



## Factors associated with burnout among residents in a developing country



Akbar Jaleel Zubairi\*, Shahryar Noordin

Department of Surgery, The Aga Khan University, P.O. Box 3500 Stadium Road, Karachi 74800, Pakistan

### HIGHLIGHTS

- Burnout is a job related distress syndrome common among residents with potential adverse effects on patient care.
- An online survey was conducted among residents using the Maslach Burnout inventory along with occupational risk factors.
- Dissatisfaction with workload, work hours, autonomy & relation with co-workers were associated with high levels of burnout.

### ARTICLE INFO

#### Article history:

Received 26 November 2015

Received in revised form

27 January 2016

Accepted 28 January 2016

#### Keywords:

Residents

Burnout

Workload

Emotional exhaustion

Depersonalization

### ABSTRACT

**Introduction:** Recent literature has focused on burnout as a specific job related distress syndrome among physicians and residents having adverse effects on patient care. Local data on burnout is lacking.

**Materials & methods:** An online self-administered questionnaire was sent via email to all residents (325) at our institute with and a response rate of 110 (34%) was achieved. Out of these 82 residents consented and completely filled the questionnaires and were included in the analysis. The questionnaire comprised of demographic variables, the Maslach burnout inventory and occupational risk factors.

**Results:** High levels of burnout on at least one subscale were reported by 61(74.4%) residents, in 2 components by 34(41.5%) whereas an alarming 10(12.2%) residents scored high on all three subscales. Among the individual subscales emotional exhaustion was most frequent in 49(59.8%). Among the departments Radiology reported the highest levels (100%) of burnout and low levels were reported by Pediatrics (45%). There was no difference between burnout levels among junior and senior residents. Dissatisfaction with workload, length of work hours, relationship with co-workers and lack of autonomy were significantly associated with high level of burnout.

**Conclusion:** High levels of burnout are prevalent among trainee doctors in our part of the world which are comparable with international literature. Efforts to improve the work environment of residents may significantly reduce levels of burnout.

© 2016 Published by Elsevier Ltd on behalf of IJS Publishing Group Limited. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### 1. Introduction

Burnout is a syndrome of emotional exhaustion, depersonalization, and reduced sense of personal accomplishment occurring in individuals who work in human services [1]. Health care workers have been reported to experience higher levels of burnout as compared to the general population. Among the healthcare workers trainee doctors have been shown to be the worst affected by this syndrome [2].

\* Corresponding author.

E-mail addresses: [akbar.zubairi@gmail.com](mailto:akbar.zubairi@gmail.com) (A.J. Zubairi), [shahryar.noordin@aku.edu](mailto:shahryar.noordin@aku.edu) (S. Noordin).

Different causes of burnout have been identified including quantitative work overload, deficiencies in job resources, such as a lack of social support or autonomy and emotionally demanding situations such as interactions with uncooperative, aggressive or distrustful patients, patients with unrealistic expectations, and confrontations with illness, death and dying [3–5].

High levels of burnout have been associated with physical illnesses and psychiatric morbidity, including cardiovascular disease and elevated rates of substance abuse [6,7]. Similarly, institutions experience increased employee turnover, absenteeism and poor job performance, decreased quality of medical care and increased risk of patient care errors [8,9].

Even though burnout has been extensively studied over the last 2 to 3 decades, data from our country is lacking. So we decided to

study the prevalence of burnout amongst residents involved in direct patient care at our hospital and determine the risk factors associated with it.

## 2. Methods

This was a cross-sectional survey administered as an electronic online questionnaire from 1st to 31st of May 2013 after ethical approval was obtained from our hospital's Ethics Review Committee. The link to the questionnaire was emailed to all residents, involved in direct patient care (325), which would proceed only after an electronic consent was given by the participant.

The questionnaire started with demographic variables including age, gender, ethnicity, level and department of training, marital status and residential status. This was followed by the Maslach burnout inventory (MBI), which is a 22-item validated questionnaire for identifying burnout among respondents. It scores separately for emotional exhaustion, depersonalization and lack of personal achievement which are then categorized according to severity into low, moderate or high level of burnout. This questionnaire has been extensively validated across different countries and professions and is considered the most reliable tool for identifying burnout [1,10–12]. It comprises of 22 statements of job related feelings (e.g. "I feel emotionally drained from my work." "I don't really care what happens to some recipients.") which are scored according to their frequency ranging from never to every day. This inventory was used under license from Mind Garden which was purchased via their website (<http://www.mindgarden.com>).

Pertinent risk factors for burnout as reported in literature like increased work hours, lack of autonomy etc. and perceptions regarding financial wellbeing, satisfaction with work environment and career prospects were included. Data from a previous study conducted at our institute was used to define average working hours of each department and was analyzed as a risk factor for burnout.

Data was entered and analyzed using SPSS v19. Effect of categorical variables was analyzed using chi square test whereas continuous variables were analyzed using student's t test.

## 3. Results

The questionnaire was emailed to 325 residents out of which 110 residents responded resulting in a response rate of 34%. Out of these 28 residents did not consent to the study leaving a total of 82 residents who consented to participate and were included in the analysis.

Distribution of male and female residents was comparable with 44(54%) males and 37(46%) females respectively. Residents were categorized according to their respective departments with all surgical specialties and Obstetrics & Gynecology being grouped in to Surgical & Allied and similarly all medical specialties including psychiatry and family medicine grouped in to Medicine & Allied. Majority of the residents belonged to Medicine & Allied and Surgery & Allied comprising 31(38%) and 24(30%) respectively. This was followed by Pediatrics 11(14%), anesthesia 10(12%) and radiology 5(6%). Nearly half the residents were junior residents 39 (48%) (PGY 1 & 2) with the remaining half being senior residents (PGY 3 and above) 43(52%).

Up to 61(74%) residents reported high levels of burnout on at least one of the subscales and 34(41.5%) scored high on 2 subscales whereas an alarming 10(12%) of residents reported high levels on all the 3 subscales. For each of the individual subscales, 49 (60%) of residents reported high levels of emotional exhaustion, 31(38%) reported depersonalization and 26(32%) reported lack of personal

accomplishment (Table 1).

There was no difference in the pattern of burnout experienced by junior and senior residents with regards to overall burnout and its subscales (Table 2).

Among the departments Radiology residents most frequently reported burnout 5(100%) followed by surgery & allied 19 (79%), medicine & allied 25(78%), and anesthesia 7(70%) with comparatively low levels being reported by pediatric residents 5(45%) (Fig. 1). The average length of work hours of these departments was calculated from the results of a previous study at our institute and no significant association was seen between work hours and level of burnout (Table 3).

Most of the Residents reported dissatisfaction with length of their work hours, their workload, their work home life balance, their salary and their financial status with this trend being similar among junior and senior residents (Fig. 2). From these risk factors dissatisfaction with workload ( $p = 0.03$ ), length of work hours ( $p = 0.02$ ), relationship with co-workers ( $p = 0.001$ ) and lack of autonomy ( $p = 0.002$ ) were significantly associated with high level of burnout (Table 4).

Other risk factors including demographic variables like gender, ethnicity, marital status and residential status did not reveal any significant association with level of burnout.

## 4. Discussion

Burnout among our residents is comparable to that reported by Prins et al. [5] in their review comprising residents from different specialties from all over the world. The unpredictable political and economic situation of our country does not seem to result in a direct influence on the level of burnout. This further substantiates that this is a job related syndrome and external influences don't affect it.

Working hours have been at the center of the burnout epidemic with residents in our study also showing dissatisfaction with their work hours and work load. But studies by Oakley et al. [13] and Ripp et al. [14] failed to show an improvement in burnout levels after enforcement of duty hour regulations. Similarly our study also failed to demonstrate a significant relationship between actual work hours and burnout. This shows that the perception of being overworked rather than the actual working hours is the culprit.

Howlett et al. [15] has shown that coping strategies have a direct influence on burnout with Task-oriented coping having a protective effect and emotion-oriented coping being associated with higher levels of burnout. This may explain why radiology residents who have less patient interaction, work load and work hours are reporting higher levels of burnout as compared to medicine and surgery residents in our study.

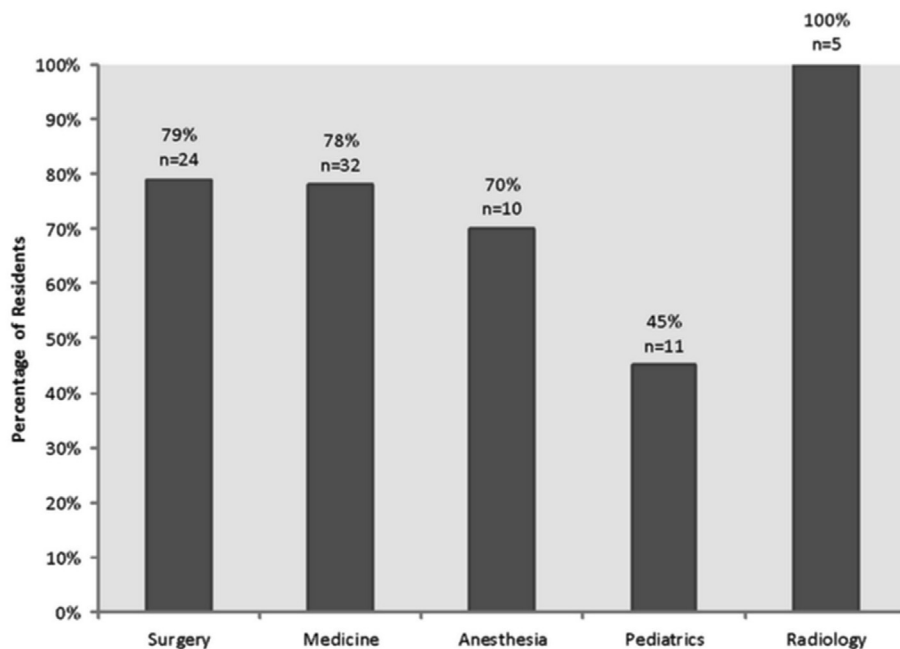
Personal and institution based reforms have resulted in a decrease in burnout and their implementation in our country may also prove beneficial. These include person directed measures like cognitive behavioral training, psychotherapy, counseling and adaptive skill training, along with organization-directed

**Table 1**  
Frequency of burnout.

Overall burnout	Residents (n = 82)	Percentage %
High on at least 1 subscale	61	74
High on any 2 subscales	34	41.5
High on all 3 subscales	10	12
<b>Subscales</b>		
Emotional exhaustion	49	60
Depersonalization	31	38
Lack of personal accomplishment	26	32

**Table 2**  
High Burnout distribution according to Residency level.

	Junior resident (n = 39)	Senior resident (n = 43)	P Value
Overall Burnout	29 (74.4%)	32 (74.4%)	0.995
Emotional Exhaustion	23 (59.0%)	26 (60.5%)	0.980
Depersonalization	14 (35.9%)	17 (39.5%)	0.747
Lack of Personal Accomplishment	12 (30.8%)	14 (32.6%)	0.849



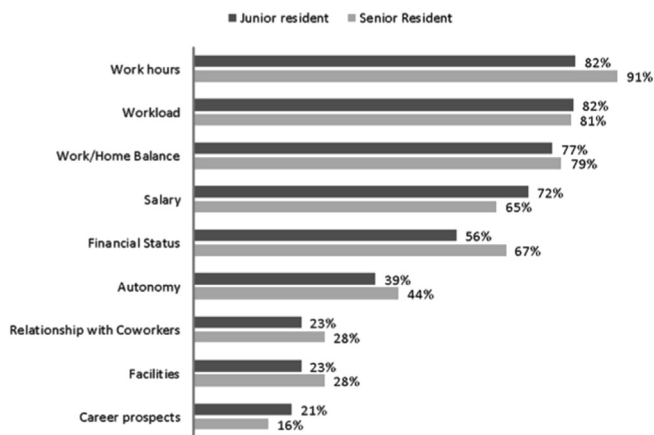
**Fig. 1.** Distribution of burnout according to specialty.

**Table 3**  
Average work hours of different departments.

Department	Average work hours
Surgery & Allied	93.7
Medicine & Allied	80.0
Pediatrics	79.5
Anesthesia	75.4
Radiology	69.3

**Table 4**  
Association of risk factors with burnout.

Dissatisfaction with:	Association with burnout (p-value)
Workload	0.03
Length of Work Hours	0.02
Relationship with Co-workers	0.001
Lack of Autonomy	0.002



**Fig. 2.** Dissatisfaction of residents with work environment.

interventions, like work process restructuring, work performance appraisals and work shift readjustments amongst others [16]. Similarly, resorting to spirituality has also seen to have a positive effect and may be encouraged among trainee residents [17].

Job related stress, coping and working hours of physicians have been studied but no recognition of burnout as a distinct syndrome is reflected in the studies published from our country [18–20]. Hence even though our study was cross sectional and meaningful inferences and associations may not be drawn, it is still an eye-opener for our country with regards to this syndrome.

In conclusion, our study has highlighted that high levels of burnout are prevalent among trainee doctors in our part of the world similar to what is reported for other countries in the literature. Personal and institutional based reforms focused on improving the work environment of residents, may lead to a significant reduction in the levels of burnout. Our study should pave the way for focused research and interventions to combat burnout among physicians in our region.

**Ethical approval**

Ethical approval given by The Aga Khan University hospital's Ethics Review Committee. 2442-Sur-ERC-12.

**Sources of funding**

None.

**Author contribution**

Akbar Zubairi – study design, data collections, data analysis, manuscript writing. Shahryar Noordin – study design, manuscript review, Overall supervision.

**Conflicts of interest**

None.

**Guarantor**

Shahryar Noordin

**References**

- [1] C. Maslach, S.E. Jackson, M.P. Leiter, *Maslach Burnout Inventory Manual*, Consulting Psychologists Press, 1996.
- [2] L.N. Dyrbye, et al., Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population, *Acad. Med.* 89 (3) (2014) 443–451.
- [3] E. Amofo, et al., What are the significant factors associated with burnout in doctors? *Occup. Med. (Lond.)* 65 (2) (2015 Mar) 117–121.
- [4] L.H. Clever, Who is sicker: patients—or residents? Residents' distress and the care of patients, *Ann. Intern. Med.* 136 (5) (2002) 391–393.
- [5] J.T. Prins, et al., Burnout in medical residents: a review, *Med. Educ.* 41 (8) (2007) 788–800.
- [6] K. Ahola, et al., Alcohol dependence in relation to burnout among the Finnish working population, *Addiction* 101 (10) (2006) 1438–1443.
- [7] S. Toker, et al., Burnout and risk of coronary heart disease: a prospective study of 8838 employees, *Psychosom. Med.* 74 (8) (2012) 840–847.
- [8] D.A. Campbell, et al., Burnout among American surgeons, *Surgery* 130 (4) (2001) 696–705.
- [9] T.D. Shanafelt, et al., Burnout and medical errors among American surgeons, *Ann. Surg.* 251 (6) (2010) 995–1000.
- [10] J.L. Naude, S. Rothmann, The validation of the Maslach Burnout Inventory-Human Services Survey for emergency medical technicians in Gauteng, SA J. Ind. Psychol. 30 (3) (2004) 21–28.
- [11] L. Poghosyan, L.H. Aiken, D.M. Sloane, Factor structure of the Maslach burnout inventory: an analysis of data from large scale cross-sectional surveys of nurses from eight countries, *Int. J. Nurs. Stud.* 46 (7) (2009) 894–902.
- [12] J.A. Worley, et al., Factor structure of scores from the maslach burnout inventory a review and meta-analysis of 45 exploratory and confirmatory factor-analytic studies, *Educ. Psychol. Meas.* 68 (5) (2008) 797–823.
- [13] S.H. Oakley, et al., Resident burnout after the 2011 accreditation council for graduate medical education duty-hour restrictions: a cross-sectional survey study, *Obstet. Gynecol.* 123 (Suppl. 1) (2014), 117S-8S.
- [14] J.A. Ripp, et al., The Impact of Duty Hours Restrictions on Job Burnout in Internal Medicine Residents: A Three-Institution Comparison Study, *Acad. Med.* 90 (4) (2015 Apr) 494–499.
- [15] M. Howlett, et al., Burnout in emergency department healthcare professionals is associated with coping style: a cross-sectional survey, *Emerg. Med. J.* 32 (9) (2015 Sep) 722–727.
- [16] W.L. Awa, M. Plaumann, U. Walter, Burnout prevention: a review of intervention programs, *Patient Educ. Couns.* 78 (2) (2010) 184–190.
- [17] B.R. Doolittle, D.M. Windish, C.B. Seelig, Burnout, coping, and spirituality among internal medicine resident physicians, *J. Grad. Med. Educ.* 5 (2) (2013) 257–261.
- [18] P.M. Kasi, et al., Studying the association between postgraduate trainees' work hours, stress and the use of maladaptive coping strategies, *J. Ayub Med. Coll. Abbottabad* 19 (3) (2007) 37–41.
- [19] A.K. Khuwaja, et al., Comparison of job satisfaction and stress among male and female doctors in teaching hospitals of Karachi, *J. Ayub Med. Coll. Abbottabad* 16 (1) (2004) 23–27.
- [20] R. Sameer ur, et al., Stress, job satisfaction and work hours in medical and surgical residency programmes in private sector teaching hospitals of Karachi, Pakistan, *J. Pak Med. Assoc.* 62 (10) (2012) 1109–1112.