ORIGINAL ARTICLE

BURNOUT AMONG POSTGRADUATE RESIDENTS USING COPENHAGEN BURNOUT INVENTORY

Fatima Majeed[1], Naeem Liaqat[2], Mian Maqbool Hussain[1], Asif Iqbal[3], Imran Hashim[1], Muhammad Saleem[1]

[1]Children's Hospital and Institute of Child Health Lahore-Pakistan, [2]Nationwide children's, Columbus, Ohio-United States, [3]Ibn Sina Hospital-Kuwait

Background: Generally, the healthcare workers have a stressful job and it includes both physical and mental stress. We conducted this study to determine the burnout among postgraduate residents (PGR's). **Methods:** This cross-sectional study was conducted at The Children's Hospital and The Institute of Child's Health, Lahore over a period of 3 months. A total of 113 PGR's participated in this study. Burnout was measured using Copenhagen Burnout Inventory (CBI). Questionnaire was filled by participants on paper. Results were analyzed through SPSS–26. **Results:** In this study, most of the participants (n=70) were females. Mean age of the participants was 28.6±2.035 years. More than 50% participants suffer from moderate to severe burnout. Nine percent of participants had high personal and client related burnout. The highest mean score was for personal burnout scale. When burnout scores were categorized according to demographic details, personal burnout was significantly higher among those who considered that they are burnout (p=0.000) and work burnout was significantly higher among those who travelled to the workplace by their cars (p=0.025). Burnout was higher among females, those who have long duration to travel from their homes to the hospital and whose parents were doctors; however, the difference was not significant. The scale showed a good overall internal reliability (Cronbach's alpha=0.697). **Conclusion**: This study showed a high rate of burnout among PGR's that needs to be addressed and adequate measures should be taken to reduce it.

Keywords: Physicians; Student; Burnout; Inventory

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INTRODUCTION

Doctors have the duty to provide best services to their patients. In doing so, they go through a lot of emotional, physical, and mental stress. They encounter treatment failures, progressive diseases despite providing adequate treatment, casualties, misconduct, and face uncertainty of clinical management. They work in an environment, where their own health is not prioritized and develop burnout and psychiatric disorders. Burnout is a phenomenon in which immense stress leads to fatigue, pessimism, and poor professional productivity. A high degree of burnout among doctors has a negative impact on the health system, and factors at the personal and organizational level need to be addressed to lessen it.[1–3]

It is important to measure the burnout among doctors. For that, routinely, Maslach Burnout Inventory (MBI) scale is used. It comprises of three parts, i.e., emotional exhaustion, depersonalization, and low sense of personal achievement.[4,5] However, according to Kristensen TS *et al*., MBI does not measure three scales equally, and these scales have opposite dimensions. He explained that high emotional exhaustion scores and depersonalization lead to low scores in personal accomplishment. So, he developed a new system of The Copenhagen Burnout Inventory (CBI) that measures stress in a less complicated manner.[6] It evaluates three fields of life that can lead to stress, i.e., personal, work-related, and client-related.[2,6] This study's objective was to determine the level of burnout among post-graduate residents (PGR's) of our hospital.

MATERIAL AND METHODS

This cross-sectional study was conducted after approval from the Ethical Review Board. The duration of study was 3 months, from October to December, 2020. The participants included PGR's working in The Children's Hospital and The Institute of The Child's Health, Lahore. We excluded the partially filled proforma and if there were more than three unanswered questions related to burnout inventory. We got the list of PGR's working in all departments of the hospital from human resource department. All the PGRs in the hospital were contacted personally by the investigator. They were requested to participate in the study and asked to fill a printed questionnaire. If any PGR was busy and

could not be traced, he was contacted the next day. After that, no one was contacted and was considered a non-responder. The respondent was classified as a non-responder if he does not answer more than 3, 4, and 3 questions from Personal, Work-related, Client-related dimensions, respectively. Participants filled the questionnaire by hand on printed papers. All the participants were asked for written consent of the study and supposed to place their signatures rather writing their names, in order to maintain anonymity. The questionnaire included demographic questions including age, gender, residence, time taken to reach work, and smoking status and an English version of the Copenhagen Burnout Inventory (CBI). CBI is a validated questionnaire and consists of the 19 original questions from three dimensions: (a) Personal burnout, (b) Work-related burnout (c) client-related burnout (in this study clients refer to patients). These 19 questions were intermixed with ten more questions from other topics in the questionnaire. Response categories were Always, Often, Sometimes, Seldom, Never/almost never and to a very high degree, To a high degree, Somewhat, To a low degree, To a very low degree. Scoring used is as follows: always/ to a very high degree = 100%, Often/ to a high degree = 75%, Sometimes/ Somewhat = 50%, Seldom/ to a low degree = 25%, and never/almost never/to a very low degree = 0%. An average score was generated from all these 19 questions and burnout score was categorized as follows: ≤ 25 (no burnout), 26-50 (moderate burnout), and >50 (high burnout). Data were analyzed through SPSS-26. In the descriptive analysis of the sample, summary statistics were applied as appropriate. Mean values were calculated for subscales of CBI. Student's t-test or Mann-Whitney U-test was used for comparison of mean scores in two groups and if there were more than two groups involved, we used ANOVA. Reliability of the test was assessed by measuring Cronbach's alpha.

RESULTS

There were 206 postgraduate residents in our hospital, out of which 113 proformas were received, and the response rate was 54.85%. Most of the participants (73.5%) were females with a mean age of 28.60±2.03 years. Fifty-nine participants (52.2%) were single, and 65 of them (57.5%) were boarder. Among them, 15 participants (13.3%) had doctor parents, and six (5.3%) used to smoke. Forty-five (39.8%) used cars for reaching the hospital (Table-1).

Among its subscales, personal burnout was highest (mean: 49.74), followed by work related and client related burnout (table 2). More than 50% of participants suffered from moderate to severe burnout in at least one of its subscales. Most prevalent burnout (55%) was work related, followed by personal related (51.3%) and client related (50%). High burnout was observed in client related subscale most commonly (9.7%), and personal related subscale (8.8%) (Table-3).

We compared the mean values of the subscales of CBI among groups depending upon their demographic details. The burnout score was higher in all subscales if the parents were doctors themselves (0.070). Those who thought themselves as burnout, were significantly burnout in personal burnout subscale (p=0.000). However, the difference in other subscales was not significant. Other demographic variables had no role in determining the burnout score (Table-4).

The internal reliability of the scale was assessed measuring Cronbach's alpha. The scale showed overall a good internal consistency (0.697). The highest mean score for items were for following three questions: 1) how often do you feel tired? 2) how often are you physically exhausted, and 3) do you feel worn out at end of working day. All these questions belonged to personal burnout subscale. On the contrary, items with the least mean scores were: 1) how often do you feel weak and susceptible to illness, 2) do you have enough energy for family and friends during leisure time, and 3) are you tired of working with patients? (Table-5)

Table-1: Demographic details of the participants

	Category	n (%)
Gender		
	Male	30 (26.5)
	Female	83 (73.5)
Residence		
	Day scholar	48 (42.5)
	Boarder	65 (57.5)
Do you smoke?		
	Yes	6 (5.3)
	No	107 (94.7)
Time to reach hospital		
	< 15 minutes	48 (42)
	15-30 minutes	40 (35)
	30-60 minutes	22 (19)
	>60 minutes	3 (3)
Do you think you are burnt out		
	Yes	68 (60.2)
	No	39 (34.5)
	Not Reported	6 (5.3)
Marital status		
	Single	59 (52.2)
	Married	45 (39.8)
	Engaged	8 (7.1)
	Divorced/widow	1 (0.9)
Are your parents' doctor?		
	Yes	15 (13.3)
	No	98 (96.7)
Mode of travelling to hospital		
	Car	45 (39.8)
	Bike	5 (4.4)
	Bus	6 (5.3)

	Public transport	29 (25.7)
	On foot	28 (24.8)

Table-2: Mean values of subscales of CBI

	Mean ± SD
Personal burnout	49.74 ± 16.63
Work burnout	46.99 ± 12.01
Client burnout	46.13 ± 17.68

Table-3: Percentage of participants having burnout

	Personal related	Work related	Client related
No burnout	55 (48.7%)	51 (45.1%)	56 (50%)
Moderate burnout	48 (42.5%)	59 (52.2%)	45 (39.8%)
High burnout	10 (8.8%)	3 (2.7%)	11 (9.7%)

Table-4: Burnout according to the demographic variables

Variables	Personal Burnout		Work Burnout		Client Burnout	
	Mean	*p*-Value	Mean	*p*-Value	Mean	*p*-Value
Gender						
Male	48.75 ± 27.20	0.705	48.45 ± 11.28	0.441	50.74 ± 15.92	0.103
Female	50.10 ± 16.51		46.47 ± 12.28		44.52 ± 18.06	
Residence						
Day-Scholars	49.65 ± 16.79	0.961	46.57 ± 11.04	0.751	49.43 ± 27.73	0.087
Boarders	49.80 ± 16.64		47.30 ± 12.75		43.66 ± 17.36	
Do you smoke?						
Yes	51.38 ± 18.00	0.804	47.02 ± 9.69	0.996	42.50 ± 19.63	0.640
No	49.64 ± 16.63		46.99 ± 12.16		46.30 ± 17.66	
Do you think you are burnt out?						
Yes	56.80 ± 15.48	0.000	48.37 ± 12.34	0.159	43.96 ± 15.97	0.257
No	38.35 ± 11.79		43.95 ± 11.82		49.59 ± 19.89	
Marital Status						
Single	49.01 ± 17.28	0.320	47.09 ± 12.00	0.864	46.31 ± 18.82	0.584
Married	49.07 ± 15.20		46.74 ± 12.80		45.59 ± 16.41	
Engaged	55.79 ± 19.66		46.42 ± 8.32		50.52 ± 17.02	
Divorce/Widow	75		57.14		25	
Mode of travelling to hospital						
Bus	52.08 ± 19.32	0.599	49.40 ± 12.04	0.025	50.00 ± 18.63	0.355
Car	51.85 ± 15.78		48.98 ± 11.61		46.94 ± 16.91	
Bike	40.83 ± 13.30		46.42 ± 7.14		57.50 ± 18.25	
Public transport	49.71 ± 19.18		40.76 ± 11.67		42.45 ± 15.04	
On foot	47.47 ± 15.35		49.87 ± 12.04		44.04 ± 20.67	
Time to reach hospital						
< 15 minutes	48.02 ± 16.79	0.904	44.83 ± 12.16	0.470	42.87 ± 17.78	0.178
15-30 minutes	50.41 ± 17.03		49.01 ± 11.11		47.21 ± 13.95	
30-60 minutes	50.87 ± 17.54		46.05 ± 12.07		50.48 ± 21.67	
> 1 hour	51.38 ± 8.67		47.61 ± 16.10		61.11 ± 6.36	
Are your parents doctors?						
Yes	53.05 ± 16.77	0.391	51.90 ± 9.99	0.070	50.00 ± 15.82	0.409
No	49.01 ± 16.71		45.92 ± 11.92		45.99 ± 17.48	

Table-5: Details of all variables of the CBI scale

Items	Mean	SD	Cronbach's Alpha if Item Deleted
how often do you feel tired	59.82	21.84	.675
how often are you physically exhausted	56.91	22.05	.670
how often are you emotionally exhausted	50.89	20.93	.687
how often do you think "I can't take it anymore?"	43.30	24.42	.667
how often do you feel wornout	45.31	18.54	.677
how often do you feel weak and susceptible to illness	41.74	23.58	.684
do you fell worn out at end of working day	54.91	26.38	.668
do you sometimes wonder how long you will be able to continue working with patients	43.30	27.05	.671
are you exhausted at morning at the thought of another day at work	45.08	29.03	.676
do it drain your energy to work with patients	51.33	27.43	.683
do you feel that every working hour is tiring for you	43.52	26.15	.678
do you feel that you give more than you get back when you work with clients	47.76	31.03	.715
do you have enough energy for family and friends during leisure time	42.85	27.75	.738
are you tired of working with patients?	38.61	22.48	.684
is your work emotionally exhausting	43.30	27.66	.706
do you find it hard to work with patients?	52.23	28.18	.675
does your work frustrate you?	46.12	28.89	.693
do you feel burnout because of your work?	44.71	28.04	.694
do you find it frustrating working with patients?	51.83	28.58	.669

DISCUSSION

This study showed that more than 50% of participants suffered from some degree of burnout. Nine percent of participants had high personal and client-related burnout. In our study, different demographic factors were compared against the CBI scale. Burnout was higher among females than males, although the difference was not statistically significant. Another study stated that women have a high degree of personal and work-related burnout as compared to males, whereas men had a high level of burnout in the client-related category.[7] Previous studies have shown higher prevalence of burnout among females.[8,9] Personal burnout is considered higher among females. There had been many reasons put forth for this phenomenon. Some consider that the personal burnout is higher among females because of the gender inequality or their weaker role in the society.[9] In a county like Pakistan, women are also supposed to complete the household chores. So, it may be a reason that they have to take care of their whole family and household work along with the patient related and work-related appointments, which makes them more vulnerable to the personal burnout.[5,10] In this study, we also found that those residents who considered that they are burnout, were actually having significantly higher personal burnout values. It may be a mind game and the level of the social satisfaction. Time to reach the hospital on daily basis from their homes was directly proportional to the burnout level. It also makes sense that they are spending more quality time of their daily basis on just travelling to reach their workplace. In a previous study involving gynaecology PGR's, authors found that increased travel time to reach work-place has no impact on burnout scores {Liaqat, 2019 #10251}, as noted in this study.

Pakistan is a developing country, and the facilities available here for doctors are limited. They have low income, job insecurities, and long working hours that add to their burnout.[11] A large proportion of Pakistan's population is illiterate, so doctors must work hard to educate their patients and families. Compliance of patients is also poor, which results in the worse outcome of the disease and causes client-related burnout among doctors.[12] Lemaire JB explained that doctors have a high rate of burnout that is gradually increasing and has taken the form of an "epidemic." This is causing devastating effects on patient care, the health system, doctors themselves, and their families.[13]

A study of 721 participants used CBI to evaluate burnout among doctors, and it showed that 55.2% had personal, 49.04% had work-related, and 46.04% had client-related burnout.[14] Another study conducted on PGR's in Columbo showed that the prevalence of personal burnout, work-related burnout and client-related burnout were 41.6% (95%CI = 35.5–47.8%), 30.6% (95%CI = 24.8–36.4%) and 8.9% (95%CI = 5.4–12.5%) respectively.[15] Female gender, those having a high frequency of unhealthy conditions, high homework demands, and high emotional demands were associated to increased work-related burnout. High emotional demands were found related to client-related burnout.[15]

In another study conducted by Amoafo, it was concluded that more working hours increased burnout.[16] Doctors and particularly residents are subject to higher degree of burnout. It is because they have to make critical decisions and spend a lot of time in the care of the patients. Considering their important role in the hospital and society, if they are burnout, it may have a negative impact on the patient care.[4,10,11] So special emphasis needs to be put forth on the mental health wellbeing of the residents. Also, more awareness needs to be generated among them to prevent themselves from burnout syndrome. For this purpose, different strategies may be used including the conduction of the workshops, a face-to-face meeting, listening to their problems and the start of some consultation services.[17] Therefore, we propose that every hospital must conduct an annual survey of their employees to determine the burnout level of them and should devise strategies to cope with it, so that their employees must be productive for the patients as well as the society.

There were few limitations of this study. Firstly, it was a single center study, so we can't generalize its results. Secondly it was a cross-sectional study with a small sample size, so we can't assess the temporality. Authors believe that considering the importance of the burnout syndrome, it is something really underestimated in hospital settings and nobody talks about it. So, we suggest having these kinds of surveys regularly and then take certain measures to prevent the staff from developing it.

CONCLUSION

This study shows that most participants suffered from burnout. Proper measures should be taken to evaluate the cause of such a high level of burnout and to eradicate them. This will help to improve the working efficiency, mental health, and doctor-patient relationship among participants.

AUTHORS' CONTRIBUTION

FM, NL: Conceptualization of study design, MMH, AI, IH, MS: Data collection, data analysis, data interpretation, write-up, proof reading.

REFERENCES

1. Caesar B, Barakat A, Bernard C, Butler D. Evaluation of physician burnout at a major trauma centre using the Copenhagen burnout inventory: cross-sectional observational study. Ir J Med Sci 2020;189(4):1451–6.
2. Lapa T, Carvalho S, Viana J, Ferreira PL, Pinto-Gouveia J, Cabete AB. Development and evaluation of a global burnout index derived from the use of the copenhagen burnout inventory in Portuguese physicians. Acta Med Port 2018;31(10):534–41.
3. Rocha FLR, de Jesus LC, Marziale MHP, Henriques SH, Maroco J, Campos J. Burnout syndrome in university professors and academic staff members: psychometric properties of the Copenhagen Burnout Inventory-Brazilian version. Psicol Reflex Crit 2020;33(1):11.
4. Liaqat N, Dar SH, Waheed K. Burn out among the paediatric surgeons of Pakistan. J Pak Med Assoc 2019;69(11):1730–3.
5. Waheed K, Liaqat N, Khanum A, Ejaz S, Ijaz S, Butt A, *et al*. Burnout among gynaecological residents in Lahore, Pakistan: A cross-sectional survey. J Pak Med Assoc 2017;67(9):1318–22.
6. Kristensen TS, Borritz M, Villadsen E, Christensen KB. The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. Work Stress 2005;19(3):192–207.
7. Messias E, Gathright MM, Freeman ES, Flynn V, Atkinson T, Thrush CR, *et al*. Differences in burnout prevalence between clinical professionals and biomedical scientists in an academic medical centre: a cross-sectional survey. BMJ Open 2019;9(2):e023506.
8. Ahmad W, Ashraf H, Talat A, Khan AA, Baig AA, Zia I, *et al*. Association of burnout with doctor-patient relationship and common stressors among postgraduate trainees and house officers in Lahore-a cross-sectional study. PeerJ 2018;6:e5519.
9. Sestili C, Scalingi S, Cianfanelli S, Mannocci A, Del Cimmuto A, De Sio S, *et al*. Reliability and use of Copenhagen Burnout Inventory in Italian sample of university professors. Int J Environ Res Public Health 2018;15(8):1708.
10. Zaheer F, Aziz I, Arif S, Khan MO, Khan AA, Osama M, *et al*. Predicament of doctors; Discerning burnout level amongst surgical residents of Karachi, Pakistan. J Ayub Med Coll Abbottabad 2020;32(3):331–5.
11. Hussain S, Ishfaq K, Aziz MT, Maqsood S. Job satisfaction and stress among doctors working at teaching hospitals Multan, Pakistan. Rawal Med J 2019;44(2):372–5.
12. Abbassi S, Tahir M, Javed N. Factors associated with treatment compliance in hypertension at a secondary health facility in Islamabad. Pak J Med Res 2019;58(3):113–7.
13. Lemaire JB, Wallace JE. Burnout among doctors. BMJ 2017;358:j3360.
14. Ratnakaran B, Prabhakaran A, Karunakaran V. Prevalence of burnout and its correlates among residents in a tertiary medical center in Kerala, India: A cross-sectional study. J Postgrad Med 2016;62(3):157–61.
15. Fernando BMS, Samaranayake DL. Burnout among postgraduate doctors in Colombo: prevalence, associated factors and association with self-reported patient care. BMC Med Educ 2019;19(1):373.
16. Amoafo E, Hanbali N, Patel A, Singh P. What are the significant factors associated with burnout in doctors? Occup Med (Lond) 2015;65(2):117–21.
17. Thrush CR, Gathright MM, Atkinson T, Messias EL, Guise JB. Psychometric properties of the Copenhagen Burnout Inventory in an academic healthcare institution sample in the U.S. Eval Health Prof 2020:163278720934165.

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Address for Correspondence:

Naeem Liaqat, Nationwide children's, Columbus, Ohio-United States
Email: simsonian.chaudary@gmail.com