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# Prevalence of burnout among neurologists in Saudi Arabia



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## Abstract

**Background:** Burnout is a psychological syndrome defined as emotional exhaustion (EE), depersonalization (DP), and reduced personal accomplishment (PA) secondary to work stress. Burnout is widespread among medical workers. We aim to study the prevalence of burnout among neurologists in Saudi Arabia and describe some related personal and professional factors.

**Results:** A total of 62 consultants and 34 residents participated in the study. Having long working hours was a high source of stress among most of the participants. Consultants and residents reported high burnout rates in the three domains of the scale. In the emotional and exhaustion domain, more consultants (37.1%) showed high burnout compared to residents (23.5%). Regarding depersonalization domain, more residents (41.2%) showed high burnout compared to consultants (27.4%). Regarding the low personal accomplishment domain, more consultants (77.7%) showed high burnout compared to residents.

**Conclusion:** Residents and consultant neurologists showed high burnout rates, and results can be used as a baseline guidance to assist in reducing burnout by improving job satisfaction and working environment among neurologists.

**Keywords:** Burnout, Neurologist, Consultant, Residents

## Background

Physician burnout has been increasing over the years and is one of the challenging issues of healthcare [1]. The impact of physicians with burnout experience affects the quality of life for both physicians and the patients. There are reports of depression, substance abuse, and suicide among burnout physicians [2]. Neurologists are burning out faster and at an earlier stage in their careers. An article “Physician burnout: A neurologic crisis” states that the potential cause for burnout among young neurologists are absent support systems, loss of control over work hours, and high student loan debt. They also identified many reasons for neurologist dissatisfaction causing burnout in this field [3].

A survey reported that over half of the physicians exhibited at least one symptom of burnout among which 50% to 60% of neurologists met at least one criterion for

burnout. Hence, it is important to understand this growing phenomenon among physicians.

A qualitative study in the USA among neurologist in 2016 reported that the burnout rate among neurologists was one of the highest among physicians. Although there is an increased projected demand for the future in the USA, the study reported that many considered early retirement or considered leaving the field. It was also reported to keeping medical students away from choosing the subject of neurology [4].

Another survey was conducted in the USA in 2016 by including 4127 neurologists. It was found that a greater burnout risk was associated with hours worked/week, nights on call/week, the number of outpatients seen per week, and the amount of clerical work. This increased risk of burnout was associated with lack of work–life balance and lack of meaning in work. The study concluded that burnout is common in neurology residents and fellows. Among residents, greater satisfaction with

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work–life balance, meaning in work, and older age were associated with a lower risk of burnout [5].

Another survey conducted in China reported that 53.2% of responding neurologists experienced burnout and 37.8% had psychological morbidity. The factors associated with burnout were lower income, more hours worked/week, more nights on call/month, working in public hospitals, psychological morbidity, high levels of job stress, low levels of job satisfaction, and poor doctor–patient relationships. It was concluded that burnout was common among the Chinese neurologist and is the single greatest predictor of neurologists' psychological morbidity, high job stress, and low job satisfaction [6].

In a study conducted in Japan among 2724 neurosurgeons and neurologists, researchers found 47.6% of responders to be burned out [7].

There have been quite a few studies in Saudi Arabia describing burnout among physicians [8, 9]. A recent survey of plastic surgery residents in Saudi Arabia found a high degree of burnout. Approximately half of plastic surgery trainees had signs of professional burnout. The study concluded that burnout has a negative impact on healthcare providers, in particular the trainees [10]. No studies have been reported focusing on neurologists in Saudi Arabia. As a result, little is known about burnout among neurologists. Therefore, this study was conducted to study the prevalence of burnout among neurologists in Saudi Arabia and to describe some related factors.

## Methods

In Saudi Arabia, the Saudi Commission for Health Specialties (SCFHS) is the regulatory body that approves and accredits all health practitioners in all disciplines. SCFHS is also running different Postgraduate Programs for the training of graduates in different health specialties. The Saudi Neurological Society contacted SCFHS to get emails of all neurologists and senior residents in neurology. There were 78 consultants, specialists, and 46 residents. All of them were contacted and were asked to participate in a cross-sectional survey using a self-administered questionnaire. The questionnaire had sections examining the percentage of work as a neurologist in different categories, average working hours per week, night calls per month, disadvantage or downside about being a neurologist, impact of long duty hours, impact of post-call duty hours on practice, amount of stress in their lives and their ability to deal with it, sources of stress according to participants, negative feelings felt by participants while working as neurologists, positive feelings felt by participants while working as neurologists, and emotional hardness felt by participants.

Demographic details obtained included gender, age, nationality, and marital status. Burnout was measured using the 22-item Maslach Burnout Inventory–Human

Services Survey (MBI-HSS) [11]. The MBI-HSS has 3 subscales to evaluate each domain of burnout: emotional exhaustion, depersonalization, and low personal accomplishment. Using the standard scoring criteria for health care workers, and in keeping with previous studies and convention, neurologists with high scores on the emotional exhaustion ( $\geq 26$ ), depersonalization ( $\geq 9$ ), or low personal accomplishment ( $\leq 33$ ) subscales as having at least one manifestation of professional burnout. Closed-ended questions were utilized.

Confidentiality and anonymity were assured. Completing the survey was implied consent to participate in the study. Ethics Committee approved the protocol for this study and the questionnaire instrument. The quantitative data was entered onto a computer and analyzed using the Statistical Package for Social Sciences (IBM SPSS) Version 23.0 for windows. Descriptive/univariate analysis was undertaken to present an overview of the findings from this study sample. Associations between variables were evaluated using two-way cross-tabulations for categorical variables. Pearson chi-square test was used as a test of significance at 5% level of significance.

## Results

The present study included 62 consultants and 34 residents. The response rate was 79.5 % for consultants and 73.9% for residents. Among the study sample, two-thirds (41, 67.2%) of consultants were males. On the other hand, male residents were only 44.1% (15). The majority of consultants were aged 35–44 years (37, 60.7%) followed by those aged 55 to 54 years old (20, 32.8%). Almost all residents aged 25–34 years old (32, 94.1%). Most participants were Saudi nationals (58.2% among consultants and 97.1% among residents). All the participants worked in tertiary centers.

Regarding the percentage of work as a neurologist in different categories, the study showed that both groups spend more than 50% of their work in clinical duties (77% for consultants and 79.4% for residents). Regarding teaching and education activities, those who spend more than 50% of their time were 16.4% among consultants compared to 20.6% among residents. As for research, the majority of consultants and residents spent less than 50% of their time in research activities (73.8 for consultants and 47.1% for residents). Regarding time spent in private practice in addition to their primary practice, none of the residents spent any time while 28 consultants (46.7%) practiced in the private sector.

When it comes to the average working hours per week and night calls per month among participants were listed in Tables 2 and 3.

With respect to participants' view on disadvantages of being a neurologist, the highest mentioned point was dealing with degenerative and incurable diseases (45.9%

for consultants and 55.9% among residents), followed by lack of effective treatments in many diseases (44.3% and 47.1%, respectively)

Concerning the impact of long duty hours on participants, the majority of consultants and residents mentioned the negative impact on their patient care (68.98% and 61.8%, respectively). Similarly, the majority identified a negative impact on their education and training (52.5% and 61.8%, respectively), their quality of life (83.6% and 79.4%, respectively), and personal and social life (86.9% and 82.4%, respectively).

In regard to the impact of post-call duty hours on participants, the majority of consultants and residents mentioned the negative impact on their patient care (62.3% and 87.4%, respectively). Similarly, the majority identified a negative impact on their education and training (65.6% and 82.4%, respectively), their quality of life (73.8% and 82.4%, respectively), and personal and social life (68.9% and 85.3%, respectively).

Regarding sources of stress as mentioned by participants, clinical workload and patient care were strongly reported by 36.1% of consultants and 38.2% of residents. Similarly, consultants and residents strongly agreed on stress of promotion, examination, and evaluation (11.5% and 35.3%, respectively), stress of insufficient sleep and frequent call (16.4% and 41.2%, respectively), stress of caring of own children (18.1% and 14.7%, respectively), stress of disability and death among patients (13.1% and 2.9%, respectively), and stress of long working hours (9.8% and 47.1%, respectively).

Table 1 shows participants' distribution according to Maslach Burnout Inventory–Human (MBI) Services Survey score. In the emotional and exhaustion domain, more consultants (37.1%) showed high burnout compared to residents (23.5%). Yet, the difference was not statistically significant ( $P = 0.174$ ). Regarding depersonalization domain, more residents (41.2%) showed high burnout compared to consultants (27.4%). The difference was

statistically significant ( $P = 0.01$ ). Regarding the low personal accomplishment domain, more consultants (77.7%) showed high burnout compared to residents (44.1%). The difference was statistically significant ( $P = 0.02$ ).

Table 2 shows residents' professional characteristics and high burnout scores. In the emotional domain, the highest frequency was observed among those working more than 48 h per week (20.6%), less than 5 calls per month (17.7%), and among residents of level 3 (11.8%). In the depersonalization domain, the highest frequency was observed among those working more than 48 h per week (32.4%), less than 5 calls per month (35.3%), and among residents of level 3 (14.7%). In the low personal accomplishment domain, the highest frequency was observed among those working more than 48 h per week (26.5%), less than 5 calls per month (38.2%), and among residents of level 3 (17.6%).

Table 3 shows consultants' professional characteristics and high burnout scores. In the emotional domain, the highest frequency was observed among those working 26–48 h per week (18.0%), less than 6–10 calls per month (16.4%), and among 6–10 years of practice (14.8%). In the depersonalization domain, the highest frequency was observed among those working more than 48 h per week (14.8%) and among those with less than 5 calls per month (35.3%). In the low personal accomplishment domain, the highest frequency was observed among those working more than 26–48 h per week (18.0%).

### Discussion

The present study assessed burnout of resident and consultant neurologists in Saudi Arabia using a standardized validated instrument. There is a diversity of emotional and work demands among different specialties of medicine. This may explain the differences in the prevalence of burnout among different specialties. Residents in a medical field have more interaction with patients and

**Table 1** Participants' distribution according to Maslach Burnout Inventory–Human Services Survey score

MBI scores	Residents		Consultants		Significance
	n	%	n	%	
Emotional exhaustion					
• < 26	26	76.5	39	62.9	$X^2 = 1.28$
• ≥ 26 (high burnout)	8	23.5	23	37.1	$P = 0.25$
Depersonalization					
• < 9	20	58.8	45	72.6	$X^2 = 1.23$
• ≥ 9 (high burnout)	14	41.2	17	27.4	$P = 0.24$
Low personal accomplishment					
• ≤ 33 (high burnout)	19	55.9	20	32.3	$X^2 = 4.15$
• > 33	15	44.1	42	67.7	$P = 0.04^*$

The test used is chi-square test  
 P values significant if  $\leq 0.05$

**Table 2** Residents' professional characteristics and high burnout scores

Residents (n = 34)	Emotional exhaustion (score ≥ 26)		Depersonalization (score ≥ 9)		Low personal accomplishment (score ≤ 33)		Significance
	n	%	n	%	n	%	
<b>Work hours/week</b>							
8–25	0	0.0	1	2.9	2	5.9	$\chi^2 = 4.99$
26–48	1	2.9	2	5.9	7	20.6	$P = 0.28$
> 48	7	20.6	11	32.4	9	26.5	
<b>Night calls/month</b>							
0–5	6	17.6	12	35.3	13	38.2	$\chi^2 = 1.31$
6–10	2	5.9	2	5.9	6	17.6	$P = 0.51$
<b>Year of training</b>							
Fellow	0	0.0	0	0.0	3	8.8	
General neurologist	0	0.0	2	5.9	2	5.9	$\chi^2 = 6.51$
R2	1	2.9	4	11.8	3	8.8	$P = 0.59$
R3	4	11.8	5	14.7	6	17.6	
R4	3	8.8	3	8.8	5	14.7	

The test used is chi-square test  
*P* values significant if  $\leq 0.05$

that could be the cause of higher patient-related burnout. The same pattern of burnout can be observed among neurologists [12].

There have been several studies conducted on burnout among neurologists in the USA in comparison to other countries. Our study is among the first to address the topic of burnout among neurologists in Saudi Arabia. In the present study, most of the consultants and residents worked more than 25 h/week on average. However, this

was much lower in comparison to a study where participants reported working an average of 56 h/week. This difference may be due to the participants in our study being both consultants and residents of lower age and experience in comparison to the study in the USA which involved consultants [5].

A study found that 55.7% of neurologists in academic practice are burned out versus 66.3% of neurologists in clinical practice. Dr. Busies stated that the neurologists

**Table 3** Consultants' professional characteristics and high burnout scores

Consultants (n = 62)	Emotional exhaustion (score ≥ 26)		Depersonalization (score ≥ 9)		Low personal accomplishment (score ≤ 33)		Significance
	n	%	n	%	n	%	
<b>Work hours/week</b>							
8–25	2	3.3	3	4.9	4	6.6	$\chi^2 = 6.17$
26–48	11	18.0	4	6.6	11	18.0	$P = 0.26$
> 48	8	13.1	9	14.8	5	8.2	
<b>Night calls/month</b>							
0–5	7	11.5	4	6.6	5	8.2	$\chi^2 = 2.16$
6–10	10	16.4	8	13.1	8	13.1	$P = 0.7$
> 10	6	9.8	5	8.2	7	11.5	
<b>Year of practice</b>							
> 2	1	1.6	1	1.6	2	3.3	
2 to 5	3	4.9	4	6.6	3	4.9	$\chi^2 = 3.22$
6 to 10	9	14.8	6	9.8	8	13.1	$P = 0.78$
11 to 15	3	4.9	2	3.3	5	8.2	
> 15	7	11.5	4	6.6	2	3.3	

The test used is chi-square test  
*P* values significant if  $\leq 0.05$

in academic practice often have straight salary than those in clinical practice, who are more dependent on a production-based income which may explain the burnout [13].

Over half (54.1%) of the participants in our study reported their ability to deal with stress and problems was good. This is in contrast with the study conducted in China where 50.7% had high levels of job stress. This difference could be due to better income, lesser working hours/week, and higher job satisfaction among other factors in KSA as compared to China [6]. The present study reported that having long working hours was a source of stress among the majority with an average of 25 h/week. This is similar to a study in Japan with factor associated with burnout included longer working time [7]. However, the length of working hours was more than double the time of 65.9 h/week in comparison to the current study.

The Maslach Burnout Inventory–Human (MBI) Services Survey score use in the present study [11] among the consultants and residents revealed emotional exhaustion among 23.5% of residents and among 37.1% of consultants which shows high burnout rates. Around 41.2% of residents and 27.4% of consultants experienced high degrees of depersonalization suggesting high burnout rate. Similarly, around 55.9% of residents and 32.3% of consultants experienced low personal accomplishment showing high burnout. Both residents and consultants in this study showed high burnout scores with slightly less emotional exhaustion by residents may be due to lesser responsibility of adjoining work.

A survey in the USA using Maslach Burnout Inventory (MBI) to test burnout among physicians found that neurology workers ranked most at risk for burnout and dissatisfaction with work–life balance, along with other few specialties. More than 50% of neurologists surveyed reported symptoms of burnout [14]. Although there have been studies worldwide on burnout of neurologists, none has addressed the difference in burnout among consultants and residents. In the present study, having long working hours were a source of stress among a majority of both residents and consultants. Furthermore, a clinical workload and patients' care/residency program was very hectic for both.

Insufficient sleep and frequent call and pressure of research/examinations and evaluations were a source of stress for residents. Administrative duties, lack of support and appreciation, and keeping up to date with knowledge were sources of stress for consultants. The medical field keeps evolving and keeping up to date is a task with several other duties and all could cause stress. Generalizations of the findings of the present study should be made with caution. Another limitation of the study is the design being cross-sectional design which may not measure causal relationships.

## Conclusion

Within the limitations of the study, it can be concluded that both residents and consultants in the present study showed high burnout scores. The findings of this study can give guidance when looked at in detail to assist reduce burnout by improving job satisfaction and working environment among neurologists. It can also provide direction for programs to prevent and neurologist burnout and promote well-being.

## Abbreviations

MBI-HSS: Maslach Burnout Inventory–Human Services Survey; SCFHS: Saudi Commission for Health Specialties

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## Authors' contributions

Both authors ZA and AA revised the literature; designed the study; distributed, collected, and analyzed the data; discussed the results; and contributed equally to writing and reviewing the final manuscript. The authors have read and approved the final manuscript.

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## Availability of data and materials

Available

## Declarations

### Ethics approval and consent to participate

Ethics approval: The research protocol was reviewed and approved by Saudi Neuroscience Society, scientific committee meeting on Jan 25, 2018. Consent was obtained from all participants.

The reference number is not applicable and/or not available.

An informed consent was obtained from all participants; this is a cross-sectional survey of neurologists and was conducted using a self-administered questionnaire. Electronic approval to participate was obtained from all individuals.

### Consent for publication

Not applicable.

### Competing interests

The authors declare that they have no competing interests.

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