Available Online at https://www.nepjol.info/index.php/IJOSH
International Journal of Occupational Safety and Health, Vol. 12 No. 3 (2022), 215 – 223

Burnout among doctors working at a tertiary care hospital during pandemic of COVID-19 in Kashmir Valley, India

Nazir U[1], Aleem S[2], Jeelani A[1]
[1]Department of Community Medicine, Government Medical College (GMC), Srinagar, India, [2]Department of Microbiology, Government Medical College (GMC), Srinagar, India

ABSTRACT

Introduction: Burnout syndrome (BO) has negative consequences for the doctors, their family members, co-workers, and also the patients. We conducted this study to estimate the prevalence of BO among doctors working in a tertiary care hospital in Kashmir valley just after the peak of the second COVID-19 wave.

Methods: This cross-sectional study was conducted among doctors working at one tertiary care hospital in Kashmir Valley. Participants included interns, residents (junior and senior residents) and faculty members. An online questionnaire containing Oldenburg Burnout Inventory to estimate burnout was used for data collection from 1st to 10th July 2021. In addition, the questionnaire captured demographic information, job profile and work-related information. Mean scores of ≥ 2.25 on exhaustion and ≥ 2.1 in the disengagement domain were used to define burnout. Binary logistic regression was used to evaluate associations.

Results: Of the 322 participants in the study, 119 (36.9%) had completed their post-graduate degree. Of the participants, 150 (46.6%) had to perform 6 or more-night shifts per month and, 61 (18.9%) had previously been diagnosed with COVID-19. Of the participants, 257 (79.8%) had BO, 24 (7.5%) were exhausted and 17 (5.3%) were disengaged. BO was associated with female gender, younger age, number of night duties and emergency room duties per month, being a resident doctor and history of COVID-19 infection on binary logistic regression.

Conclusion: This survey reported a very high prevalence of burnout among doctors. Addressing BO among healthcare workers should be a key priority for improving quality of life among doctors and to improve quality of care.

Key words: Burnout, COVID-19, health care workers, Exhaustion.

INTRODUCTION

Burnout syndrome (BO) refers to the experience of fatigue for extended period of time and reduced levels of motivation and interest in the job, which leads to decreased job productivity.[1,2] It is primarily characterized by feeling of energy depletion or exhaustion and increased mental distance from one's job. In psychological parlance, these are often referred to as exhaustion and disengagement.[2,3] Multiple factors at personal and environmental/organizational levels interact in its causation.[4,5] Job profiles that are associated with a higher workload, night shifts, and stressful work environment have been associated with a higher burden of burnout.[6,7] Healthcare workers are highly susceptible to developing burnout on account of their work demands and the risk of occupational diseases.[8,9] The onset of coronavirus disease (COVID-19) has added to the existing stress of healthcare workers on account of increased workload, separation

DOI: https://doi.org/10.3126/ijosh.v12i3.41970

Conflicts of interest: None
Supporting agencies: None

Date of submission: 01.01.2022
Date of acceptance: 28.02.2022
Date of publication: 01.07.2022

Corresponding Author
Dr Asif Jeelani, MBBS, MD
Department of Community Medicine, Government Medical College (GMC),
Srinagar, India
Email: drasifjeelani@gmail.com
Tel.: +919812041181
ORCID: https://orcid.org/0000-0001-9092-9320

from families, and fear of COVID-19 infection to self and family.[10] BO among healthcare workers has been associated with a decline in quality of healthcare and also in the increased frequency of medical errors.[5] Multiple validated scales are available, with Maslach Burnout Inventory (MBI) being the one that has been used most commonly in the past.[11] MBI measures three domains of burnout but there has been debate on the degree of correlation between personal accomplishment and the other two dimensions in this scale.[12] Oldenburg Burnout Inventory (OLBI) is a validated instrument which is being used more frequently now.[13,14]

Burnout among doctors has been studied extensively and multiple studies have been conducted prior to COVID-19 pandemic.[15,16,17] Most of these studies found a very high prevalence of BO among doctors. Despite the fact that there are numerous previous studies on burnout among doctors, very few of these have been conducted after the start of COVID-19 outbreak. In addition, no previous study has been conducted in this part of the world during the pandemic. Considering its importance, we set out to determine the prevalence of burnout and its determinants among doctors working in the Indian Kashmir Valley.

METHODS

This was a cross-sectional study and was conducted among doctors working in one tertiary care hospital of the Kashmir Valley. It is a teaching hospital with around 700 undergraduate medical students pursuing medical degree and the hospital has an estimated bed strength of 750. The hospital is primarily involved in providing specialized medical and surgical care and was designated for treatment of moderate and severe COVID-19 patients. The number of doctors on roll at any time is highly variable as the hospital is primarily a training institute with frequent influx and exits. An online questionnaire was shared with the participants. The questionnaire was available online from 1st to 10th July 2021. This period corresponded to a period just after the end of second COVID-19 peak in Kashmir Valley.

Participants were interns, residents (junior and senior residents) and faculty members of the hospital who had been working in the hospital for at least 6 months. The participants were contacted using professional groups meant only for doctors. The residents as well as faculty members have a common social media group and the questionnaire was shared in those groups. Doctors who had been working for less than 6 months in the hospital were excluded. To ensure circulation of questionnaires among the target group only, we did not share the link on websites etc. As the study questionnaires was shared online, the exact response rate could not be calculated.

The study questionnaire was developed on google forms and was titled “survey among doctors regarding work practices during pandemic”. The word burnout was omitted from the title in an effort to reduce response bias. The questionnaire consisted of three sections. The first section collected socio-demographic information of the participants, second section collected information related to work hours, night shifts and provision of care to COVID-19 patients. The third section was English version of Oldenburg inventory. Job descriptions were categorized into four groups ranging from Interns (One-year compulsory rotatory posting in different departments) to consultants (term used for faculty in department of medical college). English version was used as it is the medium of education in medical schools. The question for reporting the estimated impact of COVID-19 on one’s routine life was framed as “How would you rate the impact of COVID-19 on your routine/ daily life activities. The response was recorded in five-point Likert scale. Face validity of the questionnaire was checked by two independent researchers, one of which was a psychiatrist. The questionnaire was then pretested on 30 purposively selected doctors working in the same hospital and internal validity was assessed by calculating Cronbach’s Alpha. The pretest revealed good internal consistency with CA value of 0.79. These 30 responses were not included in the final analysis.

Oldenburg Burnout inventory is a 16-item questionnaire with 8 items each for exhaustion and disengagement. Within each domain, four questions are positively worded and the rest 4 are negatively worded. In addition, the questions are arranged in mixed pattern and both these characteristics ensure psychometric balancing. Items 2, 4, 5, 8, 10, 12, 14 and 16 explore exhaustion, while 1, 3, 6, 7, 9, 11, 13 and 15 explore disengagement. Response to each question is recorded on a four-point Likert scale which are scored: 1 (strongly agree), 2 (agree), 3 (disagree) and 4 (strongly disagree). Questions marked with an “R” are reverse scored. The overall mean score is calculated by sum of all responses divided by 8. Higher scores indicate higher disengagement and/or exhaustion.[8,18]

The main outcome measure was to estimate the prevalence of burnout in doctors working at one tertiary care hospital. The other outcome measures were association of burnout with job profile and socio-demographic factors.

The following categories were categorized

- Burnout group: High exhaustion and high disengagement. (Mean score of ≥ 2.25 on exhaustion domain and ≥ 2.1 in disengagement domain)
- Exhausted group: high exhaustion and low disengagement. (Mean score of ≥ 2.25 on exhaustion domain and < 2.1 in disengagement domain)
- Disengaged group: high disengagement and low exhaustion. (Mean score of < 2.25 on exhaustion domain and ≥ 2.1 in disengagement domain)
- Non-burnout group: low disengagement and low exhaustion. (Mean score of < 2.25 on exhaustion domain and < 2.1 in disengagement domain)

The sample size was calculated using formula for prevalence studies. The prevalence of burnout was estimated to be 20% based on a previous systematic analysis conducted in India.[19] The minimum required sample size required was calculated to be 326 for a precision level of 0.02.

All the data uploaded by respondents on the google forms were downloaded in excel sheet and analyzed using STATA software version 13. A descriptive analysis was performed depicting the categorical variables in numbers and percentages and quantitative variables as mean and standard deviation. Mean scores were calculated separately for exhaustion and disengagement subscales. A descriptive analysis of these mean scores was conducted. The difference in mean scores for disengagement and exhaustion subscales among different groups was checked for significance using t test (or ANOVA in case of more than 2 groups). Correlation coefficients between mean scores for disengagement/exhaustion and independent continuous variables were calculated. Exhaustion and disengagement scores were than dichotomized using the standard cut-offs (≥ 2.1 in disengagement and ≥ 2.25 on exhaustion domain).[18] Subsequently, a binary logistic regression was conducted with presence/ absence of disengagement/exhaustion as dependent variables. The relationship is expressed as an OR with a 95% CI. P value of <0.05 was considered significant.

RESULTS

Out of the 336 doctors who had responded to the survey, 322 responses were included in the final analysis. Fourteen responses were excluded for following reasons: 6 were duplicate answers and 8 responses were incomplete in key socio-demographic characteristics like job description and educational qualification.

Of the 322 responding doctors, 119 (36.9%) had completed their post-graduate degree, 89 (27.6%) were doing internship, and 53 (16.5%) were pursuing post-graduation. Of the participants, 181 (56.2%) were resident doctors. Most participants, 185 (57.8%) were males, 176 (54.6%) were currently married and 290 (90.1%) participants defined themselves as Muslims. The mean age of participants was 29.6 ± 4.3 years (Table 1).

Most of the doctors, 150 (46.6%) had to perform 6 or more-night shifts per month whereas 72 (22.4%) did not have any night duties. These doctors primarily included consultants who are not on night roster. All those who had more than five-night duties per month were resident doctors. About 54 (16.8%) doctors were overworked who worked for more than 60 hours per week whereas 145 (45.0%) worked for less than 48 hours per week (Table 1). Of the participants, 279 (86.64%) were performing shift duties in emergency room/ Triage. Of these 128 (39.75%) had 5 or more shift duties in ER per month (Table 1). Among the participants, 61 (18.9%) had previously been diagnosed with COVID-19. Most 257 (79.8%) reported that COVID-19 had caused significant impact on their routine lives. Most 287 (89.4%) had received at least one dose of COVID-19 vaccine.

Burnout prevalence

The participants were classified to belong to any one of the four groups as per the presence/ absence of exhaustion and disengagement. Figure 1 depicts the breakup of study participants as per their burnout category. Of the 322 study participants, 257 (79.8%) had burnout (Higher exhaustion and disengagement scores), 24 (7.5%) were exhausted (Higher exhaustion and lower disengagement scores) and 17 (5.3%) belonged to disengaged group (Lower exhaustion and higher disengagement scores). Only, 24 (7.5%) belonged to non-burnout group (both scores less than cutoffs) (Figure 1).

Table 2 depicts the mean score for disengagement and exhaustion domains among the study participants. The mean disengagement score for study participants was 2.55 ± 0.57 and the mean exhaustion score was 2.70 ± 0.58. Participants aged less than 35 years, female participants, being a resident doctor had a higher mean score in both exhaustion and disengagement domains. (Table 2)

Table 3 depicts the results of binary logistic regression for variables that had a significant association with BO. Age less than 35 years, Female gender, 6 or more-night duties per month, more than 5 shift duties in triage per month, past history of COVID-19 and being a resident doctor had a significant association with exhaustion. Disengagement had a significant association with younger age, increased frequency of night duties and duties in triage room. (Table 3)

Table 1: Sociodemographic & Work Characteristics of study subjects

Total		**N (%)** **322 (100%)**
Age	Less than 35	186 (57.8%)
	36-45	82 (25.5%)
	45 and above	54 (16.8%)
Gender	Male	185 (57.8%)
	Female	137 (42.2%)
Marital status	Currently married	176 (54.6%)
	Unmarried/ separated	146 (45,4%)
Religion	Islam	290 (90.1%)
	Hinduism/Sikhism	32 (9.9%)
Who do you live with	Family	254 (78.9%)
	Alone	10 (3.1%)
	Colleagues	58 (18%)
Educational qualification	Internship	89 (27.6%)
	MBBS	61 (18.9%)
	PG resident	53 (16.5%)
	Completed postgraduate degree	119 (36.9%)
Current job description	Medical Intern	89 (27.6%)
	Resident doctor	181 (56.2%)
	Medical consultant	52 (16.2%)
No of night duties per month	0	72 (22.4%)
	1-5	100 (31.0%)
	6 or more	150 (46.6%)
Work hours per week	Up to 48 hours	145 (45.0%)
	49 to 60 hours	123 (38.2%)
	61 hours and more	54 (16.8%)
Shift duties in emergency /triages	0	43 (13.35%)
	1-4	151 (46.9%)
	5 or more	128 (39.75%)
Previous history of COVID-19 infection	Yes	61 (18.9%)
	No	261 (81.1%)
Vaccination status	Yes	287 (89.4%)
	No	35 (10.6%)
Impact of COVID-19 on daily life	1 (Lowest) & 2	65 (20.19%)
	3,4,5 (Highest)	257 (79.81%)

Table 2: Mean exhaustion and disengagement scores as per selected socio-demographic and work-related variables.

		Disengagement Mean ± SD	P value	Exhaustion Mean ± SD	P value
Total		**2.55 ± 0.57**		**2.70 ± 0.58**	
Age	Less than 35	2.80 ± 0.62	<0.0001	2.98 ± 0.64	< 0.001
	36-45	2.25 ± 0.41		2.32 ± 0.56	
	45 and above	2.18 ± 0.30		2.30 ± 0.39	
Gender	Male	2.45 ± 0.55	0.0001	2.51 ± 0.64	< 0.0001
	Female	2.71 ± 0.64		2.97 ± 0.66	
Marital status	Currently married	2.53 ± 0.56	0.097	2.63 ± 0.65	0.078
	Unmarried/ separated	2.61 ± 0.58		2.78 ± 0.66	
Religion	Islam	2.52 ± 0.6	0.31	2.65 ± 0.66	0.142
	Hinduism/Sikhism	2.62 ± 0.41		2.74 ± 0.59	
Who do you live with	Family	2.53 ± 0.62	0.459	2.68 ± 0.71	0.23
	Alone	2.42 ± 0.71		2.79 ± 0.57	
	Colleagues	2.63 ± 0.42		2.75 ± 0.65	
Educational qualification	Internship	2.59 ± 0.49	0.001	2.63 ± 0.65	< 0.0001
	MBBS	2.43 ± 0.69		2.47 ± 0.64	
	PG resident	2.97 ± 0.61		3.23 ± 0.61	
	Completed PG degree	2.63 ± 0.42		2.77 ± 0.64	
Current job description	Medical Intern	2.55 ± 0.52	> 0.001	2.57 ± 0.64	< 0.0001
	Resident doctor	2.81 ± 0.67		3.06 ± 0.71	
	Medical officer	2.48 ± 0.60		2.35 ± 0.45	
	Consultant	2.22 ± 0.41		2.47 ± 0.74	
No of night duties per month	0	2.38 ± 0.74	> 0.001	2.58 ± 0.45	< 0.0001
	1-5	2.53 ± 0.54		2.85 ± 0.76	
	6 or more	2.65 ± 0.56		2.44 ± 0.53	
Work hours per week	Up to 48 hours	2.46 ± 0.48	0.076	2.61 ± 0.70	0.082
	49 to 60 hours	2.63 ± 0.60		2.88 ± 0.52	
	61 hours and more	2.69 ± 0.46		2.86 ± 0.79	
Shift duties in emergency / triages	0	2.28 ± 0.57	< 0.001	2.53 ± 0.58	< 0.0001
	1-4	2.38 ± 0.47		2.96 ± 0.73	
	5 or more	2.84 ± 0.64		3.01 ± 0.65	
Previous history of COVID-19 infection	Yes	2.7 ± 0.68	<0.0001	2.51 ± 0.59	0.002
	No	2.44 ± 0.48		2.48 ± 0.64	
Vaccination status	Yes	2.53 ± 0.61	0.976	2.76 ± 0.93	0.32
	No	2.59 ± 0.63		2.68 ± 0.55	
Impact of COVID-19 on daily life	1 (Lowest) & 2	2.45 ± 0.36	0.108	2.67 ± 0.72	0.213
	3,4,5 (Highest)	2.58 ± 0.65		2.82 ± 0.51	

Student T test (for 2 groups) and ANOVA (from 3 or more groups).
Statistically significant at $p < 0.05$

Table 3: Binary logistic regression of selected variable with BO

	Disengagement			Exhaustion		
	OR adjusted	95% CI	P Value	OR adjusted	95% CI	P Value
Gender						
Male	Ref			Ref		
Female	1.98	1.16-3.27	0.10	3.4	1.43- 8.06	0.005
Age						
Less than 35 years	Ref			Ref		
36 years and more	0.74	0.56 – 0.89	< 0.0001	0.67	0.49-0.72	< 0.0001
No of night duties per month						
0 – 5	Ref			Ref		
6 and more nights	1.98	1.12-2.34	< 0.0001	2.18	1.22-3.14	0.001
Shift duties in emergency /triages per month						
0 - 4	Ref			Ref		
5 and more	2.21	1.64- 3.45	0.001	2.11	1.53 – 2.76	0.002
Previous history of COVID-19 infection						
Yes	2.51	0.93-6.75	0.067	2.96	1.17-7.5	< 0.0001
No	Ref			Ref		
Educational qualification						
Internship	1.9	1.2-2.8	0.01	1.7	1.1- 2.6	0.001
MBBS	1.6	1.1- 2.6	0.997	1.4	0.84-3.6	0.76
PG resident	2.6	1.9-3.2	0.009	2.14	1.2-3.6	0.00
Completed PG degree	Ref			Ref		
Job Description						
Medical Intern	4.6	2.4-8.3	0.001	3.12	1.81-4.26	0.001
Resident doctor	5.8	4.1-9.8	0.006	4.36	2.9-6.2	<0.00
Medical officer	2.1	0.92-4.8	0.876	1.32	0.73-2.3	0.76
Consultant	Ref			Ref		

Statistically significant at $p < 0.05$

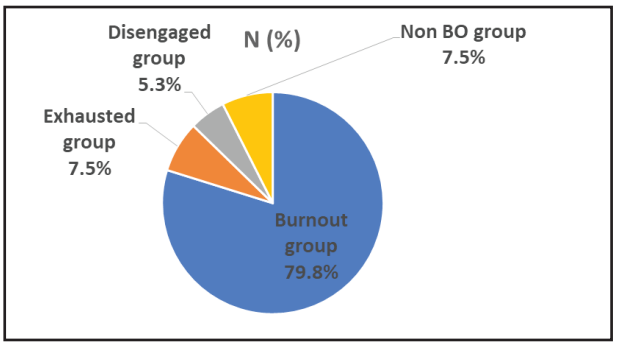

Figure 1: Prevalence of Burnout among subjects

Discussion

Multiple studies conducted before the COVID-19 pandemic have reported high burden of burnout among doctors.[15,20,21] The pandemic was associated with an increased workload and fear of contracting the infection while performing duties.[22,23] This study was conducted in June 2021 in the Indian Kashmir valley, a period immediately after the deadly second wave of COVID-19 in India as well as locally in Kashmir valley.[24] The present study included 322 responses from doctors who were working in one of the tertiary care hospitals of Kashmir valley. The hospital was involved in routine secondary and tertiary care services in addition to providing hospital-based care to COVID-19 patients.

We used Oldenburg burnout inventory for screening which has been used more frequently recently. The mean score on disengagement and exhaustion domains were 2.55 ± 0.57 and 2.70 ± 0.58. In our study, the prevalence of burnout among doctors was 79.4%, which depicts the seriousness of the problem. The burnout figures are comparable to multiple studies conducted during the COVID-19 pandemic

in developed as well as developing countries.[8,18,25] Multiple studies conducted in India previously have also estimated high prevalence of burnout among healthcare workers. Philip S et al and Sanil M in their studies conducted in India also reported that more than 3/4th of doctor's experience symptoms suggestive of burnout.[26,27] These figures are much higher than that found in studies prior to the COVID-19 pandemic which suggests that the proportion of doctors with burnout has increased in recent years.[28,29]

Burnout is usually an outcome of interaction between personal and systemic factors. The predominance of either may vary between countries. Previous studies have suggested that organizational level factors are more important than personal level factors. Studies conducted prior to COVID-19 pandemic reported higher burden of burnout among low- and middle-income countries.[3,30] We also found a significant relationship on logistic regression of multiple organizational like factors like frequency of night duties, frequency of duties in triage/emergency wards. The COVID-19 pandemic may have acted as a leveler between developing and developed countries as it was associated with increased workload among health workforce across the globe.[22] This may explain findings from recent studies, that have estimated comparable levels of burnout in developed and developing countries in recent years.[22,31]

We noted that resident doctors followed by medical interns had highest levels of exhaustion and the same trend was observed for disengagement. This may be influenced by the higher number of night duties and frequency of emergency room (ER) duties as resident doctors are the ones posted for night duties and ER duties. In our study also, increased frequency of night duties and ER duties was associated with burnout. Overall work hours per week were not associated with BO. This has been noted in other studies conducted in India and also in other parts of the world.[20,28] Previous studies have suggested that lack of sleep is a significant contributor to burnout which may explain significant relationship with frequency of night duties and not with overall work hours per week.[19,20] Past history of COVID-19 infection was significantly associated with exhaustion but not with disengagement. Alrawashdeh, H.M et al and Morgantini L et al in their studies also noted that COVID-19 is associated with exhaustion.[32,33]

Demographic factors that were significantly associated with burnout included younger age which had a statistically significant association with both disengagement and exhaustion. The same findings have been noted in multiple other studies and may be associated with physiological age-related changes or with added responsibility with increased age .[28,32,34] The mean scores for both the disengagement and exhaustion domains were significantly higher in female gender. These findings are consistent with available literature.[35,36] Increased burnout among female doctors has been found in studies across geographical areas, which suggests that it may be dependent on intrinsic factors (Physiological factors) related to female gender.[32] Sathur B et al in their study noted workplace discrimination to be a significant predictor towards burnout. The role of gender-based discrimination need to be studied further.

Limitations: As indicated earlier in the methodology section we were unable to obtain the accurate data on the number of eligible physicians in the respective training institutions. Furthermore, despite the multi-centre and multispecialty design of this study the institutions surveyed are government-owned tertiary health institutions which are located in urban areas. Though these facilities also provide primary and secondary care the findings may not necessarily reflect the scenario in private institutions or health facilities located in the rural areas. Response bias is a known shortcoming of convenient sampling technique which we applied in this study, and this could have had some influence on the findings.

CONCLUSION

Physician burnout in Kashmir is high and pervasive, and this should alert doctors to be wary of their general and mental health status. Public health policy should address this development which has implications for patient safety, physician safety and healthcare system performance; as the goal of safe and efficient care would remain a mirage with a very unhealthy population of physicians.

Acknowledgements

The authors would like to thank all the study participants for their valuable time

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