

Burnout of residents: Overview from various medical institutions – A suggested model for improvement

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Abstract

Background: Burnout is a common issue among residents across the globe. Although several attempts were made to propose better working hours for residents, burnout is still prevalent as depicted by several studies.

Objectives: The aim of the paper is to review several worldwide studies related to burnout in residents and propose potential suggestions.

Methods: The following paper summarizes studies pertinent to burnout in residents from different countries categorized into three main regions: North and South America, Europe, and Middle East. The studies were collected from February 2018 to March 2019.

Results: Numerous studies across the world have revealed high rates of burnout in residents during the last decades.

Conclusions: Various awareness and wellness programs, as well as professional counseling sessions, are proposed to help residents overcome burnout.

Keywords: Burnout, medical residents, patient care, wellness

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INTRODUCTION

Burnout is a challenging public concern across the globe.^[1,2] It is characterized by physical, psychological, and emotional depletion.^[1-3] Burnout is widespread in the medical field,^[4] especially among residents who are at a greater risk because of the demanding and arduous training program.^[3] Burnout has been associated with dire consequences on patient care and quality of work,^[1] because it causes reduced productivity and job dissatisfaction.^[2] Other factors include fatigue, irritability, depression, and diminished career satisfaction.^[5] Various studies have been conducted to indicate the prevalence of burnout among

residents and analyze the factors behind it.^[5-8] The objective of this paper is to gain an understanding of the elements associated with burnout and generate probable solutions to help prevent its occurrence.


METHODS

Articles were identified by searching PubMed from 2009 to present and from the reference lists collected from February 2018 to March 2019. They include recent and most cited studies related to burnout in residents universally. Articles written after 2000 were excluded if they were nonEnglish, did not include residents (surgical subspecialties were included),

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did not address burnout, risk factors and consequences of burnout, and prevention or intervention for residents dealing with burnout. Case studies, case reports, comments, or editorials were also excluded. Cross-referencing of article citations in identified articles was done to make sure that appropriate articles were included.

We tried to group studies according to the number of participants, but this was not possible since some countries did not have many studies conducted and/or had a small number of participants or were written in local language without any translation to English (especially in the South American region). A summary table of all the discussed studies is presented in Table 1. The Maslach.

Burnout Inventory-Human Services Survey (MBI-HSS) was the most commonly used tool to measure burnout.^[2] It

includes a 7-point Likert scale ranging from 0 to 6 on three subscales: emotional exhaustion, depersonalization, and personal accomplishment.^[6] Other tools were also used.^[8,9]

RESULTS

The following sections show studies conducted across different regions.

North and South America

A national survey on 665 general surgery residents from different Accreditation Council of Graduate Medical Education (ACGME) centers in the US showed that 44% indicated attrition and that they would not choose general surgery if offered the option again.^[6] The MBI-HSS showed that 65% of males reported burnout versus 73% females ($P = 0.02$) and 57% scored the

Table 1: Summary studies arranged by year of publication

Authors	Years	Sample characteristics	Findings (P)
Hutter <i>et al.</i> ^[19]	2006	58 surgical residents (details of sex and age unreported)	Significant decrease in emotional exhaustion (0.02), depersonalization (0.09), and personal achievement (0.09)
Shanafelt <i>et al.</i> ^[22]	2009	7905 surgeons (6815 males and 1043 females and 47 unreported, mean age=51 years)	32% had high emotional exhaustion, 26% demonstrated high depersonalization, and 13% had a low sense of personal accomplishment
Eckleberry-Hunt <i>et al.</i> ^[7]	2009	151 residents from different specialties (77 males and 68 females, 6 unreported, mean age unreported)	27 out of 32 burnout factors were significantly associated with at least one burnout scale
Prins <i>et al.</i> ^[9]	2010	2110 residents from different specialties (820 males and 1290 females, mean age=31 years)	Prevalence of burnout=21%
Ishak <i>et al.</i> ^[2]	2013	Not applicable	A review paper
Gifford <i>et al.</i> ^[8]	2014	288 general surgery residents (176 males and 112 females, mean age=30 years)	58% considered attrition
Zis <i>et al.</i> ^[13]	2014	263 residents (details of sex not specified, mean age=33 years)	51.0% high levels of burnout in at least one dimension, 18.3% in at least two dimensions, and 4.9% in all three dimensions
Agha <i>et al.</i> ^[14]	2015	96 residents and doctors (64 males and 32 females; mean age unreported)	88.5% had burnout present in at least one dimension
Elmore <i>et al.</i> ^[6]	2016	665 general surgery residents (375 males and 289 females, 1 unreported, mean age=30.3 years)	65% of men reported burnout versus 73% of women, 57% high emotional exhaustion, 50% high depersonalization, and 16% low personal achievement
Talih <i>et al.</i> ^[17]	2016	118 residents (62 males and 56 females)	Prevalence of burnout=27%
Chaput <i>et al.</i> ^[12]	2016	52 surgery residents (26 males and 26 females, mean age=28 years)	13.5% high emotional exhaustion, 25% high depersonalization, and 48.1% low personal accomplishment
Aldrees <i>et al.</i> ^[5]	2017	38 residents (28 males and 10 females, mean age=28 years)	71% high emotional exhaustion, 50% high depersonalization, and 29% low personal accomplishment
Gouveia <i>et al.</i> ^[11]	2017	129 residents (62 males and 67 females; mean age unreported)	Prevalence of burnout=27.9%
Adams <i>et al.</i> ^[10]	2017	523 residents (details of sex and age unreported)	26.8% “somewhat” or “seriously” considering leaving the program
Kuhn and Flanagan ^[16]	2017	Not applicable	A review paper
Talih <i>et al.</i> ^[15]	2018	172 students (88 males and 84 females)	43.0% screened positive for burnout, 23.8% reported depressive symptoms, 22.7% reported anxiety, and 14.5% reported thinking of suicide
Golub and Johns ^[18]	2018	Not applicable	A review paper
Cox <i>et al.</i> ^[20]	2018	36 residents (28 males and 8 females, mean age=30.1 years)	Time spent on EHR equals median of 2.4 h per day (IQR: 0.0–6.13) and 23.7 h per week (IQR: 6.8–37.3)
Messias <i>et al.</i> ^[4]	2019	1646 clinical providers (366 males and 1206 females, 74 unreported). Residents in total=194)	Prevalence of personal burnout among residents=56.6%, prevalence of work-related burnout among residents=58.5%, and prevalence of patient-/client-related burnout among residents=15.1%

EHR: Electronic Health Record, IQR: Interquartile range

highest in the emotional exhaustion and 50% in the depersonalization subscales, while 16% scored the lowest in the personal achievement subscale.^[6] The MBI-HSS used in another study among 151 residents from 13 specialties in the US indicated that perceived social support was significantly associated with emotional exhaustion ($P < 0.03$), depersonalization ($P < 0.03$), and personal accomplishment ($P \leq 0.001$).^[7] The residents in the surgery specialty had the highest depersonalization score and burnout was significantly associated with all three categories ($P < 0.001$).^[7]

In a survey among 288 general surgery residents from 13 different residency programs in the US, 58% considered attrition, citing sleep deprivation on a specific rotation (50.0%), an undesirable future lifestyle (47.0%) and excessive work hours on a specific rotation (41.4%) as elements associated with attrition.^[8] A survey completed by 523 general surgery residents in Canada showed that 140 residents were “somewhat” or “seriously” considering attrition due to poor work-life balance (55.5%) and fear of unemployment/underemployment (40.8%).^[10] The MBI questionnaire study from Brazil showed that the prevalence of burnout was 27.9% among 129 residents.^[11] There was high a level of emotional exhaustion (59.7%), a high prevalence of low level of professional achievement (94.6%), as well as high level of depersonalization (31.8%).^[11]

Europe

A study conducted in France among 52 plastic surgery residents using the MBI-HSS showed that residents scored highly for emotional exhaustion (13.5%) and depersonalization (25%), but low for personal accomplishment (48.1%), with the risk being greater for the 1st years of training.^[12] A survey among 263 residents in Greece showed that 14.4% of residents were burned out, especially those who worked more frequently in surgical specialties, than other specialties, and those who worked more hours/week.^[13] They also had less support from their supervisor, experienced increased workload, and reported more intellectual and emotional demands.^[13] A survey completed by 2110 residents in the Netherlands showed that the prevalence of burnout was 21%.^[9]

Middle East and North Africa

A national survey conducted on 38 plastic surgery residents in Saudi Arabia showed that 71% had high emotional exhaustion, 50% high depersonalization, and 29% had low personal accomplishment.^[5] Another survey in Saudi Arabia on 96 middle-grade doctors including residents from different specialties reported 68.8% emotional exhaustion, 63.6% depersonalization, and 38.5% personal

accomplishment.^[14] A survey filled by 172 medical students in one medical center in Lebanon showed that 43% were found to suffer from burnout and 14.5% had suicidal thoughts.^[15] The risk of suicide and suicidal ideation rises in medical school but increases intensely once students start graduate medical education programs.^[16] Another study was also conducted in Lebanon among 118 residents in the same institution.^[17] Burnout and stressful personal life were significantly associated with depression and 27% of them met the criteria for burnout.^[17] Students who had been stratified by having major depressive symptoms had more suicidal ideation than those with mild depressive symptoms ($P < 0.001$) with approximately 1 in 8 residents having suicidal ideation.^[17] Moreover, 14% reported illicit drug abuse, 32% cigarette smoking, 35% waterpipe smoking, and 90% regular caffeine consumption.^[17]

DISCUSSION

Burnout is an important concern in the medical profession. Increased attention has been given to exploring the reasons behind the burnout of physicians *per se*.^[18] Physicians have higher rates of suicidal ideation than the general population.^[17] Residents are transnational and repeatedly relocate from their countries of origin for further training or fellowship.^[17] They are under constant pressure of medical residency (training nature and educational structure) and face conflicts that are common to young professionals (seeking independence and autonomy, conflict between work and leisure).^[11]

The above studies show several challenges faced by residents such as long hours of relentless studying, clinical clerkships, frequent competitive examinations, social isolation from friends/family, and financial stressors.^[15] The workload (hours worked/week and on-call duties per month) is considered one element in burnout.^[5] Residents who reported burnout were the ones who had worked longer than the ACGME-mandated hours in a national survey of 753 participants.^[6] Working hours were independently associated with burnout on any subscale in the multivariate model.^[6] Sleep deprivation was a factor for attrition^[8] and low personal accomplishment.^[7] Another cause for burnout is the obligation to finish the same amount of work in less time after the ACGME-mandated hours, which causes even more pressure and stress on residents.^[16]

The ACGME-International (ACGME-I) delegated restrictions on the working hours for residents mandating 80-h weekly limit, averaged over 4 weeks; at least 10 h of break between duty periods; a 24-h limit to continuous duty plus up to 6 more hours for continuity of care.^[19] Although

the restriction is essential for maintaining the physical and mental health of residents, some criticize that it may jeopardize continuity of care and safety of the patients.^[19] Despite the structural changes introduced to international residency programs after the ACGME-I accreditation and other modifications,^[8] residents are still susceptible to burnout by other factors. This means that addressing the problems that arise at all levels is a key to solving the issue as a whole. The introduction of ACGME-I working hours restrictions showed that residents had resulted in a statistically significant increased motivation to work since they had more time to rest/sleep with lighter workload.^[19]

On the other hand, medical centers are recently implementing the Electronic Health Record (EHR) systems that entail time-consuming documentation and less time with patients.^[18] This induced more stress and increased the likelihood of burnout.^[18] A study analyzed EHR usage by general surgery residents (28 males and 8 females; mean age = 30.1 years) in a single medical center in the US.^[20] General surgery residents spent a median of 2.4 h/day (interquartile range (IQR) used for continuous variables 0.0, 6.13) and 23.7 h/week (IQR 6.8, 37.3) logged into the EHR.^[20]

Our institution recently adopted the Epic system in November 2018. It is yet early for us to evaluate the effect of this system on residents, but from mere observation during the extensive training period and transition phase, we noticed that residents spent additional time on training and computer work. This may have caused more stress and anxiety on residents since any computerized error may lead to detrimental results. Any new computerized system will add the level of pressure on residents until they adapt to the new system.

Gender wise; females were found to be significantly more emotionally exhausted than males and significantly scored less in the depersonalization subscale than males ($P < 0.001$).^[9] Females were also more likely to consider attrition and cited sleep deprivation on a specific rotation as a reason ($P = 0.005$).^[8] They were more prone to suffer from personal burnout and work-related burnout than males in a study that used the Copenhagen Burnout Inventory among 1646 health-care professionals in the US.^[4] Therefore, a close attention should be given to female residents since they may be more sensitive to pressure and stress. Although both females and males should be treated equally in terms of duty distribution, a closer eye on females would not harm, especially that the number of females in some specialties may be less compared to that of males and hence they may be missed.

Suggestions

Before introducing wellness programs, it is important to take into account several elements. The process is multidimensional and requires commitment from different levels ranging from the institution as a whole, down to the level of the residents. Burnout symptoms are associated with depression; thus, any program should tackle the stigma surrounding this mental health issue. Moreover, the characteristics of residents should be captured along with the nature of their training institutions.^[6] Lebanon is a developing country, and our institution is a tertiary care center located in the capital.^[17] Residents in developing countries are subject to different challenges such as suboptimal working conditions, lower income, political instability, exposure to war, and inadequate health-care infrastructure.^[17] Any program should acknowledge that some medical students might already suffer from mental health issues prior to starting residency. The importance of burnout may be addressed in the resident agreement document and/or distribute educational pamphlets regarding burnout, wherein they can find any needed information.

There are three suggested ways to relieve burnout: First, revising the organizational structure and work processes to better enhance the training of residents; second, refining the fit between the organization and the residents, with professional development programs to enable better adjustment to the work atmosphere; and finally, reducing stress through individual-level actions and targeted wellness programs.^[21] Examples include providing local resources for counseling and wellness programs in the form of workshops, retreats, and education programs.^[5,6] Integrating social support into any wellness program is fundamental^[7] and establishing mentorship programs to pair faculty with residents based on personal and professional values.^[6] For instance, ward rounds by a senior surgeon were significantly associated with high-to-moderate feelings of personal achievement ($P = 0.007$),^[12] because insufficient support from the supervisor was cited as an element related to burnout.^[13]

It is crucial for the program directors to get to know the residents very well from the beginning in order to recognize any change in performance. The new program should include awareness projects for self-learning, reflection, and continuing education.^[16] Self-care is crucial for implementing strategies that address mental and physical well-being.^[6] Providing sick leaves for residents who do not feel well may help alleviate stress and avoid self-sacrifice, because presenteeism is referred to as the practice of coming to work even while being sick.^[16] The new program

should encourage program directors to develop empathetic and compassionate skills to guide residents in the face of suffering and complex cases witnessed during their training.^[16]

The program directors should closely observe the residents in a timely fashion to depict any deviation from the residents' casual behavior. If a resident started behaving differently (late in rounds, delay in care, and low scores in examinations), the program director should immediately address this issue and consider a top priority. This can be done through several ways, including informal meetings with the resident alone and then with other concerning supervisors. Such meetings should be confidential and probably take place after the duty hours of the resident in order for his/her peers not to find out about the issue.

Having regular staff meetings in the department was also noted to be beneficial^[12] in order to discuss any arising issues. These meetings should be open to all residents and should occur frequently. Residents should have a dedicated meeting just for them to discuss any issues related to residency structure and other related concerns. This could be done every 3 months or 6 months, depending on the structure and load of work. Even if no resident suggests the need for a meeting, the program directors should hold such meetings to show the residents that their concern is of utmost importance to the institution. Access to private and one-to-one counseling for those who request should be free, easy, and anonymous. A lot of attention should be given to details of these meetings such as the location, appointment schedule (whether during duty hours vs. after duty hours), and waiting area (to avoid being seen by other residents, staff, or faculty). Residents may be hesitant to ask for counseling if they find out that peers or supervisors may notice their presence or their appointment with the counselor.

Limitations

After all, there are several limitations in the above-mentioned studies. Although the MBI-HSS is a useful tool in measuring the dimensions of burnout, it does not provide information about areas in work-life that may contribute to burnout.^[13] However, a stricter definition of burnout was not used in many of the studies. The strict definition shows that there should be a high level of burnout in all MBI dimensions in order to justify the existence of burnout.^[13] If this definition were used in the survey, it would lead to low levels of burnout, such as a burnout prevalence of 4.9% in the survey of 263 residents in Greece.^[13] There are also other instruments to measure burnout and include the Hacker and Reinhold Stresses and Strains Screening

in Human Services, the 30-item Staff Burnout Scale for Health Professionals, the Utrecht Burnout Scale,^[13] and the Copenhagen Burnout Inventory.^[4]

Surveys of small numbers represent highly gathered data, especially when the respondents are from a specific department, program, or country since they may share similar data.^[5,12,13,19,22] In addition, lifestyle factors such as overall health perception, exercise, and personal stressors that play a role in the development of burnout.^[5] For example, physical activity/exercise was shown to have a positive effect on healthy lifestyle and represents an indispensable way to curb burnout^[5] but was not assessed further for its effect. Surveys are unable to capture the effect of lifestyle on burnout,^[5] especially in case of married residents and/or residents with children.^[12] Although some studies have targeted only one specialty in order to ensure homogeneity, this does not help in generalizing the findings to other specialties.^[5] Furthermore, the effect of biases should not be ignored such as selection bias,^[5,6] and nature of surveys which involves voluntary participation that may give rise to response bias.^[8] An important factor is that there is no information regarding those who did not respond to the surveys conducted in the studies.^[17] Finally, the cross-sectional type of study does not allow generalizability and does not determine causality.^[5,7,8,12,13,17]

CONCLUSION

Burnout among residents is a crucial issue that has gained attention in the last decade. It is important to acknowledge that the health of residents' is a profession by itself^[18] and that special and dedicated care should be given to their well-being in addition to teaching. Providing professional support in the form of wellness programs addressed to residents may attenuate the consequences of burnout through emotional control, time management, and team building.^[7] Although there is no clear definition of wellness in the literature,^[7] it is essential to generate such interventions, and this represents an important area for future research.^[6] Research should determine the prevalence of burnout and identify the elements associated with it before introducing any academic program.

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Conflicts of interest

There are no conflicts of interest.

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