

Burnout In Emergency Department Healthcare Professionals Is Associated With Coping Style

Nawaf Najm Abdulaziz Althobaiti¹, Meshari Eid Algethami¹, Ahmed Hassan Alharbi¹, Alosaimi Abdullah Dulaybih M¹, Ali Ahmad Ali Alkhiri¹, Omar Ahmed Al Ghubaishi¹, Tariq Hamad Alluhaybi¹, Bassam Saleh Mohammedamin Ali¹, Ahmed Saeed Alomari¹, Nawaf Abdullah Almehmadi², Fahd Saad Ali Bn Shalaan³

Abstract

Background: Burnout is a common problem among healthcare professionals (HCPs), in particular young doctors and nurses working in emergency medical services. Ineffective coping may lead to impaired job performance and burnout, with adverse consequences to staff well-being and patient outcomes. The study aim: To examine the relationship between coping styles and burnout in emergency physicians, nurses and support staff at seven small, medium and large emergency departments (ED) in KSA. **Methods:** A cross-sectional survey of 616 ED staff members from January to May 2022. Linear regression with the Coping Inventory for Stressful Situations (CISS) and Maslach Burnout Inventory (MBI) was used to evaluate the effect of coping style on levels of burnout. CISS measures coping style in three categories: task-oriented, emotion-oriented and avoidance-oriented coping; MBI assesses the level of burnout in healthcare workers. **Results:** Task-oriented coping was associated with decreased risk of burnout, while emotion-oriented coping was associated with increased risk of burnout. Specific coping styles are associated with varied risk of burnout in ED staff across several different types of hospitals in a regional network. Coping style intervention may reduce burnout, while leading to improvement in staff well-being and patient outcomes. Further studies should focus on building and sustaining task-oriented coping, along with alternatives to emotion-oriented coping. **Conclusion:** Coping styles and burnout among ED professionals share a relationship that is consistent across different types and sizes of facilities. Task-oriented coping predicts decreased burnout, while emotion-oriented coping style predicts increased burnout.

Introduction

Burnout, which is a dimension of stress in healthcare workers, has emerged in many countries due to the decrease in the level of welfare and the restriction of health care expenditures. Healthcare workers are experiencing hopelessness due to work intensity, low wages, increase in the number of patients and unfavorable working conditions. Therefore, empowering healthcare workers and increasing their working power is a fundamental problem in many parts of the world, especially in developing countries⁽¹⁾. Burnout is defined as employees' distancing from the meaning and purpose of the profession, no longer being genuinely interested in the patients, experiencing excessive stress and psychologically withdrawing themselves from the profession⁽²⁾.

¹Emergency medical services, King Abdulaziz Hospital, Saudi Arabia.

²Emergency Medical Services, Heraa general hospital, Saudi Arabia.

³Emergency medical services technician, Al-Rain General Hospital, Saudi Arabia.

Burnout in healthcare professionals (HCPs) is quite common and is an important problem in terms of its consequences⁽³⁾. Burnout in HCPs who provide patient-oriented services under difficult conditions causes a decrease in their job success and emotional fatigue. Therefore, the concept of burnout and effective factors is becoming increasingly important for HCPs⁽⁴⁾. Burnout negatively affects the quality and efficiency of the service provided. The quality of life of people experiencing burnout decreases, marriage and family life are negatively affected, inability to fulfill their duties occurs, insomnia and physical fatigue occur, drug, narcotic and excessive alcohol use increases⁽⁵⁾. Burnout has negative consequences not only on individuals but also on health institutions in the form of decreased performance, increased absenteeism and turnover⁽⁶⁾.

High levels of burnout exist among emergency department (ED) physicians, nurses and support staff⁽⁷⁻⁹⁾. Waiting times, a demanding public, hospital crowding and inadequate human resources are common stressors in ED⁽¹⁰⁾. Over the long term, workers in intense patient-centered environments can find their interest and energy eroded by the demands; their engagement is gradually replaced by cynicism, emotional depletion, loss of motivation and reduced commitment, leading to a crisis in professional competence⁽¹¹⁾. This is the syndrome of burnout as described by Maslach et al. (1996)⁽¹²⁾. The three classic symptoms for burnout are loss of enthusiasm for work (emotional exhaustion); reduced empathy and increased cynicism (depersonalization); and a decreased sense that one's work is meaningful, leading to inefficacy (personal accomplishment)⁽¹²⁾.

Several studies have reported high levels of burnout in ED staff. An American source reported a 32.1% rate for emotional exhaustion⁽¹³⁾, while a Canadian study reported 46% of ED physicians scored medium-to-high burnout in all burnout scales⁽⁷⁾. A large 2011 survey of 7288 US physicians found that emergency physicians suffered the highest reported rates of burnout when compared to all specialties⁽¹⁴⁾. Leiter and Laschinger, (2006)⁽¹⁵⁾ noted that nurses reporting unpleasant contacts with supervisors scored higher for burnout. Burnout is also associated with job stress, a known factor in higher suicide rates in physicians⁽¹⁶⁾. Jourdain and Chênevert, (2010)⁽¹⁷⁾ found job demands to be a strong determinant of burnout, with a lack of resources also being predictive.

In team environments, situations of increased job stress and burnout can lead to impaired cognitive functioning, increasing the potential for patient harm⁽¹⁸⁾. A large body of literature outlines the potential adverse outcomes of burnout for staff, which include illness and absenteeism, staff conflict, distrust of management, poor coping and substance abuse^(8, 13-15, 17, 19-24). Clinical consequences of burnout include medical errors and adverse events, poor prescribing habits, low patient satisfaction and low adherence to physician recommendations⁽²⁵⁾. Another major problem for hospitals is retention of highly trained critical care staff, as ED staff leaves their profession at a higher rate than those in other specialties⁽²⁶⁾.

Although burnout is common among ED staff and is associated with a number of adverse outcomes⁽²⁷⁾, not all ED staff demonstrate burnout. Some members will thrive in the same seemingly stressful environment. One important factor that may influence the likelihood of burnout is an individual's coping style⁽²⁸⁾. Poor coping may lead to impairment in job performance, and staff at greatest risk of burnout may be those whose coping strategies are ineffective. Associations between emotion-oriented coping styles and higher levels of burnout have been documented in nurses and nursing students^(29, 30).

Coping styles may thus affect staff well-being and retention through an effect on burnout, therefore being potentially amenable to intervention at an organizational level⁽³¹⁾. If this relationship is confirmed, interventions targeting coping styles could reduce burnout and its consequences⁽⁸⁾. This study was undertaken to determine if there was any

association between burnout and coping styles within multidisciplinary ED staff teams in several types of ED facilities. The results from this study may lead to the identification of coping styles as an area for burnout intervention with a potential improvement in staff health and patient outcomes.

Methods

A cross-sectional survey of all 616 full-time and part-time physicians, certified nurses and support staff was performed at two small, two medium and three large hospitals in KSA. Participation was voluntary and confidential. The study was approved by the Ethical Committee of University.

The survey tools included the Maslach Burnout Inventory for Human Services Survey (MBI), the Coping Inventory for Stressful Situations (CISS) and a section on demographic details. The MBI is a validated 22-item tool that is the leading measure of burnout in the workplace^(12, 28, and 31). Level of burnout is low, medium or high using the three subscales of emotional exhaustion, depersonalization and personal accomplishment⁽⁸⁾. The Emotional Exhaustion subscale means feelings of being emotionally overextended and exhausted by one's work with people (loss of enthusiasm for work); depersonalization means an unfeeling and impersonal response towards patients care (reduced empathy and increased cynicism); and personal accomplishment means feelings of competence and successful achievement (a sense that one's work is meaningful).

The CISS is a 48-item self-report survey⁽²⁸⁾ that measures the different ways workers cope when faced with a stressful situation. Three major styles of coping response are identified: task oriented, emotion oriented and avoidance oriented. Task-oriented coping is dealing with the issue at hand; examples include outlining priorities or learning from mistakes. Emotion-oriented coping is experiencing emotional distress; examples include becoming tense or blaming one-self. Avoidance-oriented coping uses distractions such as socializing away from work or doing a hobby⁽³²⁾.

A demographic survey captured age; gender; profession (physician, nurse, nurse support worker); years worked in the ED; relational status and social support; type of ED facility; wanting to leave healthcare for a new career and patient visit data. The study was modeled after a pilot study performed at hospital ED. The MBI⁽¹²⁾, CISS⁽²⁸⁾ and a demographic survey in paper format were offered by a site coordinator to each staff as an anonymous package during a devoted 15 min break at work. It was privately completed, sealed and returned to the site coordinator. Participation was voluntary and confidential. Investigators were blinded to study participants, profession and facility.

Data analysis: basic descriptive statistics were calculated for all baseline participant characteristics, as well as all outcome variables. Means and SDs were calculated for continuous variables, while frequencies and percentages were produced for categorical variables. Scatter plots and correlations were examined to assess the form and strength of relationships between coping skills and the outcome MBI burnout scores. Multivariate linear regression models were constructed to examine the adjusted relationships between the MBI scale scores on baseline covariates and the CISS subscale scores.

Initially, all covariates of interest were fit independently to a simple linear regression model on each of the three MBI sub-scales. Variables with p values less than 0.20 were retained for the multivariate model fitting stage. For each outcome, a final model was selected using a stepwise procedure with the Aikake Information Criterion (AIC). Residual plots were used to examine model assumptions^(32, 33). All analyses were conducted using SPSS, V.28.

Results

A total of 322 surveys were submitted. Seven surveys had insufficient data for the first analysis and were removed. This resulted in completed questionnaires from 315 of 616 ED clinical staff at seven sites, a response rate of 51%. **Table (1, 2)** provides participant baseline characteristics, along with the CISS and MBI scale results.

Results from linear regression on MBI subscales

All effect sizes and SDs from the univariate and multivariate linear regression on the three MBI scales can be seen in (**table 3**).

Coping style as a predictor of burnout

Task or problem-focused coping was a significant univariate predictor of lower emotional exhaustion (effect = -0.25 , $p < 0.001$), lower depersonalization (effect = -0.25 , $p < 0.001$) and higher personal accomplishment (effect = 0.25 , $p < 0.001$). In the final multivariate models, task-oriented coping was only associated with higher personal accomplishment and thus lower levels of burnout (effect = 0.21 , $p < 0.001$). Emotion-oriented coping responses were significant univariate and multivariate linear predictors of higher emotional exhaustion (effect = 0.22 , $p < 0.001$), higher depersonalization (effect = 0.18 , $p < 0.001$) and lower personal accomplishment (effect = -0.13 , $p < 0.001$). There were no independent associations between burnout and avoidance-based coping strategies.

Demographic predictors of burnout

Emotional exhaustion was significantly associated with profession, length of employment in the same department and having experienced professional stress. Depersonalization was also associated with length of employment in the same department, while personal accomplishment was associated with gender. After correcting for other important factors, nurses had higher emotional exhaustion scores than support staff (effect = 4.72 , $p = 0.009$), while nurses and physicians scores were comparable. Employees working 6–10 years had higher emotional exhaustion scores (effect = 3.56 , $p = 0.029$) and higher depersonalization scores (effect = 4.55 , $p < 0.001$) than those working in the same department for less than 5 years.

Similarly, those working 11–20 years in the same department had higher emotional exhaustion scores (effect = 5.20 , $p < 0.001$) and depersonalization scores (effect = 2.52 , $p = 0.01$) than those working less than 5 years. Finally, males had higher personal accomplishment scores than females (effect = 2.17 , $p = 0.029$). There was no association between ages, years of practice, relationship status, having close relationships, experiencing a personal stress, hospital environment (large vs. small) or patient volume per year on any of the burnout scales.

Table (1) Participant characteristics on baseline variables

Categorical variables		n (%)
Gender	Female	257(84.8%)
	Male	46 (15.2%)
Occupation	Nurse	234 (74.8%)
	Physician	43 (13.7%)
	Other	36 (11.5%)
Age	20–29	59 (18.9%)
	30–39	85 (27.2%)
	40–49	93 (29.8%)
	>50	75 (24.0%)
Years in practice	0–5	85 (27.4%)
	6–10	53 (17.1%)
	10–20	80 (25.8%)
	>20	92 (29.7%)
Years in ED department	0–5	171 (55.2%)
	6–10	52 (16.8%)
	10–20	60 (19.4%)
	>20	27 (8.7%)
Faced life stress	Yes	139 (48.8%)
	No	146 (51.2%)
Faced professional stress	Yes	118 (41.8%)
	No	164 (58.2%)

Table (2) Mean and Standard deviation variables MBI outcome

Continuous Mean (SD)	variables
MBI: emotional exhaustion	21.96 (11.1)
MBI: depersonalization	9.37 (6.8)
MBI: personal accomplishment	37.10 (6.7)
CISS: emotion oriented	38.62 (10.5)
CISS: task oriented	60.78 (8.9)
CISS: avoidance oriented	43.92 (9.57)
Distraction oriented	22.27 (6.4)
Social distortion	17.26 (4.3)

CISS, Coping Inventory for Stressful Situations; MBI, Maslach Burnout Inventory

Table (3): Results of univariate and multivariate linear regression for the three MBI subscale

Emotional exhaustion

Variable	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Emotion oriented	0.37***	0.06	0.22***	0.05	0.20***	0.03	0.18***	0.04	-0.18***	0.03	-0.13***	0.03
Task oriented	-0.25***	0.07	-0.11	0.07	-0.25***	0.04	-0.08	0.04	0.25***	0.04	0.21***	0.04
Avoidance oriented	-0.10	0.07			0.04	0.04			0.03	0.04		
Male vs. female	0.47	1.76			-0.84	1.09			1.93	1.06	2.17*	0.99
Physician vs. nurse	-1.65	1.81	-1.53	1.80	-0.71	1.13			0.22	1.12		
Other vs. nurse	-6.02**	1.95	-4.72**	1.80	-2.56*	1.22			-0.004	1.20		
Age												
30-39 vs. 20-29	1.56	1.85			1.01	1.15			0.76	1.14		
40-49 vs. 20-29	1.94	1.82			-0.51	1.13			1.29	1.12		
>50 vs. 20-29	1.14	1.90			-1.48	1.18			0.23	1.17		
Years practice												
6-10 vs. 0-5	2.89	1.92			2.52*	1.19			-0.13	1.17		
11-20 vs. 0-5	3.05	1.71			1.76	1.06			-0.50	1.04		
>20 vs. 0-5	1.95	1.65			0.72	1.02			-0.77	1.01		
Years in department												
6-10 vs. 0-5	2.57	1.73	3.56*	1.62	4.02***	1.07	4.55***	1.04	0.99	1.06		
11-20 vs. 0-5	4.19*	1.64	5.20***	0.001	1.57	1.01	2.52**	0.97	0.48	1.00		
>20 vs. 0-5	3.04	2.27	2.54	2.23	1.45	1.39	1.67	1.41	-2.73*	1.38		
Life stress vs. none	0.96	1.31			0.12	0.80			0.64	0.79		
Professional stress vs. none	7.38***	1.25	6.00***	1.19	1.52	0.81			-1.20	0.80		
Single vs. married/long term	-0.84	1.71			2.01	2.34			-2.30	2.13		
Close friends vs. none	-3.40	1.91			-0.42	1.18			1.33	1.16		
From where												
NB vs. same local area	2.31	1.55			0.91	0.95			-0.32	0.94		
Maritimes vs. same local area	0.59	2.40			0.64	1.47			-0.44	1.44		
Other vs. same local area	0.92	2.06			-0.87	1.26			1.44	1.25		
Facility type												
Primary vs. tertiary	-0.60	1.53			-0.40	0.95			0.85	0.93		
Secondary vs. tertiary	-1.31	1.53			0.75	0.94			0.71	0.93		
Teaching vs. non-teaching	1.44	1.37			1.10	0.84			0.37	0.83		
Visits per year												
20-50 vs. <30 k	1.17	2.41			2.45	1.79			-1.40	1.46		
>50 vs. <30 k	3.17	2.38			1.23	1.47			-0.30	1.44		
Urban vs. suburban	1.02	1.36			0.98	0.71			0.31	0.83		

Depersonalization

Univariate

Multivariate

Univariate

Personal

Univariate

Multivariate

accomplishment

Multivariate

*

<0.05, **<0.01, ***<0.001.

MBI, Maslach Burnout Inventory; NB, New Brunswick.

Discussion

Burnout and coping style in the ED

In our study population, different coping styles are associated with different rates of burnout markers: task oriented coping is associated with a decreased risk of burnout, while emotion oriented coping style is a strong positive predictor of burnout. This association between coping styles and burnout is consistent with previous findings in various settings in the

literature^(29-31, 34-36). Training ED staff to adopt a more task-oriented and less emotion-oriented coping style could improve staff well-being and patient care. Organizations thus need further research on interventions such as coping style to decrease the risk of burnout and its negative outcomes⁽³¹⁾.

Avoidance and social diversion

Avoidance-oriented coping in the CISS includes a measure of social diversion, but did not influence burnout in our study. The lack of an association is interesting because it means that staff social diversion and distraction (eg, better social networking, hobbies, distraction from stressful conditions) seemed to have neither protective effect nor adverse consequence. Also found a distinction between the influences of work stress versus personal stress on burnout. One logical conclusion is that task-oriented skills are necessary to combat burnout⁽³¹⁾; in the context of long-term system dysfunction, socialization and distraction may not be sufficient to address burnout in the workplace.

Demographic factors

Staff working 6–10 and 11–20 years in their current department had higher burnout compared with those working 5 years or less, reflecting the effect of prolonged exposure to this high stress environment. Curiously, participants who had worked longer than 20 years, having neither relocated nor left the specialty, had less burnout. Nowakowska et al., (2009)⁽³⁷⁾ reported increased age and length of time in the job as being associated with increased use of task-oriented coping. Some individuals may adapt, maintain an effective coping style and become 'survivors'.

Support workers had lower burnout levels but there were no differences between nurses and physicians. Yates et al., (2012)⁽⁸⁾ found increased emotional stress in physicians but not in nurses, suggesting a tendency for higher burnout in those with more responsibility and accountability. Males were found to have a higher personal accomplishment level; this may reflect the tendency for males to use more assertiveness, a task-oriented coping skill in the workplace⁽³⁸⁾. Consistent with other studies, professional stress was a predictor of higher burnout; some demographic factors were not associated with burnout: age; size and increasing complexity of facility; or personal stress^(19, 29, 36, and 39).

Potential interventions

The demands of one's job, particularly in front-line health workers, are a major source of stress and have been shown in longitudinal studies to predict burnout^(31, 36, 40-42). Burnout in turn predicts a higher likelihood of negative outcomes such as decreased job satisfaction, increased absenteeism and increased intention to leave, as reflected in current findings⁽⁴⁰⁾. Jenkins and Maslach, (1994)⁽⁴¹⁾ demonstrated that workers with better psychological health are more likely to move into and remain in demanding service-oriented jobs. A prospective Danish study showed increased absenteeism in staff with high burnout over a 3-year period⁽⁴²⁾.

To raise individual and cultural change in the workplace however is challenging. Burnout remains relatively stable over many years; it is the exception rather than the rule that this syndrome will naturally heal over time⁽³¹⁾. Since coping style may reflect personality characteristics, environmental influence or both, and can, as we have shown, affect the risk of burnout, managers should be aware that coping style assessment and training may provide an effective form of intervention.

There are reasons to be optimistic; two recent Cochrane reviews and a recent paper suggest assertiveness training and cognitive behavioral approaches may reduce burnout^(39, 43, and 44). One study of 10 forensic nurses found that a coping skills intervention reduced

burnout at the end of 6-month training compared with a control group⁽⁴⁵⁾. Smith-Jentsch et al., (1996)⁽³⁸⁾ examined the determinants of assertiveness in the context of task-oriented team function. Based on a set of assertive behaviors that have been linked to effective team performance, they found effective use of team performance-related assertiveness involves a significant skill component. While both attitude-focused and skill-based training improved attitudes towards team member assertiveness, practice and feedback were essential to produce behavioral effects^(38, 46).

Deliberate planning with implementation at an organizational level may be more successful⁽³¹⁾. Leiter and Laschinger, (2006)⁽¹⁵⁾ demonstrated that a training program for ED staff, aimed at improving communication and reducing conflict, may reduce burnout and provide opportunities to improve staff well-being, while preserving the cognitive resource, improving absenteeism and staff retention, and optimizing patient care and safety^(31, 46). Indeed, some studies have shown hospital staff civility training to increase positive communication, while improving social interactions and attitudes in a way that is maintained over time^(27, 31).

Conclusion

Coping styles and burnout among ED professionals share a relationship that is consistent across different types and sizes of facilities. Task-oriented coping predicts decreased burnout, while emotion-oriented coping style predicts increased burnout. Professional stress, years of experience up to 20 years and gender influenced burnout. There was no difference between types or sizes of hospital facilities, age or personal stress. Further research should examine skills training in task-oriented coping for ED physicians, nurses and support staff, to reduce burnout and improve staff well-being and patient outcomes.

References

1. Isikhan V. Burnout syndrome in employees. In: Gulhan M, Yılmaz U, eds, Supportive therapy in lung cancer. TUSAD Educational Books Series, Ankara, 2016; 366-91.
2. Basim CH, Meydan HN, Cetin F. The effect of organizational justice perception and organizational commitment on burnout: an investigation on Turkish public sector. *Bilig*. 2011; 57:175-200.
3. Saultz J. Burnout. *Fam Med*. 2020; 52:5-7.
4. Uzuntarla Y. Sağlık hizmetlerinin sosyal yönü: kişilik, empati, duygusal emek ve tükenmişlik. IKSAD Publishing, Ankara, 2020; 25-187.
5. Koustelios A, Tsigilis N. The relationship between burnout and job satisfaction among physical education teachers: a multivariate approach. *European Physical Education Review*. 2005; 11:189-203.
6. Sullivan V, Hughes V, Wilson DR. Nursing burnout and its impact on health. *Nurs Clin North Am*. 2022; 57:153-69.
7. Lloyd S, Streiner D, Shannon S. Burnout, depression, life and job satisfaction among Canadian emergency physicians. *J Emerg Med* 1994; 12:559–65.
8. Yates P, Benson E, Harris A, et al. An investigation of factors supporting the psychological health of staff in a UK emergency department. *Emerg Med J*, 2012; 29:533–5.
9. Howlett M. Levels of burnout and issues perception by Emergency Department Staff. *CJEM* 2009; 11:251.
10. Boyle A, Beniuk K, Higginson I, et al. Emergency department crowding: time for interventions and policy evaluations. *Emerg Med Int*, 2012; 2012; 838610.

11. Schaufeli W, Leiter M, Maslach C. Burnout: 35 years of research and practice. *Career Dev Int*, 2009; 14:204–20.
12. Maslach C, Jackson S, Leiter M. Maslach burnout inventory manual. Mountain View, CA: CPP. Inc., and Davies-Black, 1996.
13. Kuhn G, Goldberg R, Compton S. Tolerance for uncertainty, burnout, and satisfaction with the career of emergency medicine. *Ann Emerg Med*, 2009; 54:106.
14. Shanafelt T, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*, 2012; 172:1377–85.
15. Leiter M, Laschinger H. Relationships of work and practice environment to professional burnout: testing a causal model. *Nurs Res*, 2006; 55:137–46.
16. Gold K, Sen A, Schwenk T. Details on suicide among US physicians: data from the National Violent Death Reporting System. *Gen Hosp Psychiatry*, 2013; 35:45–9.
17. Jourdain G, Chênevert D. Job demands-resources, burnout and intention to leave the nursing profession: a questionnaire survey. *Int J Nurs Stud*, 2010; 47:709.
18. Deligkaris P, Panagopoulou E, Montgomery A, et al. Job burnout and cognitive functioning: a systematic review. *Work Stress J*, 2014; 28:107–23.
19. Burbeck R, Coomber S, Robinson SM, et al. Occupational stress in consultants in accident and emergency medicine: a national survey of levels of stress at work. *Emerg Med J*, 2002; 19:234–8.
20. Ahola K, Honkonen T, Kivimäki M, et al. Contribution of burnout to the association between job strain and depression: the health 2000 study. *J Occup Environ Med*, 2006; 48:1023–30.
21. Becker J, Milad M, Klock S. Burnout, depression, and career satisfaction: cross-sectional study of obstetrics and gynecology residents. *Am J Obstet Gynecol*, 2006; 195:1444–9.
22. McPhillips H, Stanton B, Zuckerman B, et al. Role of a pediatric department chair: factors leading to satisfaction and burnout. *J Pediatr*, 2007; 151:425–30.
23. Panagopoulou E, Montgomery A, Benos A. Burnout in internal medicine physicians: differences between residents and specialists. *Eur J Intern Med*, 2006; 17:195–200.
24. Shanafelt T, Balch C, Dyrbye L, et al. Special report: suicidal ideation among American surgeons. *Arch Surg*, 2011; 146:54.
25. Erickson R, Grove W. Why emotions matter: age, agitation, and burnout among registered nurses. *Online J Issues Nurs* 2007; 13: 10.3912/OJIN.Vol13No01PPT01
26. Lee Y, Lee C, Chen C, et al. High risk of ‘failure’ among emergency physicians compared with other specialists: a nationwide cohort study. *Emerg Med J*, 2013; 30:620–2.
27. Leiter M, Frank E, Matheson T. Demands, values, and burnout: relevance for physicians. *Can Fam Physician* 2009; 55:1224–5.e1–6.
28. Endler N, Parker J. Coping inventory for stressful situations (CISS): Manual. Multi-Health Systems, Incorporated; 1990.
29. Jaracz K, Gorna K, Konieczna J. Burnout, stress and styles of coping among hospital nurses. *Rocz Akad Med Bialymst* 2005; 50(Suppl 1):216–19.
30. Watson R, Deary I, Thompson D, et al. A study of stress and burnout in nursing students in Hong Kong: a questionnaire survey. *Int J Nurs Stud* 2008; 45:1534–42.
31. Leiter M, Maslach C. Interventions to prevent and alleviate burnout, Chapter 8. In: Leiter M, Bakker A, Maslach C, eds. *Burnout at work: a psychological perspective*. London: Psychology Press, 2014.

32. Kurokawa N, Weed N. Interrater agreement on the Coping Inventory for Stressful Situations (CISS). *Assessment* 1998; 5:93.
33. Gelman A, Hill J. *Data analysis using regression and multilevel/hierarchical models*. New York: Cambridge University Press, 2006.
34. Teague J. *The relationship between various coping styles and burnout among nurses* [PhD Thesis]. Ball State University, Dept of Counselling Psychology & Guidance Services, 1992. <http://liblink.bsu.edu/uhtbin/catkey/833472>
35. Narumoto J, Nakamura K, Kitabayashi Y, et al. Relationships among burnout, coping style and personality: study of Japanese professional caregivers for elderly. *Psychiatry Clin Neurosci* 2008; 62:174–6.
36. Zotti A, Omarini G, Ragazzoni P. Can the type of organizational structure affect individual well-being in health and social welfare occupations? *G Ital Med Lav Ergon* 2008; 30:A44.
37. Nowakowska K, Jablkowska-Gorecka K, Borkowska A. Coping styles and burning out syndrome in the emergency medicine students and emergency medicine students working as emergency workers. *Psychiatr Psychologia Kliniczna* 2009;9:242–8.48.
38. Smith-Jentsch KA, Salas E, Baker DP. Training team performance-related assertiveness. *Personnel Psychol* 1996;49:909.
39. Ratti M, Di Mattei V, Del Po F, et al. Psychological issues in oncology care: a multicentric study on burnout. *Psychooncology* 2009; 18:S231–23.
40. Kozak A, Kersten M, Schillmöller Z, et al. Psychosocial work-related predictors and consequences of personal burnout among staff working with people with intellectual disabilities. *Res Dev Disabil* 2013; 34:102–15.
41. Jenkins S, Maslach C. Psychological health and involvement in interpersonally demanding occupations: a longitudinal perspective. *J Org Behav* 1994; 15:101–27.
42. Borritz M, Rugulies R, Christensen K, et al. Burnout as a predictor of self-reported sickness absence among human service workers: prospective findings from three year follow up of the PUMA study. *Occup Environ Med* 2006; 63:98–106.
43. van Wyk BE, Pillay-Van Wyk V. Preventive staff-support interventions for health workers. *Cochrane Database Syst Rev* 2010; 3:CD003541.
44. Marine A, Ruotsalainen JH, Serra C, et al. Preventing occupational stress in healthcare workers. *Cochrane Database Syst Rev* 2006; 4:CD002892.
45. Ewers P, Bradshaw T, McGovern J, et al. Does training in psychosocial interventions reduce burnout rates in forensic nurses? *J Adv Nurs* 2002; 37:470–6.
46. Leiter M, Day A, Oore D, et al. Getting better and staying better: assessing civility, incivility, distress, and job attitudes one year after a civility intervention. *J Occup Health Psychol* 2012;17:425–34.