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ARTICLE

Burnout syndrome: are stroke neurologists at a higher risk?

Síndrome de Burnout: neurologistas vasculares apresentam maior risco?

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ABSTRACT

Background: Burnout syndrome is a work-related psychological response, characterized by emotional exhaustion, depersonalization and low professional accomplishment. **Objective:** The study aimed to evaluate the prevalence of burnout syndrome in neurologists in the State of Paraná, Brazil, dividing them into stroke neurologists and non-stroke neurologists. **Methods:** We performed a cross-sectional observational study, with a quantitative approach, based on the online Maslach Burnout Inventory – Human Services Survey questionnaire. **Results:** A total of 74 neurologists were evaluated, 44.6% of whom had burnout syndrome, predominantly among females and stroke neurologists. Both the stroke neurologist and non-stroke neurologist groups had medium degrees of emotional exhaustion and depersonalization; however, while stroke neurologists had high professional accomplishment, non-stroke neurologists had mean-to-low scores of professional accomplishment. There was a proportional relationship between age and emotional exhaustion. Female neurologists also reported lower professional accomplishment levels. **Conclusion:** Burnout is prevalent among the neurologists of Paraná, corroborating the results previously reported in other studies. There seems to be no significant difference between those neurologists who work in the emergency stroke care setting compared with those who don't.

Keywords: Burnout, professional; neurology; occupational stress; job satisfaction.

RESUMO

Introdução: A síndrome de *burnout* é uma resposta psicológica relacionada à profissão, caracterizada por exaustão emocional, despersonalização e redução da realização pessoal. **Objetivos:** Objetivamos avaliar a prevalência da síndrome de *burnout* em neurologistas do Paraná, distribuindo a atuação entre neurologistas vasculares e não-vasculares. **Métodos:** Estudo observacional, transversal, com abordagem quantitativa, realizado a partir do questionário *online* autoaplicável *Maslach Burnout Inventory - Human Services Survey.* **Resultados:** 74 neurologistas foram avaliados, desses 44.6% apresentaram critérios para síndrome de *burnout*, predominando entre mulheres e stroke neurologists. Ambos os grupos apresentaram médios graus de exaustão emocional e despersonalização. Enquanto os neurologistas vasculares apresentaram alto grau de realização pessoal, os não-vasculares apresentaram médio grau. Houve relação proporcional entre idade e exaustão emocional. Neurologistas do gênero feminino mostraram menores níveis de realização pessoal. **Conclusão:** A síndrome de *burnout* é frequente nos neurologistas do Paraná, compatível com a literatura que sugere a especialidade como uma das mais susceptíveis. Não obtivemos contudo, diferenças entre os neurologistas que lidam ou não com a emergência vascular.

Palavras-chave: Esgotamento profissional; neurologia; estresse ocupacional; satisfação no emprego.

Burnout syndrome was initially described as a psychological illness secondary to professional stress, especially in work conditions involving significant interpersonal relationships[1,2]. Although the practice of medicine can be important and individually rewarding, the demand for responsibility and stress levels are considered high. In general, medical doctors are more likely than other professions to have to deal with situations of suffering, pain and death. It has also been observed that physicians have a heavier workload than other professionals, and it is more difficult to integrate work life with other areas[3].

Results from several studies suggest that many physicians experience burnout syndrome, which is characterized by loss of interest and enthusiasm for the practice (emotional

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exhaustion), feelings of cynicism and detachment from patients (depersonalization) and a feeling of career dissatisfaction, with a decrease in self-esteem and reduction of professional accomplishments (professional accomplishment)[1]. Findings from recent studies suggest that burnout syndrome can impair professionalism and influence the quality of care, increasing the risk of medical errors, and even resulting in career withdrawal[4]. Some adverse professional consequences may also be related to relationship breakdown, problematic alcohol and drug abuse and suicidal ideation[5].

The prevalence of burnout syndrome can vary according to the different medical specialties, as well as the career stage (length of time in the activity) of an individual[3]. Neurology is one of the few specialties with both high rates of burnout syndrome and low satisfaction with work-life balance, according to Busis et al[6]. Newly-trained physicians have lower professional accomplishment and higher levels of depersonalization, as the limited amount of experience results in difficulties in dealing with stress[7,8]. Physicians who are in the challenging mid-career stage are generally more satisfied and have lower stress levels. Differences among specialties have been evidenced in several studies[7,9,10]. An American nationwide survey of 7,288 physicians found that 45.8% of respondents exhibited at least one burnout symptom, with neurology ranking third among several specialties, after emergency medicine and general internal medicine[6]. Over 50% of neurologists exhibited at least one burnout symptom[3,11]. We found only one study with Brazilian neurologists conducted in the State of Rio de Janeiro that showed a high prevalence in 60.6% of the participants[12].

Recently, neurology has developed a new area of action due to advances in thrombolytic/thrombectomy treatment of acute stroke, that resulted in a change of neurologist behaviour, including full-time intrahospital performance for emergency care for stroke, according to the guidelines of the Brazilian Society of Cerebrovascular Diseases[13]. We aimed to study whether being a stroke neurologist carried a higher burnout risk in comparison with those who only worked with outpatients in the same specialty.

METHODS

We performed a cross-sectional observational study with a quantitative approach to neurologists in the State of Paraná, Brazil, approved by the Human Research Ethics Committee of HC-UFPR.

The inclusion criteria for responders was: being active in neurology at the time of completion of the questionnaire; having a medical record associated with the Regional Council of Medicine – Paraná chapter; and having signed the informed consent form.

Burnout was measured by using the Maslach Burnout Inventory – Human Services Survey, a self-administered validated questionnaire, which is considered the standard criterion tool for measuring burnout[14,15]. It contains 22 items that evaluate aspects of burnout syndrome: nine questions address emotional exhaustion, five are related to depersonalization and eight to professional accomplishment. Scores can indicate a burnout syndrome diagnosis in each of the three independent variables, not the sum of them[11]. The scores obtained in these dimensions allow the classification of the intensity/degree by which the individual is affected: severely, moderately or minimally affected. Scores between 19 and 26 for emotional exhaustion, 6 and 9 for depersonalization, and 34 and 39 for professional accomplishment reflect an average degree of burnout syndrome. High scores in emotional exhaustion (greater than 26) or depersonalization (greater than 9) reflect a high degree of burnout syndrome[16].

The Maslach Burnout Inventory – Human Services Survey is based on the use of the Likert scale, a method commonly used in opinion polls, in which the questions specify in 7 points the agreement with a given statement: 0 = never; 1 = sometimes in the year or less; 2 = once a month or less; 3 = sometimes in a month; 4 = once a week; 5 = sometimes during the week; and 6 = every day. In the initial part of the questionnaire, we added identification questions about gender, age, workplace (either Curitiba and its metropolitan region, or in the country) and divided the current activity of the participant according to the field of action – emergency (stroke neurologists) or non-emergency (non-stroke neurologists).

The questionnaire was made available on the Regional Council of Medicine – Paraná chapter website in a Google Form format and sent to the neurologists, members of the *Associação Paranaense de Ciências Neurológicas* (Paraná's Association of Neurological Sciences) for four months, being resent every two weeks. The neurologists were invited to participate anonymously in the study, just answering some demographic and social/occupational data that was also included. Responses could be sent from either a computer or other electronic devices such as cell phones or tablets. Access to the link began with a brief description of the research objective, followed by the explanation of voluntary participation and a field of consent to participate. The responses were automatically stored on a database, with no possibility of individual access to the reply by email. The resulting data were accessed only by the researchers conducting statistical analysis.

Statistical software R (Core Team, 2017) version 3.4.0 was used for data analysis. Initially, the information was analyzed descriptively. We applied the Mann-Whitney test and Chi-squared test for comparison between the groups and Spearman's correlation as a correlation coefficient between the variables[17]. For this study, p values lower than 0.05 were considered as significant.

RESULTS

Of the 271 neurologists who work in Paraná, 74 completed and returned the questionnaires, a response rate of 27.3%. Of these, 56.8% worked with stroke emergency as their main activity and were thus considered as stroke neurologists; and 43.2% did not work in emergency services, therefore were dubbed non-stroke neurologists; 52.7% were male, and 74.3% worked in Curitiba and its metropolitan region. The average age was 45.9 ± 12.0 years, ranging between 27 and 71 years. Thirty-three neurologists (44.6%) fulfilled criteria for severe burnout syndrome. Of these, 60.6% were female, 51.5% were stroke neurologists, and 75.8% worked in Curitiba and its metropolitan region.

The average age of the stroke neurologists was 44.3 ± 11.6 years and of the non-stroke neurologists was 47.9 ± 12.5 years. In the stroke neurologist group, 50% were female, and 73.9% worked in Curitiba and its metropolitan region, whereas in the non-stroke neurologist group 43.8% were female and 75% worked in Curitiba and its metropolitan region.

The average score in the emotional exhaustion section was 23.0 (± 11.6), that is, an average degree of emotional exhaustion; in the depersonalization section it was 6.2 (± 5.3), corresponding to a mean degree of depersonalization; and in the professional accomplishment section it was 39.8 (± 5.9), indicating a high degree of professional accomplishment. When analyzed in the two different groups, mean emotional exhaustion scores were 21.4 (± 10.5) in the stroke neurologist group and 25.1 (± 12.7) in the non-stroke neurologist group; depersonalization mean scores were 6.1 (± 5.2) in the stroke neurologist group and 6.4 (± 5.5) in the non-stroke neurologist group; and the mean professional accomplishment scores were 40.6 (± 5.0) in the stroke neurologist group and 38.8 (± 6.8) in the non-stroke neurologist group.

High levels of depersonalization were observed in 28.6% of stroke neurologists, similar to the rate in the non-stroke neurologist group, which was 28.1%. As for emotional exhaustion, the difference was slightly higher, 26.2% of the stroke neurologists showed a high degree of emotional exhaustion, whereas, in the non-stroke neurologist group, 28.1% showed this degree, with no statistical relevance. It was observed that 4.8% of stroke neurologists showed a low level of professional accomplishment and 15.7% of non-stroke neurologists had a low level of professional accomplishment, also not statistically relevant.

Emotional exhaustion was observed at higher levels in female neurologists (25.8 ± 11.9) than in male neurologists (20.5 ± 10.9), although without statistical relevance. An inverse correlation between age and emotional exhaustion levels ($p < 0.001$, Figure 1) was observed when the total sample was analyzed.

Median depersonalization levels did not show large discrepancies in gender, although the mean number of females (7.5 ± 6.0) was slightly higher than that of males (5.1 ± 4.4). Nevertheless, it was observed that male physicians had higher levels of professional accomplishment (40.7 ± 6.8) than female physicians (38.7 ± 4.6, $p < 0.03$).

It was possible to observe that among the non-stroke neurologists, females had a mean high degree of emotional exhaustion (29.1 ± 13.3), while their male counterparts had an average degree (22.7 ± 11.7). Among the stroke neurologists, the difference between genders was lower, with both genders showing an average degree (men had a mean of 19.1 ± 10.2 and women had a mean of 23.5 ± 10.5), although with no statistical relevance.

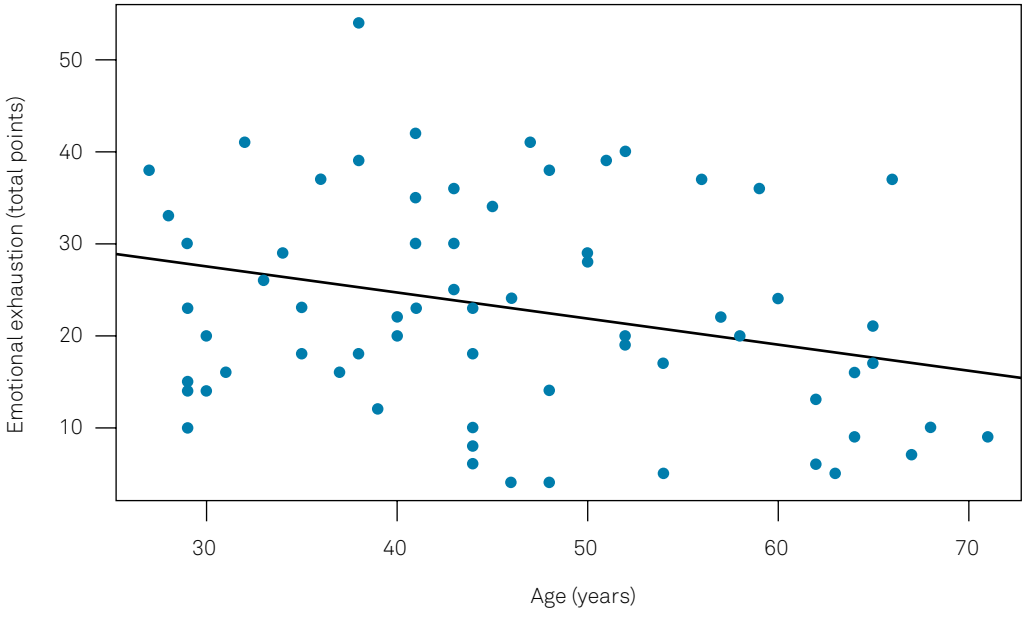

Figure 1. Relationship between emotional exhaustion levels and age in the total sample.

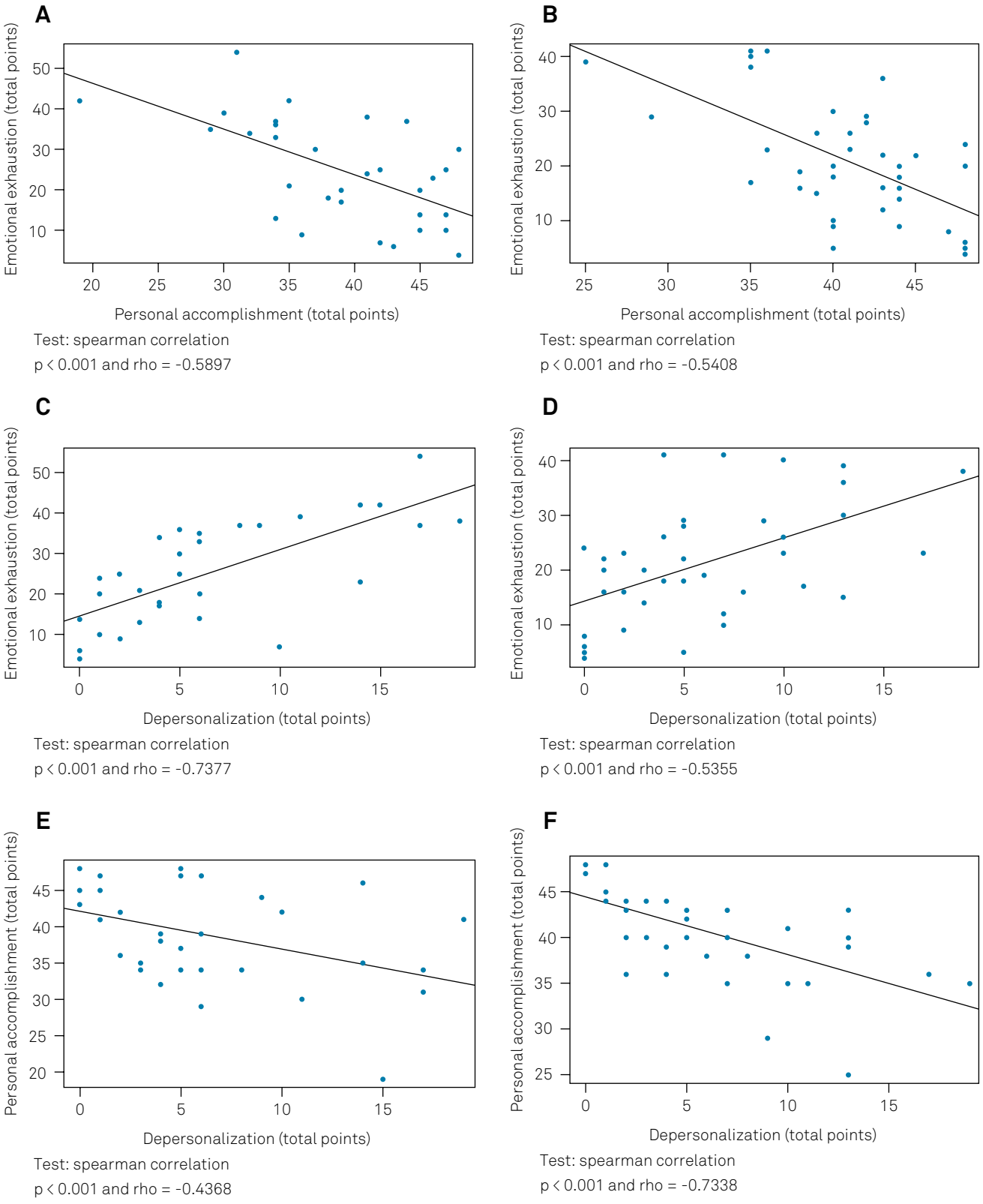

Figure 2. Relationship between emotional exhaustion levels and other indices: A - professional accomplishment in the non-stroke neurologist group; B - professional accomplishment in the stroke neurologist group; C - depersonalization in the non-stroke neurologist group; D - depersonalization in the stroke neurologist group. Relationship between professional accomplishment levels and depersonalization: E - non-stroke neurologist group and F - stroke neurologist group.

In both groups, there was a statistically significant inverse correlation between emotional exhaustion and professional accomplishment ($p < 0.001$), as well as a correlation between emotional exhaustion and depersonalization ($p < 0.001$, Figure 2).

Among the stroke neurologists, there was a difference in professional accomplishment regarding gender, with females having medium levels (38.7 ± 4.1) and males with high levels (42.5 ± 5.3, $p < 0.05$). Conversely, there was no statistical relevance in the non-stroke neurologist group, with a medium level of professional accomplishment for both genders (males had a mean score of 38.9 ± 5.5, females had a mean of 38.7 ± 7.9). In both non-stroke neurologists and stroke neurologists, an inversely proportional relationship was observed between the levels of professional accomplishment and depersonalization ($p < 0.001$, Figure 2).

Regarding depersonalization, it was observed that in both groups females had a medium score (stroke neurologists had a mean of 7.4 ± 5.7; non-stroke neurologists had a mean of 7.6 ± 6.7), while males had low scores (stroke neurologists showed an average of 4.9 ± 4.4, non-stroke neurologists showed an average of 5.4 ± 4.4), albeit without statistical significance.

DISCUSSION

The results of this study demonstrated a high prevalence of burnout syndrome in neurologists in Paraná, comparable with recent publications. Physicians in specialties at the front line of health care access, such as emergency medicine and general internal medicine, are at a greater risk of burnout syndrome, according to previous studies[3,18]. With the new categorization of stroke neurologists, who are responsible for the emergency care of stroke, particularly caring for hyperacute and acute strokes, which started mainly in the 2000s[19], this could theoretically have led to a higher prevalence of burnout syndrome in this specific new setting. We did not find any study in the literature that categorized burned-out neurologists according to subspecialties, specifically stroke neurologists, and so we chose to divide our sample into two groups: stroke neurologists and non-stroke neurologists. The analyzed groups were homogeneous for epidemiological data – age, gender and workplace.

Our findings did not corroborate the hypothesis that the stress related to the context of emergency stroke care would be a significant factor for burnout syndrome in neurologists. This finding contrasts with several studies that reported that emergency care in other specialties led to greater burnout syndrome[1,3,20]. We hypothesize that standardized guidelines, restricted to a single neurological emergency (namely stroke), reduces the variability of stress factors to which stroke neurologists are exposed in a highly-controlled setting. Data in the literature corroborate the idea that the frequency of burnout syndrome may not be related exclusively to the workload or high-stress demand, but rather to the amount of control that the emergency physician has in different situations[21,22].

Professionals with higher levels of emotional exhaustion had a lower level of professional accomplishment and greater depersonalization; conversely, those with a lower level of emotional exhaustion had a higher level of professional accomplishment and lower indexes of depersonalization. Likewise, neurologists with higher levels of professional fulfillment had lower rates of depersonalization (Figure 2). This study demonstrated that the three burnout syndrome descriptors are closely intertwined, corroborating previously-reported data[23,24,25]. However, each of these three variables has an impact on burnout syndrome incidence independently[16].

Similar to other previously-published studies, female neurologists had significantly lower levels of professional accomplishment than their male counterparts[20,22], which could be explained by an excessive workload superimposed on a concomitant family burden, as well as lower satisfaction concerning financial return[26,27,28].

Although the literature reports that younger neurologists are more likely to work in an emergency setting, when we evaluated all neurologists split into groups of vascular neurologists who either work with stroke emergencies and those who don't, we could not find any differences of distribution between these two settings in different age groups. Therefore, in spite of some predominance of younger age groups in emergency rooms or intensive care units in general, or in other specialties, that is not the case among neurologists. Furthermore, younger neurologists, regardless of whether they were stroke neurologists or non-stroke neurologists, did not have a higher incidence of burnout syndrome than older ones. However, when we analyzed all domains separately in the different age groups, we found a significantly higher incidence of emotional exhaustion in the younger group ($p < 0.05$), as shown in Figure 1. This finding is similar to those of other studies that considered that an emergency environment leads to specifically higher levels of emotional exhaustion[1,20,29].

Pediatricians are known to have lower incomes and higher demands, but have a lower incidence of burnout syndrome than neurologists[3], a specialty of low resolution and higher income, partly due to the lower number of practising professionals. This finding suggests that the causes of burnout syndrome are much more complex than a simple equation comparing financial income and workload. Other factors such as perceived greater responsibilities, greater demands and job insecurity[30] are likely to play a major role as underlying causes of burnout syndrome. Preventive measures to relieve doctor-patient pressures include individual counseling, motivational meetings, available leisure time, career planning, self-acceptance, among others and, therefore, should be implemented.

One of the limitations of our study was the low number of respondents, which prevent us from generalizing the idea that stroke neurologists are more prone to burnout syndrome than other neurological subspecialties. This may be due to the extremely limited time of the physician,

as well as the great amount of information he/she receives. Currently, the excess of electronic demand for online questionnaires, as an online methodology is more feasible, may be a complicating factor. Also, we could not make any comparison with other specialties that work either in an emergency setting or only within a medical clinic for outpatients, such as cardiology. The similarities and differences between vascular neurology and vascular cardiology may lead to a better understanding of burnout syndrome in these two subgroups. The increase of all vascular emergencies, regardless of specialty, might be a determining factor in the occurrence of burnout syndrome in other specialties, like vascular surgery, radiology, angiology, etc.

Nevertheless, this study had numerous benefits. It was the first to investigate burnout syndrome in neurologists in Brazil. Despite growing research in the area, studies on burnout syndrome have not yet been consolidated in the literature, particularly in Brazilian research. It was also a forerunner in comparing two areas of activity of the same specialty, and observed how burnout syndrome could vary according to such specificities.

In addition, with the recent acceptance of the neurohospitalist as a new area of activity, this work was the first in Brazil to incorporate this in the research. Future studies in this area are needed, as well as research comparing neurology with other vascular emergency specialties, and their areas of practice, which will deepen our understanding on the subject.

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