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Burnout and work stress among medical oncologists: Egyptian multi-centric study

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Abstract

Background: Cancer-care health professionals are at great risk of workplace stress and high burnout levels. Only a few studies were studying the prevalence of workplace stress and burnout in medical oncologists in Egypt. The aim of the work is to study the prevalence of burnout levels and work stress among medical oncologists working at multi-centers in Egypt (Cairo, Menoufia, Fayoum, and Assiut university hospitals). A cross-sectional study was conducted on a total of 100 medical oncologists at four medical oncology centers in Egypt. Self-administered Maslach Burnout Inventory (MBI) questionnaire and Workplace Stress Scale (WSS) were used to assess the burnout and stress levels respectively among the participants.

Results: Out of 100 participants, 32% were overall burnout positive as they met the criteria for all the burnout subscales. The percentages of emotional exhaustion, depersonalization, and reduced personal capacity were 30%, 30%, and 25%, respectively. About 60% were having job stress. The present study showed that younger age (≤ 40 years), female gender, being single, with no children, junior physicians (residents or physicians < 10 years in practice), with work time directed to both patient care and research, and those with more than 6 shifts per month were associated with higher burnout and workplace stress.

Conclusion: Medical oncologists experienced high burnout levels and workplace stress. More studies are needed to assess these problems in large scales to try to mitigate them.

Keywords: Work stress, Burnout, Oncologists, Egypt

Background

Burnout is a highly important issue to be taken care of in any professions dealing directly with people, including medical professions, and has its effects on nations' productivity and service quality [1].

The work stress has a direct consequence on physical and psychological aspects of oncology members. A great range of healthcare workers including physicians and nurses in cancer centers may experience high level of burnout. It is extremely stressful to work with cancer patients particularly to those diagnosed with an end-stage disease [2].

Forty-five percent of the medical oncologists affiliated to the American Society of Clinical Oncology (ASCO) have high burnout levels in the subscale of emotional exhaustion and/or depersonalization [3]. Numerous studies have tried to explore the effect of work on the psychological health of oncologists [4].

The objective of this study was to identify the burnout and associated factors among medical oncologists working at multi-centers in Egypt (Cairo, Menoufia, Fayoum, and Assiut university hospitals) and to assess the level of workplace-related stress among them.

Methods

Study population

This cross-sectional study was conducted on volunteering oncologists working at four medical oncology centers, of four clinical oncology departments in four

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This study was carried out at Cairo university hospitals (large center in the capital of Egypt), Menoufia university hospital (large center in Delta), and Fayoum and Assiut university hospitals (large centers in Upper Egypt), between January and June 2019. A total of 100 oncologists at these centers volunteered to participate. Informed written consent to participate and publish was obtained from each participant. The confidentiality of participants was preserved.

Each participant filled out a self-administrated questionnaire consisting of three parts. Sociodemographic and occupational background were administered in the first part. The second part presented the validated Arabic version of the Maslach Burnout Inventory (MBI) which was administered to assess burnout [5]. It included 22-items containing three subscales: the emotional exhaustion (EE) (9 items), the depersonalization (DP) (5 items), and the personal accomplishment (PA) (8 items). Burnout was defined as high scores of EE, high scores of DP, or low scores of PA. The subscale total scores were 54 for emotional exhaustion, 48 for personal accomplishment, and 30 for depersonalization. The level of burnout was high if emotional exhaustion was ≥ 27 , PA was ≤ 21 , and DP was ≥ 13 ; moderate if EE was 17–26, personal accomplishment was 38–22, and depersonalization was 7–12; and low if emotional exhaustion was ≤ 16 , personal accomplishment was ≥ 39 , and depersonalization was ≤ 6 [5].

Last in the 3rd part, participants received the Workplace Stress Scale to determine stress level [6]. Workplace Stress Scale is a Likert type scale with 8 questions and 5 responses to each question. Each response option is scored from (1–5), i.e., (1) never, (2) rarely, (3) sometimes, (4) often, and (5) very often. The interpretation of WSS scores is as follows: score of 15 or lower [no stress], score 16 to 20 [low stress], score 21–25 [moderate stress], score 26–30 [severe stress], score 31–40 [highly severe stress].

Statistical analysis

Results were analyzed by the statistical package for social science (SPSS) version 23 [7]. Chi-square test (χ^2) was used to study association between qualitative variables. Whenever any of the expected cells were less than five, Fisher's exact test was used. Odds ratio for potential risk factors for overall burnout or stress was reported from univariate logistic regression analysis. Two-sided *P* value < 0.05 was considered statistically significant.

Results

Out of our sample (100 participants), 40% were aged ≤ 30 years, 60% were females, and 60% were married and 45% had at least one child (45%). Forty percent of the

studied oncologists were married to doctors, and 45% had a satisfactory income (Table 1).

About one third (35%) of the responders were residents, 55% worked > 28 h per week, 70% had their work time directed mainly to both patients' care and scientific research (Table 2). Seventy-three percent of them were on duty all the week, 65% had more than 6 shifts per month (during weekdays from 8 PM to 8 AM or weekend shifts), and most of them reported that oncology work is boring (73%) (Table 2).

The prevalence of burnout and work stress among oncologists is shown in Table 3. Out of 100 subjects, 32% were overall burnout positive (95% CI 23.67–41.66%) in all burnout subscales, while the percentages of those who were suffering EE, DP, and reduced PA were 30%, 30%, and 25%, respectively. About two-thirds of the responders (60%, 95% CI 49.7–69.52%) had workplace stress as defined by the Workplace Stress Scale created by the American Institute of Stress (AIS).

Overall burnout and job stress were significantly higher among oncologists who were females, ≤ 40 years of age, had a satisfactory income, single or divorced, and had no children (Table 4). Oncologists who have less

Table 1 Sociodemographic characteristics of the studied oncologists

Personal characteristics	<i>N</i> = 100 (%)
Age (years)	
20–29	40 (40.0)
30–39	20 (20.0)
40–49	20 (20.0)
50–59	15 (15.0)
> 60	5 (5.0)
Gender	
Male	40 (40.0)
Female	60 (60.0)
Relationship status	
Single	30 (30.0)
Married	60 (60.0)
Divorced	10 (10.0)
No children	35 (35.0)
At least one child	45 (45.0)
≥ 2 children	20 (20.0)
Partner or spouse's current profession? (<i>n</i> = 60)	
Physician	40 (66.7)
Others	20 (33.4)
Income	
Able to save	25 (25.0)
Satisfactory	45 (45.0)
Not satisfactory	30 (30.0)

Table 2 Professional characteristics and working conditions of the studied oncologists

Professional characteristics	N = 100 (%)
Years in practice	
< 10	50 (50%)
10–19	30 (30.0)
≥20	20 (20.0)
Academic status	
Professor	13 (13.0)
Assistant professor	12 (12.0)
Lecturer	20 (20.0)
Assistant lecturer	30 (30.0)
Resident	35 (35.0)
Hours worked per week	
≤ 28	45 (45.0)
≥ 28	55 (55.0)
Work time directed mainly to	
Patient care only	30 (30.0)
Research only	0 (0.0)
Both	70 (70.0)
On duty all week	
Yes	73 (73.0)
No	27 (27.0)
> 6 shifts per month	
No	35 (35.0)
Yes	65 (65.0)
Oncology work is boring	
Yes	73 (73.0)
No	27 (27.0)

than 10 years in practice and those who work more than 6 shifts per month showed significantly higher rates of work stress ($P < 0.05$) (Table 5).

Discussion

Oncologists are liable to burnout syndrome due to the task of caring for cancer patients and their families, in addition to the psychological stressors related to their suffering [8, 9].

In this study, the overall prevalence of those experiencing burnout among oncologists was 32%. High burnout rates for the emotional exhaustion, depersonalization, and personal accomplishment subscales were found to be 30%, 30%, and 25%, respectively. This was consistent with the global frequency of burnout over the past decade for the medical oncologists in the USA, Australia, and Europe [2, 10–12]. In 2005, the study by Allegra et al. [9] of over 1700 medical oncologists found that nearly 62% of medical oncologists in the USA

Table 3 Distribution of burnout and workplace stress scale grades among oncologists

	Overall (n = 100)
Maslach Burnout Inventory Scores	
Emotional exhaustion	
Low	35 (35%)
Moderate	35 (35%)
High (burnout)	30 (30%)
Depersonalization	
Low	34(34%)
Moderate	36 (36%)
High (burnout)	30 (30%)
Personal accomplishment	
High	45 (45%)
Moderate	30 (30%)
Low (poor score)	25 (25%)
Overall burnout positive	32 (32%) (95% CI 23.67–41.66%)
Work Place Stress Scale Grades	
Fairly low	40 (40.0%)
Moderate	25 (25.0%)
Severe	25 (25.0%)
Dangerous	10 (10.0%)
Overall workplace stress positive	60 (60%) 95% CI 49.7–69.52%

experienced specific symptoms of burnout, including three signs: frustration (78%), emotional exhaustion (69%), and lack of work satisfaction (50%). Also, 45% of the American Society of Clinical Oncology (ASCO) members have described experiencing EE and/or DP symptoms of burnout [2]. In Australia and Europe, burnout rates vary significantly, from 52 to 78% based on the tools used in screening, specialty of medical oncology, health care systems, and practice [10–12]. For example, in Australia, 57% wished to reduce work hours, 43% reported a desire to leave their current position, 36% of gynecologic oncologists showed a high degree of EE, and 29% considered retirement [12]. In France, a study of 340 medical and radiation oncologists using the Maslach Burnout Inventory (MBI) found that 44% believed burnout was prevalent, with a desire to stop working in medicine [11].

The same results were found in members of oncology center in a survey study in Turkey where 42% had high scores of emotional exhaustion, 20% had high scores of depersonalizations, and 35.6% had low scores of personal accomplishment [13]. Also, this was consistent with Elen et al. [14] who reported job stress and a high level of burnout in medical oncologists.

In this study, more than half of the included oncologists suffered from stress. This finding supported the

Table 4 Relation of burnout subscales and workplace stress to the sociodemographic data of the studied oncologists

Sociodemographic characteristics	Overall burnout **positive <i>n</i> = 32 <i>n</i> (%)	Odds ratio	Workplace stress <i>n</i> = 60 <i>n</i> (%)	Odds ratio
Age				
≤ 40 years (60)	27 (84.4)	5.73 (1.97, 16.63)	45 (75.0)	5.00 (2.10, 11.90)
> 40 years (40)	5 (15.6)		15 (25.0)	
<i>P</i> value	0.001*		< 0.001*	
Gender				
Male (40)	8 (25.0)		20 (33.3)	
Female (60)	24 (75.0)	2.67 (1.05, 6.77)	40 (66.7)	2.00 (0.88, 4.54)
<i>P</i> value	0.035*		0.095	
Marital status				
Single and divorced (40)	25 (78.1)	12.62 (4.57, 34.83)	35 (58.3)	9.80 (3.37, 2.90)
Married (60)	7 (21.9)		25 (41.7)	
<i>P</i> value	< 0.001*		< 0.001*	
Number of children				
0 children (35)	24 (75.0)	15.55 (5.56, 43.46)	32 (53.3)	14.10 (3.91, 50.76)
1 ≥ child (65)	8 (25.0)		28 (46.7)	
<i>P</i> value	< 0.001*		< 0.001*	
Income				
Satisfactory (70)	25 (78.1)	1.83 (0.69, 4.85)	45 (75.0)	1.80 (0.76, 4.28)
Not satisfactory (30)	7 (21.9)		15 (25.0)	
<i>P</i> value	0.22		0.18	

*Significant at $P \leq 0.05$ level

**Burnout defined as high emotional exhaustion or depersonalization or low professional accomplishment

concern that oncologists working in clinical oncology departments are experiencing high levels of distress which was the same for the majority of oncologist worldwide [15, 16].

Many specific individual risk factors are associated with burnout and workplace stress. The present study showed that factors like younger age (≤ 40 years), female gender, being single, with no children, junior physicians (residents or physicians < 10 years in practice), with work time directed to both patients' care and research, and those with more than 6 shifts per month were associated with high burnout and workplace stress.

This was consistent with a previous study which showed that risk factors associated with high burnout levels included younger age (≤ 55 years), female gender, junior oncologists (physicians ≤ 5 years from training or residents), and single oncologists [3].

Age was considered as a causal factor for burnout and job stress as the early years of the career may be the most difficult ones. In this study, younger oncologists showed higher levels of burnout and workplace stress. Several studies have also reported that younger physicians had experienced higher levels of burnout [10, 13, 17].

Additionally, oncologists with less than 10 years of practice and who are assigned more than 6 shifts per month showed significantly higher rates of workplace

stress. These results could be explained by the fact that postgraduate study usually requires much physical and mental efforts. In Egypt, a postgraduate study needs about 3 years of study and research to get a master's degree and another 5 years for a PhD degree. These heavy academic needs, in addition to the stressful job as an oncologist, explain the finding that young oncologists (< 10 years of practice) were the most vulnerable group to burnout and stress. Also, residents felt they do not have control over their decisions, which may cause a low score on a sense of PA and causes feelings of inadequacy. This may result in an increase in the workplace stress scale in juniors as well.

In this study, professors were less complaining of work stress, since they adapt to coping with stressors and burnout. They manage stressors better as they get older and have achieved good academic positions.

Having children and being married were found to be self-protective against all stages of burnout among cancer-care health professionals [10, 17–21]. Similarly in our study, the overall burnout positive oncologists was significantly higher in association with single marital status ($p < 0.001$) and also having children tends to be protective and statistically significant ($p < 0.001$) effect against burnout. Other studies suggested that the burnout is not related to marital status [22].

Table 5 Relation of burnout subscales and workplace stress to working conditions of the studied oncologists

	Overall burnout **positive <i>n</i> = 32 <i>n</i> (%)	Odds ratio	Workplace stress <i>n</i> = 60 <i>n</i> (%)	Odds ratio
Years in practice				
< 10 years (50)	20 (62.5)	2.11 (0.89, 4.99)	40 (66.7)	6.00 (2.45, 14.68)
≥ 10 years (50)	12 (37.5)		20 (33.3)	
<i>P</i> value	0.086		< 0.001*	
Work time is directed mainly to				
Patient care only (30)	10 (31.2)		14 (23.3)	
Both patient care and research (70)	22 (68.8)	1.09 (0.44, 2.71)	46 (76.7)	2.19 (0.92, 5.23)
<i>P</i> value	0.851		0.074	
On duty all week				
Yes (73)	23 (71.9)	0.92 (0.36, 2.36)	40 (66.7)	0.42 (0.16, 1.13)
No (27)	9 (28.1)		20 (33.3)	
<i>P</i> value	0.946		0.129	
> 6 shifts per month				
Yes (65)	22 (68.8)	1.28 (0.52, 3.13)	49 (81.7)	6.68 (2.69, 3.99)
No (35)	10 (31.2)		11 (18.3)	
<i>P</i> value	0.589		< 0.001*	
Oncology work is tedious and boring				
Yes (73)	22 (68.8)	0.73 (0.29, 1.85)	40 (66.7)	0.42 (0.16, 1.13)
No (27)	10 (31.2)		20 (33.3)	
<i>P</i> value	0.511		0.080	

*Significant at $P \leq 0.05$ level

**Burnout defined as high EE or DP or low PA

Studies assessing the impact of gender on burnout syndrome revealed debatable results. While numerous studies did not show gender as a significant factor for burnout, others found that females demonstrated higher burnout scores than males [10, 22].

In this study, the female oncologist had higher rates of burnout and workplace stress than the males. The suggested explanation for this is that most of the sample were female (60%) and that bringing up children is exhausting for female in Egypt and therefore affecting their development of depersonalization. This was not consistent with a Turkish study which showed that female oncologists have a higher personal accomplishment and lower depersonalization levels than males [23].

In this study, oncologists who work more than 6 different shifts per month had high statistically significant stress than others. This can be explained on the basis that oncologists who were overloaded by mental and physical loads were more stressed and had higher burnout levels.

These results were consistent with other studies. For example, a Turkish study conducted on medical oncologists revealed that those who had more shifts appeared to have higher risk for burnout [21]. In another study, the highest burnout scores among physicians may be related to extended working hours and work overloads [24].

In addition, 73% of oncologists in the present study reported that oncology work is boring. This can explain the higher rate of burnout in the present study in comparison to other studies.

Limitations

The present study had several limitations. Authors choose to study a group of Egyptian university oncologists so these results may not be generalized to all the world's oncologists. Another limitation of this study was the small number of participants; it was less than what was expected. Also, because we evaluated the burnout levels at only one time, we could not know the moods of participants at that time as they were answering the questionnaire. This may lead to some confounding effects on the results.

Conclusion

Burnout and workplace stress are major problems in cancer-care health professionals. They need a well-organized strategy to improve their job stresses. Psychometric assessment tools should monitor oncologists' psychological status, burnout, and their job stress for good quality of life.

Abbreviations

MBI: Maslach Burnout Inventory; EE: Emotional exhaustion; DP: Depersonalization; PA: Personal accomplishment

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Authors' contributions

SF, SA, SS, MS, and WA analyzed and interpreted the patient data regarding the clinical data and psychometric tools, and MR was a major contributor in writing the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

Not applicable

Ethics approval and consent to participate

This study was approved by the Ethics Committee of Faculty of Medicine, Menoufia University. Written informed consents were obtained from subjects of the study. The number of approvals is not applicable.

Consent for publication

Not applicable.

Competing interests

"The authors declare that they have no competing interests" in this section.

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References

- Fekry M, Mohsen N, Morsy M, El Serafy D, Salah M (2020) Burnout syndrome among psychiatrists in Egyptian mental health hospital. *Middle East Curr Psychiatry* 27(1):1–10
- Whippen DA, Canellos GP (1991) Burnout syndrome in the practice of oncology: results of a random survey of 1,000 oncologists. *J Clin Oncol* 9: 1916–1920. <https://doi.org/10.1200/JCO.1991.9.10.1916>
- Hlubocky FJ, Back AL, Shanafelt TD (2016) Addressing burnout in oncology: why cancer care clinicians are at risk, what individuals can do, and how organizations can respond. *Am Soc Clin Oncol Educ Book* 36:271–279
- Travado L, Grassi L, Gil F, Ventura C, Martins C, SEPOS (2005) Physician–patient communication among Southern European cancer physicians: the influence of psychosocial orientation and burnout. *Psychooncology* 14:661–670
- Maslach C, Jackson S (1986) *Maslach Burnout Inventory Manual*, 2nd edn. Consulting Psychologists Press, Palo Alto
- The American Institute of Stress (AIS) Handling Job Stress Questionnaire. From: <http://www.stress.org> Accessed: Sep 2011.
- Grunfeld E, Whelan TJ, Zitzelsberger L, Willan AR, Montesanto B, Evans WK (2000) Cancer care workers in Ontario: prevalence of burnout, job stress and job satisfaction. *Can Med Assoc J* 163(2):166–169
- Catalan J, Burgess A, Pergami A et al (1996) The psychological impact on staff of caring for people with serious diseases: the case of HIV infection and oncology. *J Psychosom Res* 40:425–435 [PubMed] [Google Scholar]
- Shanafelt T, Dyrbye L (2012) Oncologist burnout: causes, consequences, and responses. *J Clin Oncol* 30:1235–1241 [PubMed] [Google Scholar]
- Allegra CJ, Hall R, Yothers G (2005) Prevalence of burnout in the U.S. oncology community: results of a 2003 survey. *J Oncol Pract* 1:140–147 Link, Google Scholar
- Trufelli DC, Bensi CG, Garcia JB et al (2008) Burnout in cancer professionals: a systematic review and meta-analysis. *Eur J Cancer Care (Engl)* 17:524–531 Medline, Google Scholar
- Blanchard P, Truchot D, Albiges-Sauvin L et al (2010) Prevalence and causes of burnout amongst oncology residents: a comprehensive nationwide cross-sectional study. *Eur J Cancer* 46:2708–2715 Medline, Google Scholar
- Stafford L, Judd F (2010) Mental health and occupational wellbeing of Australian gynaecologic oncologists. *Gynecol Oncol* 116:526–532 Medline, Google Scholar
- Demirci S, Yildirim YK, Ozsaran Z, Uslu R, Yalman D, Aras AB (2010) Evaluation of burnout syndrome in oncology employees. *Med Oncol* 27(3): 968–974
- Elen S, Bauwens S, Baillon C, Distelmans W et al (2014) The prevalence of burnout among oncology professionals: oncologists are at risk of developing burnout. *Psychooncology* 23
- Whippen DA, Canellos GP (1991) Burnout syndrome in the practice of oncology: results of a random of 1,000 oncologists. *J Clin Oncol* 9(10):1916–1920
- Alacacioglu A, Yavuzsen T, Dirioz M, Oztop I, Yilmaz U (2008) Burnout in nurses and physicians working at an oncology department. *Psychooncology*
- Glasberg J, Horiuti L, Novais MA, Canavezzi AZ et al (2007) Prevalence of the burnout syndrome among Brazilian medical oncologists. *Rev Assoc Med Bras* 53(1):85–89
- Kuerer HM, Eberlein TJ, Pollock RE, Huschka M, Baile WF et al (2007) Career satisfaction, practice patterns and burnout among surgical oncologists: report on the quality of life of members of the Society of Surgical Oncology. *Ann Surg Oncol* 14(11):3043–3053
- Liakopoulou M, Panaretaki I, Papadakis V, Katsika A, Sarafidou J et al (2008) Burnout, staff support, and coping in pediatric oncology. *Support Care Cancer* 16(2):143–150
- Ozyurt A, Hayran O, Sur H (2006) Predictors of burnout and job satisfaction among Turkish physicians. *QJM* 99(3):161–169
- Embrico N, Azoulay E, Barrau K et al (2007) High level of burnout in intensivists: prevalence and associated factors. *Am J Respir Crit Care Med* 175(7):686–692
- Scott E. Job burnout: job factors that contribute to employee burnout. What makes some jobs more stressful? From: www.stress.about.com Accessed: Feb 2010.
- Olkinuora M, Asp S, Juntunen J, Kauttu K, Strid L, Aarimaa M (1990) Stress symptoms, burnout and suicidal thoughts in Finnish physicians. *Soc Psychiatr Epidemiol* 25:81–86 [PubMed]

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