https://doi.org/10.55453/rjmm.2023.126.2.3
The article was received on October 3, 2022, and accepted for publishing on January 7, 2023.

ORIGINAL ARTICLE

Is Still Neurology Desirable as a Specialty for Aspiring Physicians?

Carmen A. Sîrbu[1], Alexandra C. Mihai[1], Florentina C. Pleșa[1,2], Titus M. Vasile[1,3], Ionuț Caloianu[1], Aida M. Manole[1], Sorin Tuță[3,4]

[1] Department of Neurology, Central Military Emergency University Hospital, Bucharest, Romania
[2] Department of Preclinical Disciplines, Faculty of Medicine, Titu Maiorescu University, Bucharest, Romania
[3] Clinical Neurosciences Department, Carol Davila University of Medicine and Pharmacy, Bucharest, Bucharest, Romania
[4] Department of Neurology, National Institute of Neurology and Neurovascular Diseases, Bucharest, Romania

Correspondence: Titus Mihai Vasile, titus.vasile@umfcd.ro

Abstract: *This article aims to highlight the burnout burden among neurologists and provide information on some of its causes and consequences. We report an original article that reviews our current understanding of burnout matter in the neurology field. The main search engine through which we performed extensive literature research was PubMed, Scopus, and Google Scholar. The following information was collected: triggers of burnout and factors that perpetuate it, major complaints, values, and goals that dictate how coaching with it. Physician burnout is an umbrella term characterized by symptoms determined by exposure to chronic workplace stressors. Simply put, it encompasses many dimensions: emotional exhaustion, feelings of cynism, detachment (depersonalization), and a sense of ineffectiveness at work (low personal accomplishment). Burnout is common among all medical specialties, but neurology ranks at the top of the list. Several identified factors continue to fuel this problem. Properly addressing them, rethinking practice, and implementing wise, modern strategies can make significant contributions to reducing it. Aside from the chronic harm to the physician, burnout puts at risk the healthcare community at many levels including patients, other professionals, finances, etc. This paper wants to emphasize that burnout in neurology should be regarded as a global crisis. Thus, some strategies are proposed.*

Keywords: *neurology, burnout, work-life, emotional exhaustion, stress, fatigue, depersonalization, second-victim phenomenon, complaints, functional neurology*

INTRODUCTION

Physician burnout is an umbrella term characterized by symptoms in response to prolonged exposure to chronic stressors related to the workplace. This topic attracted interest from researchers since it exhibits a concerning prevalence. In the field of medicine, we can consider burnout a pandemic that has a negative impact both on doctors and their patients, but most of the time this reaches far beyond that, to families and the overall healthcare system. All medical specialties are affected, but some of them carry a higher percentage of burnout. Over 40% of general physicians experienced at least one symptom of burnout, neurology being ranked the second specialty affected, with more than 60% of neurologists signaling symptoms [1,2]. Medscape 2022 report on Physician Burnout and Depression showed that 47% of neurology specialists are experiencing mental health challenges, which represents a substantial increase in its prevalence compared with the previous year's reports when it was 42% [3]. The purpose of this article is to highlight the burnout burden among neurologists and provide information on some of its causes and consequences.

BURNOUT AND NEUROLOGY

To date, many research studies have contributed to a comprehensive overview and understanding of the root causes that fuel physician burnout.

The prevalence of neurological disorders increased in the last two centuries and the increased burden that comes along can be attributed to explosive population growth, people reaching older ages, unhealthy lifestyles, and unawareness of the importance of prophylactic measures [4].

In opposition to this growth, the global shortage of neurologists led to inequalities in the availability of patient care with those already existing clinicians being overwhelmed. The Association of American Medical Colleges biannually

investigates the number of patients per active physician. Reports published two years ago indicated that the number was higher in neurology (23.429) than in ophthalmology (17.162), cardiovascular diseases (14.717), radiology (11.896), psychiatry (8.544), emergency medicine (7.332), internal medicine (2.758), and is approaching specialties with the highest burnout rates such us urology (32.490) [5]. Thus, the low number of practicing neurologists per patient increases the amount of work, compromises patient care, and exacerbates burnout.

Switching to professional working hours per week, an interesting study concluded that neurologists worked 57.1 hours per week, with 42.3 hours being spent performing inpatient activities. In our neurology department, the average number of professional working hours per week is 59, with a peak of 100 on rare occasions (absenteeism of other colleagues because of medical conditions/vacations or lack of staff) [6].

From a holistic point of view, burnout can be regarded as an indicator of quality and duration of life, given that it has a direct damaging effect on health: overnight shifts, exposure to all kinds of infective agents, irregular and exaggerated effort, lack or inadequate physical exercise, emotional detachment, interrupted meals or maladaptive coping strategies such as excessive caffeine intake or other power drinks, alcohol, and drug abuse. Johann Ludwig Casper, a prominent name in forensic medicine stated that there is no profession with a comparable physical and mental force demand as the medical one, an observation comparable with recent studies [7]. It is also worth mentioning that being on call requires working very fast or accomplishing more tasks being short on time. Very similar ideas are presented in a meta-analysis of 17 studies that in people with high demands, the risk of mortality is 20% higher than in the reference group [8]. Similar opinions are found in a study involving 1.671 American neurologists, where 60.1% of the responders had at least one symptom of burnout [2].

According to the World Health Organisation and International Classification of Diseases, burnout has become 2019 a legitimate medical disorder and has been given its ICD-10 code (Z73.0 - Burn-out state of vital exhaustion). Burnout is a state of chronic stress, that occurs after the body system is repeatedly triggered. It can exacerbate mental conditions like anxiety disorders, depression, and sleep problems. Some authors focused on the cortisol secretion parameters and concluded burnout is a mental syndrome with unique pathophysiology [9]. Moreover, as it often happens, the presence of a disease leads to a higher chance for another one to develop. Burnout influences not only subjective well-being but other biological processes as well. In a large study of nearly 9000 employed adults, was found that burnout is a significant risk factor for developing coronary heart disease and finally, heart attacks [10]. These findings support the idea that physicians with high demands as neurologists are exposed to challenges regarding their health and are more vulnerable to stress and burnout.

There is an excessive workload and clerical duties, including finishing notes, phone calls, ordering tests and reviewing results, responding to phone calls and patient requests, and prescribing medication. Assessing indicators related to burnout in a national survey on 9561 neurology residents and fellows after studying 354 responses to the survey the following was revealed: regarding the amount of time spent on clerical tasks directly related to patient care" only 26.2% of residents and 29.7% of fellows agreed that it is reasonable [2]. Another particular challenge is finding meaning in work and this often translates to helping others. Some neurological disorders do not come with treatments or cures or are associated with a significant burden of disability. In the same study, in the matter of, satisfaction with the job" only 68.9% of residents and 63.1% of fellows were more likely to be satisfied with their career choice and in line with, work being meaningful", 78.8 % of residents and 85.6% of fellows had positive feelings towards their job [11]. In comparison to attending physicians, an important number of neurology residents experience burnout due to extra workload and the challenges that come with a new environment, 73% of residents mentioned at least one symptom from the constellation of burnout. Furthermore, both residents and practicing physicians are affected by the second-victim phenomenon, which refers to feelings of guilt caused by medical errors which result in poor patient outcomes [12,13].

Some authors focused instead on sources and outcomes of burnout, on potential interventions to treat it or to prevent the onset. It must be mentioned that burnout is a consequence of systemic deficiencies rather than a result of poor uncoping skills. Increasing trainee resilience and cutting clerical tasks through hiring administrative workers or through using user-friendly technology [14], positive reinforcement and support during residency, and implementing regular burnout evaluations such as Maslach Burnout Inventory. The last one mentioned is the most widely accepted evaluation of burnout and outlines three key aspects of this response: the state of feeling emotionally worn out, feelings of cynicism toward work, and a personal sense of inefficiency in the workplace [15].

The supply-and-demand issue that perpetuates burnout and challenges patient care in neurology could be overcome by recruiting other medical staff. For example, nurse practitioners could get in charge of some medical tasks, without actually

exceeding their abilities, as the healthcare oath foremost promotes abstaining from all intentional wrong-doing and harm. This topic with potential usefulness has already been addressed in an article published in the JAMA journal, but it aroused a lot of controversies [16]. Most complaints came from those in need of help, like physicians, stating that to figure out the pathology, prove competency, and be able to give medical assistance one has to go for over a decade in training. This amount of time is spent in school only by doctors, to fully become licensed, and no other alternative shorter programs can replace this training. But maybe they can approach it. An answer to this problem could be by enhancing nonphysician practitioners in medical student courses or by attending residents, giving them templates and free access to educational programs. In conjunction with this, in the UK for example, specialist nurses are known for their crucial role. They can choose and qualify for various neurological conditions (multiple sclerosis, Parkinson's disease, and epilepsy). Sometimes they can order tests, administer basic treatments, and in some states even prescribe medications.

Another indicator of burnout and shortage of neurologists is also projected by the difficulty in making an appointment for new patients and by lengthy waiting lists. Data from 626.000 first appointments scheduled in 2016 with 1.044 providers concluded that wait times for new patients are longer for high-demand specialties, with neurology patients waiting approximately 32.3 days for first appointments [17]. This is particularly relevant since waiting for more than a month often determines patients to cancel their appointments, and never return to the clinic with consequences resulting from delayed diagnosis and treatment. Moreover, significant information was revealed by 2021 research on NHS data conducted by Neurological Alliance – a coalition with over 80 organizations including the MS Society, Parkinson's UK, and MND Association. Thus, they showed that by the end of March 2021, over 150.000 people were waiting for an assessment by a specialist and over 10.000 of these have been waiting for over a year [18]. These numbers indicate how overwhelmed are the neurology services, putting a lot of pressure on existing physicians, and prolonging a state of excessive stress and fatigue that is burnout.

As a consequence of different workplace stressors and poor coping mechanisms, it was estimated that 10-15% of doctors will develop a problem with substance addiction at some point in their careers [19]. Regarding the neurology field, in a published survey among all specialties, answers from 470 chronic pain/neurology subjects as well, it was shown that in this category of physicians there is a prevalence of 3.7% marijuana use. The issue is not limited to illegal drugs, pain medicine, and alcohol count as well. The anonymous questionnaire indicated a prevalence of 88.6% of alcohol use in physicians from the category of chronic pain/neurology, also being the group with the highest prevalence for benzodiazepine of 15.5%. In addition to this, they found 16.3% prevalence for minor opiates and 1.9% for major opiates, hence being ranked the third specialty. Neurologists frequently come across chronic pain patients in need of benzodiazepines and opiates and somehow this exposes them to these drugs. They ranked second only to psychiatrists in the matter of the risk of using benzodiazepines [20].

Many neurologic diseases require interdisciplinary care and this sometimes creates the setting for conflict between providers offering healthcare services [21]. To reduce the burnout burden, neurologists should try to understand and develop the concept of teamwork. Literature describing the issue of individual vs. teamwork in neurology is scarce, but limited evidence suggests there are more benefits from the adoption of a teamwork approach, where feasible. By avoiding professional isolation, rethinking professional roles, and abandoning territorial behavior.

Receiving complaints is another issue that lies at the heart of burnout in neurology as well. Many of these complaints arise from the limits that go along with disabling or cureless illnesses, giving a false feeling that the healthcare workers did not do anything possible to resolve the case. This situation can be overcome by improving the informative part of the medical act with better communication skills with the patient and through offering honest expectations for patients and their families. Moreover, it is not uncommon that patients to have a low level of medical education and not understand the limits of medicine, priorities, or medical procedures, so this is another important factor that promotes complaints [22,23].

We propose some strategies for the prevention of burnout on neurology specialists (Table 1). There are three categories of factors: related to patient education, related to the workplace, and the healthcare system, and factors related to patient education. An important contributor that fuels burnout is the offering of patients by medical professionals who come across neurological diseases in their practice and whose residency programs do not provide minimum knowledge. Many of these patients have functional neurological disorders which do not always require neurologist interventions. The same problem is with incidental findings on brain imaging such as minimal white matter changes with the improbability of multiple sclerosis or other significant CNS diseases. Poor medical knowledge, not understanding the limits of medicine, medical priorities, or investigations are factors of complaints between relatives. Time-consuming work, the complexity of neurological diseases, communicating a difficult diagnosis, or spending more time doing bureaucratic tasks than caring for

patients, all of these are frustrating. Adequate working conditions, generous salaries, creation of functional interdisciplinary teams, filling vacancies, and introduction of telemedicine and artificial intelligence in the field of neurology, would be some solutions for attracting young doctors to this specialty.

Table 1: Significant factors contributing to burnout among neurologists and strategies for prevention

Main factors related to burnout	Proposed solutions
Factors related to the patient education	
Many referrals to neurology that do not need neurology intervention Eg: Functional neurology (often, patients with functional conditions tend to show more dissatisfaction) [22].	Educational initiatives/ online courses targeting other medical professionals that send patients and have minimal to no knowledge of common neurological diseases. Early neuroscience curricula in medical school.
The pandemic of cardiovascular risk factors: high blood pressure and cholesterol, obesity, smoking, and poor diet - put a person at high risk for neurological diseases as well.	Preventive medicine. Screening programs and campaigns to raise awareness.
Factors related to the workplace and healthcare system	
Complaints from patients/families arise from: - the poor medical knowledge - not understand the limits of medicine, medical priorities, or investigations (23)	Legal assistance for the doctors involved.
Shortage of neurologists because of not choosing the specialty [24].	Programs in medical school promote and value neurology. Adequate salary.
Neurologists choose urban over rural settings [25].	Improving rural health settings. Providing medical tools/gadgets/making technology available so the rural residents have equal opportunities to receive medical treatment.
The complexity of neurological diseases creates a job mismatch.	Development of team-based neurologic care Increased need for subspecialty medical care Eg: In Romania, there are no specialists in movement disorders or neuro-ophthalmology
Responsibility fatigue at the workplace.	The schedule of work must be dependent on the complexity of the tasks.
The neutral attitude of the hospital management board [26].	Providing support, understanding human needs, expand vacation policies.
Many rescheduling of appointments decreases physician and healthcare system efficiency overall.	Telemedicine and e-consults increase the capacity to respond to the demand for care and help patients with difficulties in coming to their clinic visits [27].
Mounds of paperwork - spending more time doing bureaucratic tasks than caring for patients. Lack of access to medical records - especially in older patients with many investigations.	Digitalization and artificial intelligence are the future of healthcare. Enabling tracking system for ordered tests/ follow-ups.
Time-consuming tasks. Eg: documenting a history of falls in Parkinson	Artificial intelligence Eg: smartwatches or other wearables that quantify falls or periods of inactivity and already provide a pattern or a conclusion.
Factors related to the physician	
Communicating a difficult diagnosis (often the first interaction occurs already at the time of critical illness).	Programs/Training courses that will help doctors improve their medical communication with patients.
The emotional burden of the specialty itself.	Providing necessary psychological assistance to guide neurologists facing mental health problems like depression or anxiety.

CONCLUSIONS

Overall, burnout can be regarded as a matter of specialty, and it has built up slowly over time, creating a vicious cycle, perpetuated by workforce dropout or choosing other medical specialties with a better lifestyle. Identification of burnout effects in neurology is policy relevant for some reasons: it affects the overall healthcare system with all its components, work-life integration (family), emotional and physical well-being, and social engagement. To conclude, it must be regarded as a worldwide issue.

References:

1. Hasan T. F., Turnbull M. T., Vatz K. A., Robinson M. T., Mauricio E. A., Freeman W. D. "Burnout and attrition: Expanding the gender gap in neurology? ". Neurology. 2019. 93(23), 1002–1008.

2. Busis N. A., Shanafelt T. D., Keran, et.all. "Burnout, career satisfaction, and well-being among US neurologists in 2016 ". Neurology. 2017. 88(8), 797–808.

3. https://www.medscape.com/slideshow/2022-lifestyle-burnout-6014664(accessed 21.07.2022).

4. Karikari T. K., Charway-Felli A., Höglund K., Blennow K., Zetterberg H. "Commentary: Global, regional, and national burden of neurological disorders during 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015 ". Front. Neurol. 2018 9, 201.

5. Adornato B. T., Drogan O., Thoresen P., et al. " The practice of neurology, 2000-2010: report of the AAN Member Research Subcommittee". Neurology. 2011. 77(21), 1921–1928.

6. https://www.aamc.org/data-reports/workforce/interactive-data/percentage-change-number-active-physicians-specialty-2010-2015. (Accessed 21.07.2022).

7. Van Poppel F., Bijwaard G., van Lieburg M., van Lieburg F., Hoekstra R., Verkade F. "The Life Expectancy of Medical Professionals in the Netherlands, Sixteenth to Twentieth Centuries. " Population, 2016. 71(4), 619–640.

8. Amiri S., Behnezhad S. "Job strain and mortality ratio: a systematic review and meta-analysis of cohort studies." Public health. 2020. 181, 24–33.

9. Jonsdottir I. H., Sjörs Dahlman A. "Mechanisms In Endocrinology: Endocrine and immunological aspects of burnout: a narrative review." Eur J Endocrinol. 2019. 180(3), R147–R158.

10. Toker S., Melamed S., Berliner S., Zeltser D., Shapira, I. "Burnout and risk of coronary heart disease: a prospective study of 8838 employees." Psychosom med. 2012. 74(8), 840–847.

11. Levin K. H., Shanafelt T. D., Keran C. M., et al. "Burnout, career satisfaction, and well-being among US neurology residents and fellows in 2016." Neurology. 2017. 89(5), 492–501.

12. Coughlan B., Powell D., Higgins M. F. "The Second Victim: a Review. " Eur. J. Obstet. Gynecol. 2017. 213, 11–16.

13. Tamburri L. M. "Creating Healthy Work Environments for Second Victims of Adverse Events. " AACN Adv. Crit. Care. 2017. 28(4), 366–374.

14. https://www.medscape.com/features/slideshow/lifestyle/2013/psychiatry.(Accessed 21.07.2022)

15. Maslach C., Leiter M. P. "Understanding the burnout experience: recent research and its implications for psychiatry." World psychiatry: official journal of the World Psychiatric Association (WPA). 2016. 15(2), 103–111.

16. Cook C.L., Schwarz H.B. "Advanced Practice Clinicians—Neurology's Underused Resource. " JAMA Neurol. 2021. 78(8):903–904.

17. https://www.athenahealth.com/knowledge-hub/financial-performance/doctor-will-see-you-sometime (accessed 11.07. 2022).

18. https://www.neural.org.uk/news/over-10000-people-waiting-over-a-year-for-neurological-services-neurological-alliance-analysis-reveals/(accessed 15.07.2022)

19. Baldisseri M.R. "Impaired healthcare professional. " Crit. Care. Med. 2007. 35(2 Suppl):S106-S116.

20. Hughes P.H., Storr C.L., Brandenburg N.A., Baldwin D.C. Jr, Anthony J.C., Sheehan D.V. "Physician substance use by medical specialty". J Addict Dis. 1999. 18(2):23-37.

21. Oliver D., Silber E. "End of Life Care in Neurological Disease. " In: Oliver, D. (eds) End of Life Care in Neurological Disease. 2012, Springer, London.

22. Bolton C., Goldsmith P. "Complaints from patients with functional neurological disorders: a cross-sectional UK survey of why patients complain and the effect on the clinicians who look after them. " BMJ Open. 2018. 8(11):e021573.

23. Bourne T., Wynants L., Peters M. "The impact of complaints procedures on the welfare, health and clinical practise of 7926 doctors in the UK: a cross-sectional survey. " BMJ Open. 2015. 5(1):e006687.

24. Majersik J.J., Ahmed A., Chen I.A. "A Shortage of Neurologists We Must Act Now: A Report From the AAN 2019 Transforming Leaders Program." Neurology. 2021.10.1212/WNL.0000000000012111

25. Burton A. "How do we fix the shortage of neurologists? " Lancet Neurol. 2018. 17(6):502-503.

26. Patel U.K., Zhang M.H., Patel K. "Recommended Strategies for Physician Burnout, a Well-Recognized Escalating Global Crisis Among Neurologists. " J Clin Neurol. 2020. 16(2):191-201.

27. Solomon D.L., Dirlikov B., Shem K.L. "Elliott CS. The Time Burden of Specialty Clinic Visits in Persons With Neurologic Disease: A Case for Universal Telemedicine Coverage. " Front Neurol. 2021. 12:559024.