

# Burnout of Resident Doctors in a Teaching Hospital in Jordan

Raed Nael Mohammad Al-Taher<sup>1</sup>, Mohamad E. Mahseeri<sup>1</sup>, Rawan Abd AlMohsen Mohammad Al Habashneh<sup>1</sup>, Moaath Alsmadi<sup>1</sup>, Amal Ibrahim Abd Al Qader Abu Harb<sup>1</sup>, Nadwa Basem Basheer Bustami<sup>1</sup>, Awni D. Shahait<sup>2</sup>, Lana Alghanem<sup>3</sup>, Fadi Alhalasa<sup>4</sup>, Farah Moh'd Bassam Mutlaq Al Muhtaseb<sup>1</sup>, Murad Mohammad Subhi Qirem<sup>1</sup>, Shahd Maher Abdel Rahman Yaghi<sup>1</sup>

<sup>1</sup>Department of General Surgery, School of Medicine, The University of Jordan, Amman, Jordan, <sup>2</sup>Department of Surgery, Detroit Medical Center, Wayne State University, Detroit, Michigan, USA, <sup>3</sup>Department of Pharmacy, Eugene Applebaum College of Pharmacy and Health Sciences, Wayne State University, Detroit, Michigan, USA, <sup>4</sup>Department of Special Surgery, School of Medicine, The University of Jordan, Amman, Jordan

## Abstract

**Background:** Burnout syndrome in the medical field recently gained much attention, becoming an essential factor in specialty selection and job satisfaction. In this study, we focus on evaluating the emotional distress among residents of various specialties at a tertiary hospital and associated factors. **Methods:** This is a cross-sectional study which was done using a sociodemographic questionnaire among residents of various specialties. The collected answers were assessed using Student's *t*-test and Chi-square test for continuous variables and categorical ones respectively. **Results:** A total of 250 out of 382 registered residents took the survey with a response rate of 65%, 48% were female, 67.1% single, mean age  $27.5 \pm 2.2$ , and mean weekly duty work was  $71.8 \pm 22.6$ . 53.6% of residents reported a high grade of emotional exhaustion. Furthermore, 82.4% of the residents exceeded the 24-shift length, reaching a maximum of 56 h straight in-house duty. Male residents reported a higher rate of feeling pressured to work, while female residents reported that they would learn more effectively and commit fewer errors if they slept more. **Conclusion:** This is the first Jordanian study to measure elements leading to resident emotional distress and its effect on personal achievement. The prompt recognition of risk factors is essential for the achievement of prophylactic actions against resident emotional distress, which can be minimized by a well-defined regulation for residency working hours.

**Keywords:** Burnout, gender disparities, job satisfaction, Jordan, occupational diseases

## INTRODUCTION

Burnout is rising among all medical speciality, and it is increasing more noticeably among Arab and Middle Eastern doctors. To our knowledge, this study is the first study in Jordan to investigate burnout among doctors. It aims to find burnout in Jordanian resident doctors and find the best preventive measures for this growing problem.

This study examines the incidence of burnout and investigates the elements interlocked with burnout among residents in the entire surgical and non-surgical residencies at a tertiary Hospital in Jordan.

## METHODS

### Setting and participants

A descriptive (cross-sectional) study conducted at a tertiary Hospital in Jordan in February and March 2019. The sample tested was residents' training in surgical and nonsurgical residency programs.

## Interventions

Collection of data was done through answering a questionnaire [Table 1]. Confidentiality was secured. The engagement was voluntary, and answers were anonymous. Consent was obtained from all participants, and they were disguised to any particular study hypothesis. There were 382 recorded residents, of whom 250 answered the survey. Vacation period, busy work at the time of questionnaires, external rotation, and withholding of the questionnaires were the cause of not reaching the whole residents represented by the questionnaire.

**Address for correspondence:** Dr. Mohamad E. Mahseeri, Department of General Surgery, The University of Jordan, Amman, Jordan. E-mail: mohamadp1987@hotmail.com

**Submitted:** 10-Jul-2020

**Accepted:** 17-Sep-2020

**Revised:** 09-Sep-2020

**Published:** 06-Nov-2020

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** WKHLRPMedknow\_reprints@wolterskluwer.com

**How to cite this article:** Al-Taher RN, Mahseeri ME, Al Habashneh RA, Alsmadi M, Harb AI, Bustami NB, *et al.* Burnout of resident doctors in a teaching hospital in Jordan. *Indian J Med Spec* 0;0:0.

### Access this article online

Quick Response Code:



Website:  
[www.ijms.in](http://www.ijms.in)

DOI:  
10.4103/INJMS.INJMS\_81\_20

**Table 1: Questions 13-21 with percentages of responses**

Questionnaire questions	Percentage of responses
Q1. How would you grade your personal achievement so far?	
Low	12
Medium	72
High	16
Q2. How would you grade your emotional exhaustion so far?	
Low	9
Medium	41
High	50
Q3. I am sleep deprived on a regular basis	
Strongly disagree	0.0
Disagree	8.5
Neutral	24.4
Agree	36.4
Strongly agree	30.7
Q4. I feel overworked	
Strongly disagree	0.0
Disagree	9.1
Neutral	14.8
Agree	35.8
Strongly agree	40.3
Q5. feel pressured to work more	
Strongly disagree	0.0
Disagree	7.4
Neutral	27.8
Agree	35.8
Strongly agree	29.0
Q6. If I could extend my residency to work fewer hours I would	
Strongly disagree	5.1
Disagree	36.9
Neutral	14.2
Agree	16.5
Strongly agree	27.3
<b>If a tighter hour restrictions were imposed (16-18)</b>	
Q7. I would not have time to master the procedures of my specialty during residency	
Strongly disagree	15.3
Disagree	36.4
Neutral	16.5
Agree	19.3
Strongly agree	12.5
Q8. My residency training would still adequately prepare me for practice	
Strongly disagree	1.7
Disagree	9.1
Neutral	14.8
Agree	42.0
Strongly agree	32.4
Q9. I would sleep more	
Strongly disagree	0.0
Disagree	4.5
Neutral	14.2
Agree	43.2
Strongly agree	38.1

Contd...

**Table 1: Contd...**

Questionnaire questions	Percentage of responses
<b>If I slept more (19-21)</b>	
Q10. I would learn more effectively	
Strongly disagree	1.7
Disagree	2.8
Neutral	7.4
Agree	34.1
Strongly agree	54.0
Q11. I would master procedures faster	
Strongly disagree	0.6
Disagree	7.4
Neutral	11.4
Agree	35.2
Strongly agree	45.5
Q12. I would commit fewer medical errors	
Strongly disagree	1.1
Disagree	3.4
Neutral	10.8
Agree	35.8
Strongly agree	48.9

### Outcomes measured

The questionnaire contained 21 items, measuring the emotional exhaustion and level of personal achievement and their associated factors. The questionnaire was divided into three parts. The first part asked for demographic information and numerical responses concerning hours worked, hours slept, and the length of the most extended shift. The second part [Table 1] contained questions measuring the amount of personal achievement and emotional exhaustion. The third part [Table 1] asked for feedback responses to statements. Respondents used a rank of 1 to 5, with 1 denoting “strongly disagree,” and 5 demonstrating “Strongly agree.”

To assess the personal and occupational outline, residents’ working hours, percentages were calculated, and the frequency distributions of the evaluated factors were constructed.

### Analysis of the Outcomes

A Chi-square test was implemented to study all variables. Furthermore, one-way ANOVA test and Student’s *t*-test were used for continuous variables. A value of  $P < 0.05$  was interpreted as statistically significant. The Statistical Package for the Social Sciences software version 24.0 (IBM SPSS Statistics) was used to conduct the analysis.

### Institutional review board statement

The University of Jordan’s institutional review board approved the study.

### RESULTS

A total of 250 residents responded to the study. The mean age of participants was  $27.5 \pm 2.2$ , 43% were between the ages of 26–27. Male: female distribution was almost equal (52% vs. 48%), and most of the residents were single (67.1%). The

contributing percentage of specialties is shown in Figure 1, with the anesthesia residency having the highest number of residents 39 (15.5%). In Table 2, postgraduate year (PGY) levels were summarized; about 29.1% were first-year residents. Half of the participants had a scheduled call every third or fourth night, as illustrated in Figure 2.

The reported length of the most extended shift over the past 7 days was  $29 \pm 10.5$  h, while for the weekly working hours, it was  $71.8 \pm 22.6$  h. 24% of residents exceeded the 80 h/week schedule. Moreover, 73.6% of residents exceed the 24 + 4 h long shift, as shown in Table 3. About 77.4% of the residents felt overworked, and 69% felt that they were pressured to work more.

There was a significant correlation between being in a surgical specialty and having high emotional exhaustion ( $P = 0.003$ ). On the other hand, there was no correlation between being in a surgical specialty and low personal achievement ( $P = 0.10$ ). Furthermore, there was a significant relation between exceeding 24 + 4-h on-call duty and having emotional exhaustion ( $P = 0.003$ ). In contrast, there was no relation between the duration of the on-call shift and personal achievement ( $P = 0.9$ ).

Overall responses to questions were summarized in Table 1. To explore gender disparities, cross-tabulation was performed, and male residents reported a higher rate feeling “pressured to work more” (71.9% males vs. 66.9% females,  $P = 0.026$ ), while the majority of female residents reported that they would learn more effectively if they slept more (98% females vs.

86.7% males,  $P = 0.003$ ), and they will commit fewer medical errors (90.1% female vs. 83.6% male,  $P = 0.039$ ). Emotional exhaustion and personal achievement were compared between males and females, but overall, about 53.6% reported that they had high emotional exhaustion, and 70% of the participants graded their personal achievement as a medium.

## DISCUSSION

Burnout is a syndrome defined by a small perception of personal attainment, displeasure for work (emotional exhaustion), and a sense of doubt (depersonalization).<sup>[1]</sup>

It is one of the most crucial prognosticators of doctors’ gratification about career and specialty preference.<sup>[2,3]</sup> Specific levels of stress may be considered desirable for training and may improve performance. However, the continuous chronic stress may predispose these young physicians to burnout syndrome, which is detrimental to the residents themselves and the higher patient population they treat.<sup>[4,5]</sup>

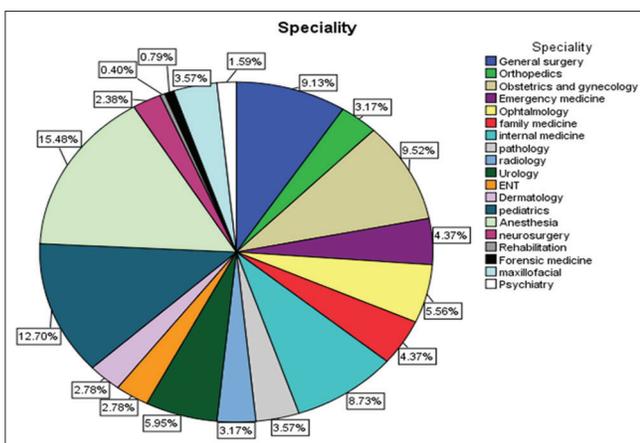
Although the consideration is paid to residents’ duty hours, the Jordanian data concerning residents’ attitudes toward work-hour regulations are considerably small, and evidence reflecting resident burnout is not present. Also, there is still no law to regulate resident work hours. Little data regarding burnout have been published from the middle east area, including Jordan, for which this study is considered the first.

According to the international literature, the incidence of burnout in residents of all departments ranges from 27% to 75%, depending on the specialty,<sup>[6,7]</sup> where it is twice as frequent in doctors of surgical departments.<sup>[8]</sup> 24% of residents at our tertiary center exceeded the 80 h/week schedule, and 73.6% of the residents exceeded the 24-h long shift. 86.1% of residents reported that if they slept more, they would commit fewer medical errors.

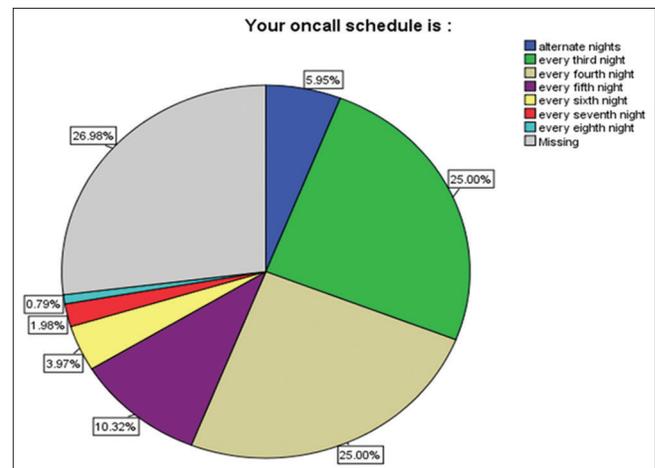
The Accreditation Council for Graduate Medical Education insisted on reducing the resident’s working time, as it was effective in July 2003. Their recommendations insist on

**Table 2: The distribution of the residents’ levels**

Postgraduate year level	n (%)
1 <sup>st</sup>	71 (28.4)
2 <sup>nd</sup>	67 (26.8)
3 <sup>rd</sup>	44 (17.6)
4 <sup>th</sup>	56 (22.4)
5 <sup>th</sup>	11 (4.4)
6 <sup>th</sup>	1 (0.4)



**Figure 1: Percentage of specialties participating in the study**



**Figure 2: On-call schedules according to the amount of on calls repetitions**

**Table 3: The amount of worked hours and the longest shift related to the specialty**

Specialty	n (%)	Mean±SD	
		Hours worked in the past 7 days, including on calls	The longest shift in the past 7 days
General surgery	23 (9.2)	70.6±17	33.4±11.5
Orthopedics	8 (3.2)	87.3±35.9	28.3±9
Obstetrics and gynecology	24 (9.6)	87.4±17.1	36.2±3
Emergency medicine	11 (4.4)	55.3±16.6	17±10.6
Ophthalmology	13 (5.2)	66.9±16	33.4±6.7
Family medicine	11 (4.4)	50.2±18.9	13.6±7.6
Internal medicine	22 (8.8)	75.6±16.3	25.8±8.1
Pathology	9 (3.6)	45±9.3	10.2±2.4
Radiology	8 (3.2)	81.8±10.8	31.8±0.7
Urology	15 (6)	94.2±26.4	34.6±4.1
ENT	7 (2.8)	69.3±13	33.7±2.1
Dermatology	7 (2.8)	36.4±6.6	7±1
Pediatrics	32 (12.8)	79.5±18	33.6± 3.2
Anesthesia	39 (15.6)	68.3±18.8	32.4±7.7
Neurosurgery	6 (2.4)	89.3±19	35.2±6.3
Rehabilitation	1 (0.4)	40±0	8±0
Forensic medicine	2 (0.8)	40±14.1	22±19.8
Maxillofacial	9 (3.6)	66±18.7	29.1±7.8
Psychiatry	3 (1.2)	45±7.1	13.3±9.2

SD: Standard deviation

decreasing work hours to <80 h/week, with on-call frequency not exceeding every third night, and an on-site call not greater than (24 + 4) continuous hours.<sup>[9]</sup>

Meanwhile, in the European Union, the European Working Time Directive, a European drive created to hinder employers requiring their employee to work unreasonably long hours which will affect their physical and mental well-being; changed their policy for duty hours of the residents to a 48-hour work a week starting August 2009.<sup>[10]</sup>

One study directed by the American college of surgeons reported the frequency of burnout to range from 30.1% for surgeons who work 60 h/week to 50% for surgeons with the duty of 80 h/week and the correlation with the number of nights to call per week.<sup>[10]</sup> A noticed verge was seen at more than two nights on-call per week, a burnout estimate at 29.7% for one night on call/week in contrast to 44.6%–45.8% for two nights on calls/week.<sup>[10]</sup> Burnout is common in women, with 73% of female doctors fulfilling the criterion for burnout correlated with 65% of men.<sup>[11]</sup> Therefore, whether work-hour regulations diminish the surgical experience, the evidence is still conflicting.<sup>[12-15]</sup>

Residents are more likely to show signs of burnout, possibly due to different causes, like extended duty hours, increased work stress levels, and lack of sleep.<sup>[16]</sup> burnout can have many harmful consequences on persons and institutions, like expanded personnel switch in shifts, absence, sick-leaves, injuries and errors, poor performance, and person-to-person and institutional conflicts.<sup>[17]</sup> Furthermore, residents' sleep loss and fatigue could negatively affect their patients' outcomes.<sup>[18]</sup>

Almost 70% of the residents graded their personal achievement as low, and 8% reported high emotional exhaustion. Hunting for autonomy and self-reliance are struggles common to young trainees; however, residents in their medical profession are experiencing further stress due to their training and educational structure present in their medical profession, which will affect their progress and training. As reported by Maslach *et al.*, the loss of competent performance seems to emerge from the lack of proper resources, while emotional exhaustion results from excessive workload.<sup>[19]</sup>

Our study has some limitations. Our study depends on resident self-respondent data to evaluate medical errors. However, the current study is the first to describe a reliable relationship between the training atmosphere and burnout among residents in Jordan.

## CONCLUSION

Burnout syndrome is an overwhelming problem that leads to an increased rate of medical error and should be dealt with severely for standard patient care. A strict work hours-duty policy should be applied practically by Jordanian medical counsel and a strong need for well-defined regulations for residency working hours that should be implemented by the Jordanian parliament. We also advise increasing the database and national studies on this subject to involve hospitals all over Jordan other than our tertiary Hospital in a more objective manner.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, *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.
2. Shanafelt TD, Balch CM, Bechamps GJ, Russell T, Dyrbye L, Satele D, *et al.* Burnout and career satisfaction among American surgeons. *Ann Surg* 2009;250:463-71.
3. Dyrbye LN, Shanafelt TD, Balch CM, Satele D, Sloan J, Freischlag J. Relationship between work-home conflicts and burnout among American surgeons: A comparison by sex. *Arch Surg* 2011;146:211-7.
4. Abut YC, Kitapcioglu D, Erkalp K, Toprak N, Boztepe A, Sivrikaya U, *et al.* Job burnout in 159 anesthesiology trainees. *Saudi J Anaesth* 2012;6:46-51.
5. Rossouw L, Seedat S, Emsley RA, Suliman S, Hagemester D. The prevalence of burnout and depression in medical doctors working in the Cape Town Metropolitan Municipality community healthcare clinics and district hospitals of the Provincial Government of the Western Cape: A cross-sectional study. *S Afr Fam Pract* 2013;55:567-73.
6. Ishak WW, Lederer S, Mandili C, Nikravesh R, Seligman L, Vasa M, *et al.* Burnout during residency training: A literature review. *J Grad Med Educ* 2009;1:236-42.
7. Gouveia PA, Ribeiro MH Neta, Aschoff CA, Gomes DP, Silva NA, Cavalcanti HA. Factors associated with burnout syndrome in medical residents of a university hospital. *Rev Assoc Med Bras* (1992) 2017;63:504-11.
8. Basu CB, Chen LM, Hollier LH Jr., Shenaq SM. The effect of the Accreditation Council for Graduate Medical Education Duty Hours Policy on plastic surgery resident education and patient care: An outcomes study. *Plast Reconstr Surg* 2004;114:1878-86.
9. Villaneuva T. European Working Time Directive faces challenges. *CMAJ* 2010;182:E39-40.
10. Balch CM, Shanafelt TD, Dyrbye L, Sloan JA, Russell TR, Bechamps GJ, *et al.* Surgeon distress as calibrated by hours worked and nights on call. *J Am Coll Surg* 2010;211:609-19.
11. Elmore LC, Jeffe DB, Jin L, Awad MM, Turnbull IR. National Survey of Burnout among US General Surgery Residents. *J Am Coll Surg* 2016;223:440-51.
12. Kairys JC, McGuire K, Crawford AG, Yeo CJ. Cumulative operative experience is decreasing during general surgery residency: A worrisome trend for surgical trainees? *J Am Coll Surg* 2008;206:804-11.
13. Damadi A, Davis AT, Saxe A, Apeltgren K. ACGME duty-hour restrictions decrease resident operative volume: A 5-year comparison at an ACGME-accredited university general surgery residency. *J Surg Educ* 2007;64:256-9.
14. Schneider JR, Coyle JJ, Ryan ER, Bell RH Jr, DaRosa DA. Implementation and evaluation of a new surgical residency model. *J Am Coll Surg* 2007;205:393-404.
15. Romanchuk K. The effect of limiting residents' work hours on their surgical training: A Canadian perspective. *Acad Med* 2004;79:384-5.
16. Baer TE, Feraco AM, Tuysuzoglu Sagalowsky S, Williams D, Litman HJ, Vinci RJ. Pediatric Resident Burnout and Attitudes Toward Patients. *Pediatrics* 2017;139:2016-163.
17. Cordes CL, Dougherty TW. A review and an integration of research on job burnout. *Acad Manag* 1993;18:621.
18. Veasey S, Rosen R, Barzansky B, Rosen I, Owens J. Sleep loss and fatigue in residency training: A reappraisal. *JAMA* 2002;288:1116-24.
19. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* 2001;52:397-422.