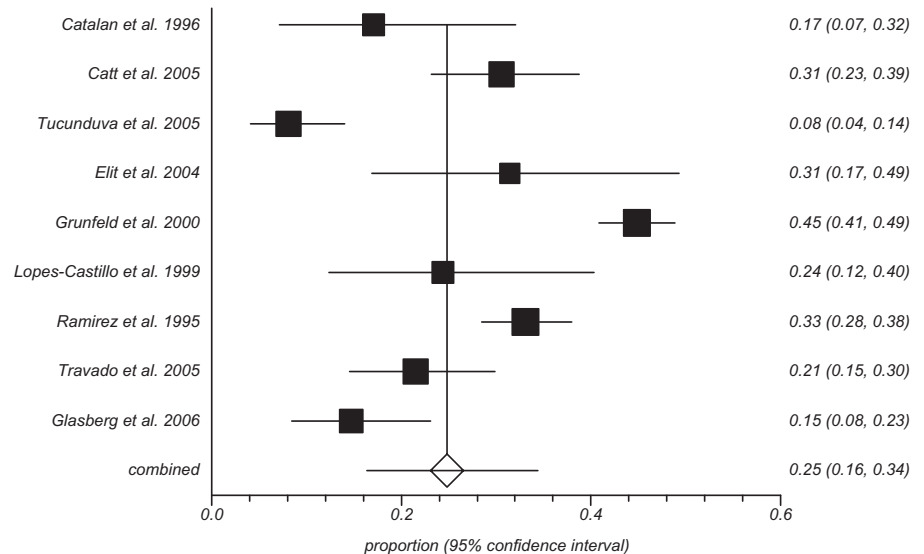


Figure 4. Overall prevalence for personal satisfaction.

have different prevalence of burnout. As outlined earlier, this was the rationale behind reporting on prevalence of burnout in physicians only.

The overall rate of response was approximately 70–100% except for the Brazilian study in which it was of 20% (Tucunduva *et al.* 2006). This low response rate could have potentially led to underestimation of the prevalence of burnout in the study in question. However, subsequent elimination of studies reporting response rates of less than 40% did not eliminate the significant

heterogeneity observed earlier. Therefore, variability in response rates throughout the studies included in this meta-analysis did not seem to account for the observed heterogeneity.

Most of the surveyed burnout subjects were male, except for the study by Travado *et al.* (2005) in which the authors found a lower rate of EE in female subjects. Similar results were reported in a study by Lopez-Castillo *et al.* (1999) which also found lower GHQ and EE scores in women. All the included studies, except for those by

Table 3. Factors significantly associated with burnout according to the included studies

Study	Personal life-related factors	Work-related factors	
		Physician–patient relationship related	Working conditions
Tucunduva <i>et al.</i> (2006)	<u>Physical activity, hobby</u>	<u>Lower patient load</u>	Working in private practice, <u>less paper work</u>
Catalan <i>et al.</i> (1996)	<u>GHQ, social activities, leisure time, psychological support, age, sexuality</u>		<u>Adaptation to working conditions</u>
Elit <i>et al.</i> (2004)	Age, GHQ, <u>vacation time</u>	Time spent in direct contact with patients	Satisfaction with job, retirement planning, number of team members, number of patients seen, time spent with administrative functions, <u>education and research</u>
Ramirez <i>et al.</i> (1995)	GHQ, age	High stress and low satisfaction from dealing with patients and low satisfaction from having adequate resources	Feeling overloaded, insufficient training with communication and management skills
Lopez-Castillo <i>et al.</i> (1999)	<u>Social activities, leisure, age</u>	Working with families, elderly and incapacitated patients	<u>Work adjustment, interest in research, and having chosen to work in their position, participation in treatment decisions, recognition</u>
Travado <i>et al.</i> (2005)		Lower confidence in communication skills and higher expectations of a negative outcome, following physician–patient communication	
Taylor <i>et al.</i> (2005)	Influence on family life due to increased workload.	Dealing with distressed, angry and blaming patients	Feeling poorly managed and resourced, increased workload, managerial responsibilities.
Glasberg <i>et al.</i> (2007)	<u>Burnout correlated significantly with living with a companion, not having a hobby/physical activity</u>		<u>Rating vacation time as insufficient ($P = 0.0047$)</u>

In the papers by Catt *et al.* and Grunfeld *et al.* no statistical significant correlations were identified. Factors correlated negatively with burnout are underlined whereas those correlated positively were not underlined.

GHQ, General Health Questionnaire.

Grunfeld (Grunfeld *et al.* 2000) and Elit (Elit *et al.* 2004), also showed positive correlation between higher scores on the GHQ and for EE.

In terms of factors associated with burnout, several were found to be common across some of the included studies, such as decreased leisure time, decreased social activities, difficulties with the patient–physician relationship and in dealing with patients' families. These findings corroborate the notion that for burnout to be prevented one needs to achieve a balance between personal and career-related goals and also to learn efficient coping strategies to deal with suffering patients and their families (Shanafelt *et al.* 2005).

Our study had important limitations including the small number of studies that fulfilled the criteria for inclusion, the impossibility of individualization of MBI scores for the different professions present in teams caring for cancer patients, and the fact that our data were drawn

from the published papers and not directly from the investigators' databases. We do not believe, however, that an individual data meta-analysis would significantly have changed the very significant heterogeneity we observed in this study.

We conclude that severe involvement of one or more dimensions of the MBI is frequent among professionals caring for cancer patients, and that further studies evaluating the role of regional and cultural factors in contributing to burnout syndrome should be undertaken.

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