

Prevalence and Correlates of Burnout among Medical Professionals in a Covid-19 designated Hospital - A cross sectional study

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ABSTRACT:

Background: Burnout is a psychological condition characterised by mental exhaustion with reduced sense of accomplishment. Health care workers are more vulnerable for burnout which not only might impair quality of their own life but also could compromise patients care. Covid-19 pandemic posed additional threat which might worsen burnout. **Aims and Objective:** Few studies were available in the Indian context regarding the prevalence of burnout of medical professionals during the COVID-19 pandemic. Hence the study was conducted to assess the burnout in a Covid-19 designated hospital. **Materials and methods:** A cross-sectional, questionnaire based online survey using Copenhagen Burnout Inventory (CBI) was done. Responses were collected from 130 doctors who were working in a covid-19 dedicated medical college hospital through Google forms. The data was analysed for the 3 domains of burnout viz.,

personal, work and pandemic related. A cut-off score of 50 for each domain was kept for defining burnout. **Results:** The prevalence of burn out in each domain as follows - personal burn out 59.2% (n=77), work-related 47.7% (n=62) and pandemic related burnout 67.7% (88). The mean (\pm SD) scores of the personal, work-related, and pandemic-related burnout domains of the questionnaire were 54.50(\pm 17.80), 48.85 (\pm 17.98), and 54.82(\pm 10.68) respectively. **Conclusion:** Significantly higher level of pandemic related burnout compared to work-related burnout indicate that Covid-19 specific factors like fear of getting and spreading infection might operate for higher burnout observed by us.

Keywords: Burnout, Copenhagen burnout inventory, COVID-19 pandemic.

Introduction

Covid-19 was the latest pandemic, caused by the mutated single-stranded RNA virus belonging to Corona viridae family, began in later part of 2019 in China and spread all over the world in no time resulting in death of thousands of people and distress for entire mankind.[1] The surge of COVID-19 cases began in India since March 2020 and there was a country wide complete lockdown to prevent its spread.[2] Apart from general population, Health Care Workers (HCWs) who were in the frontline facing the pandemic, suffered a lot by the rapid and massive rise of Covid-19 cases on each day.[3] One of the problems noted among Health Care Workers was Burnout syndrome (BOS), or simply Burnout.[4,5] Burnout-syndrome (BOS) or Burnout can be broadly defined as a psychological condition characterized by emotional and mental exhaustion, de-personalization and reduced sense of accomplishment.[6]

Burnout was prevalent even before the COVID-19 pandemic and it was seen across many professions but health care workers were found to be at higher risk than others.[7] The proposed causes were multiple like long working hours, poor coordination within the system, facing hostility from relatives of patients and media.[8] All these factors were multiplied several times during the Covid-19 pandemic and newly encountered problems like fear of getting infection, fear of infecting family members, staying away from family members could have worsened the burnout among HCWs.[9] Additionally, many organizational and administrative factors were shown to have contributed to burnout among HCWs during this pandemic by some authors such as heavy workload, extensive responsibilities and frequent changes in the locations and tasks of doctors as well as protocols to be followed to deal with Covid-19.[10,11]

Burnout among doctors could adversely affect not only themselves but also their colleagues and patients. Lapses in patient care were noted in addition to the negative bias and feelings towards others in the workplace due to burnout.[12] Surveys across the globe had shown the prevalence of burnout ranged from 0% to 80.5% with an average of 67% among physicians before the pandemic.[13] During Covid-19 pandemic, the prevalence of burnout was studied by many researchers and the latest meta-analysis by Macaron, M. *Met al.*, found a pooled estimate of overall prevalence of burnout as 54.60% (95% CI: 46.7, 62.2) among healthcare workers.[14]

Different tools were used to study the burnout among healthcare workers in Covid-19 pandemic. Oldenburg Burnout Inventory (OLBI), Maslach Burnout Inventory for Human Service Survey

(MBI-HSS) or General Survey (MBI-GS), Shirom-Melamed Burnout Measure (SMBM), Stanford Professional Fulfilment Index, Copenhagen Burnout Inventory (CBI) or surveys designed by researchers on their own were used by many.[15] We used Copenhagen Burnout Inventory (CBI) as it was found to be easy to understand and self-explanatory given the fact that we did an online survey due to Covid-19 restrictions making face-to-face interview impossible.[16,17] Since research in India regarding prevalence of burnout among medical professionals caring for Covid-19 patients were few, we undertook the study.

Materials and Methods:

The study was started after obtaining approval from the Research and Ethics committees of the Institute. The study was an online based observational and cross-sectional survey due to the prevailing Covid-19 situation at the time of the study. The questionnaire used in the study was Copenhagen Burnout Inventory (CBI), a validated, free to use instrument with well-established psychometric properties.[16]. A general introduction with the intent of the study, consent form along with the study questionnaire were made using Google forms and the link was sent as WhatsApp messages to the doctors working in the hospital during the covid 19 pandemic and the responses were analyzed. Anonymity of the study data was maintained and no incentives were given for the participants in the study.

All cadres of doctors involved in the management of Covid-19 patients including Consultants, Senior and Junior Residents and Interns were invited to participate in our study. Those who did not give consent and who were severely ill were excluded from the study. The study questionnaire had two parts, viz., general, and specific questions; the second part was divided into three domains to assess burnout in a holistic way. The General questions were regarding the respondent's cadre, age, gender. The specific questions were as follows - first domain dealing with personal burnout had five questions; second domain assessing work-related burnout had six questions and third domain called as client related burnout had 15 questions. The last domain was renamed as pandemic-related like previous studies in India.[17]

Five-point Likert scale was used to estimate the intensity ranging from "a very high degree" to "a very low degree" and frequency ranging from "always" to "never or almost never." Responses were graded from 0 to 100 points and the cut off for burnout for total as well as individual subscales was kept as above 50.[10] Based on the study done by Khasneetal., and considering the prevalence of burnout as 52%, with an α -error as 5%, absolute error of margin as 10%, using the formula $n = 4pq/d^2$; the minimum sample after adding 10% non-response rate was 107 and finally, we could achieve 130 responses.[17]

Statistical Analysis:

Data from Google forms were entered in Excel sheets and then analyzed using IBM SPSS[®] version 20.[18] Nominal variables were summarized as percentages (%) and quantitative variables were expressed as Mean and Standard deviation. Mean scores (mean \pm SD) of personal, work-related, and pandemic-related domains were calculated using the 0- to 100-point scale and mean score of >50 was the cut off for burnout experience. The responses (n and %) and average

scores were calculated for each question. Mean burnout scores in each domain were compared using One Way ANOVA followed by Tukey's multiple comparison test. A p value of <0.05 was considered statistically significant.

Results:

Responses were collected from 130 doctors and majority of them ($n=91;70\%$) were between the age group of 21 to 30 years. Most of the respondents were females ($n=88;67.7\%$). Almost all the participants worked in high-risk areas ($n=116;89\%$). Interns constituted half of sample ($n=69;53.1\%$) while Consultants ($n=30;23.1\%$), Junior ($n=18;13.8\%$) and Senior Residents ($n=13;10\%$) made the rest. The mean (\pm SD) scores of the personal, work-related, and pandemic-related burnout domains of the questionnaire were $54.50(\pm 17.80)$, $48.85 (\pm 17.98)$, and $54.82(\pm 10.68)$ respectively (Table 1,2,3). High number ($n=112;86.15\%$) of the respondents feared contracting COVID-19 infection, and the majority ($n=121;93\%$) respondents feared carrying the infection home. Nearly one-third of respondents ($n=51;39.2\%$) expressed fear of death while working and 36.9% of respondents hesitated to work in the current pandemic scenario.

Gender, age and job wise distribution of burnout mean (\pm SD) scores were depicted in Figures 1,2,3 respectively. Considering the 50-point cut-off in the mean scores of each domain for every participant, the prevalence of personal burnout was 59.2% ($n=77$) and that of work-related burnout was 47.7% ($n=62$). 67.7% of the respondents ($n=88$) were experiencing pandemic-related burnout. Statistically significant difference between work related burnout score with personal and client score (p value= 0.003) was noted. Tukey's Multiple comparison of three domains showed statistical difference between work-related vs Pandemic related burnout scores (Table 4)

Discussion

Stodolska A *et al.*, in their scoping review teased out the factors for the varied prevalence of burnout among health care workers in the context of Covid-19 (burnout prevalence ranged from 4.3 to 90.4% across studies).[15] In India, Kesarwani V *et al.*, in their systematic review of Indian studies on burnout found that at least 25% of health care professionals experienced burnout in pre-pandemic period.[8] Overall prevalence of burnout (67.7%) observed by us was higher than other studies done elsewhere using CBI on Covid-19 health care workers. [10,17,19] This could be due to the fact that all our participants were directly involved with Covid-19 patients and most of them were redeployed from other departments. Our assertion was shared by the findings from studies by AlJhani *et al.*, and Gemine *et al.*, on frontal line workers though we didn't compare nurses with doctors as done by Sagaltici *et al.* [19,20,21]

Prevalence of burnout was divided into three domains as per the structure of CBI to cover different facets of burnout experience. Personal burnout, which measured physical and mental exhaustion was found to be 59.2% which was next only to the finding by AlJhani S *et al.*, (67.5%).[19] Two Indian studies viz., Khasneet *et al.*, (44.6%) and Abraham *et al.*, (55.4%) as well as global studies by Duarte *et al.*, (52.5%) and Roslanet *et al.*, (53.8%) showed lesser prevalence

on personal burnout.[10,17,22,23] The prevalence of work-related burnout, which attribute exhaustion solely due to the nature, pattern and burden of work was 47.7% which was in line with other studies sharing the same context. Higher work-related burnout prevalence was noted by AlJhaniet *al.*, (68%), Duarte *et al.*, (53.1%), whereas lesser prevalence was observed by Gemineet *al.*, (45.7%), Abraham *et al.*, (44.6%), Roslanet *al.*, (39.1%), Khasniet *al.*, (26.9%).[10,17, 19, 20,22,23]The statistically significant less prevalence of work-related burnout compared to personal and client subscales in our study could be attributed to the attitude and dedication of the participants towards patients welfare even in Covid-19 pandemic situation.

Pandemic related burnout domain which focussed specifically on Covid-19 related issues like fear of contracting the illness was found to be 67.7%, higher than other similar studies.[10,17, 19, 20,22,23]Roslanet *al.*, noted very less pandemic related prevalence (17.4%) in Malaysia whereas Khasneet *al.*, found 52.8% of pandemic related burnout in India.[17,23]To the best of our knowledge, we could get highest prevalence of pandemic related burnout in the study by AlJhaniet *al.*, which was 58.3%.[19] Duarte *et al.*, and Abraham *et al.*, also found significantly less prevalence of pandemic related burnout when compared to other two domains (35.7% & 32.1% respectively).[10,22] These differences could be accounted how specifically Covid-19 related aspects affected the health care workers. For example, Duarte *et al.*, viewed that physical and psychological fatigue accounted for the higher prevalence of personal and work-related burnout in frontline health care workers.[22]But in countries like India the situation might be explained because of the difficulty in social isolation and resultant fear of spreading the illness to other family members was common as evidenced from our results.[11,16,17]

Long working hours was not a factor in our study because all participants were allotted exactly same duration of work, not exceeding 8 hours at a stretch due to wearing of PPE hence we could not account this factor like other authors.[24,25] Similarly the opinion of Jalili M *et al.*, of lesser burnout in Covid-19 designated hospital was refuted by our findings.[26]. The mean (SD) scores of all three domains of burnout respectively in our study were comparable with others using the CBI.[10,17,19,22,23] Khasneet *al.*, observed significantly higher mean score of pandemic-related burnout compared with the mean personal and work-related scores like us (51.37 vs both, 49.72, 39.69, respectively, $p < 0.05$).[17] Work related burnout scores of 49.2 (± 20.8) and 48.5 (± 15.8) among doctors noted by Abraham *et al.*, and Gemineet*al.*, respectively.[10,20]Pooja *et al.*, found significant difference in mean scores in all three realms (personal, work related and client/pandemic related) of burnout scale between doctors in clinical vs non-clinical departments where former scored more might be explained that burnout was directly linked with Covid-19 related work than otherwise.[27]

Interestingly, we noted higher mean burnout scores among males in all three domains, though it was not statistically significant yet different from other studies where no gender difference observed.[10,25,27,28,29,30]. But some studies, mostly from India showed females having

significantly higher burnout scores.[11,17,24,31] We are of the opinion that the reasons postulated for higher prevalence of burnout among females need to be revisited. Genetic vulnerability, social responsibilities, cultural expectations and other factors stand hypothetical only unless we have robust evidence to link such factors for gender specific vulnerability. Many studies observed young doctors experience more burn out. [11,17,19,24,30]. Studies by several others did not find any difference in burnout scores with age. [10,25, 28,29,31] In our study, only work -related burnout score was found to be significantly more among younger doctors compared to elder ones. Same holds true for cadre, where we found consultants had lesser work-related burnout and interns had higher work-related burnout. Our findings were in concordance with Patel et al., and AlJhani et al [11,19]. Both findings might be explained that young doctors working as interns and residents lack work experience, unable to take decisions on their own apart from carrying more responsibility not only towards patients but also towards seniors. Since burnout adversely affect doctors as well as patients under their care, many authors opined that individual, family and at organisational level approaches should be implemented to mitigate the ill-effects of burnout.[4,32]Moreover, these approaches should be evidence-based and mostly multipronged in nature like creating an environment where health care workers could share their burden and demands even on online platform. We can use digital technologies to contact and communicate with the health care workers to proactively elicit the symptoms of burnout and help them to solve their problems.[33]

Strengths and limitations:

The strengths of this study were using a valid assessment tool and all the study participants directly involved in the management of Covid-19 patients. Certainly, there were few limitations that need to be addressed. It was difficult to assess temporal causation as the present study was a cross-sectional one. Since the study was conducted in only one hospital, it was difficult to draw conclusions among other hospitals. Factors that were not examined in our survey may be also affected the findings. Another limitation is that this study did not include a control group. We also did not explore the personality and psychological problems of participants. Hence, follow-up studies with more questions pertinent to risk factors of burnout could help us to better understand this problem.

Conclusion:

This study showed a high impact of burnout syndrome among physicians during the covid 19 pandemic period affecting their work and personal life balance. India with its huge population had suffered immensely due to the pandemic with multiple outbreaks and clusters which had put enormous burden on the health care system. Burnout among health care workers should be addressed as early as possible as it may lead to catastrophic consequences on the health care system in an event like the covid 19 pandemic. Burnout is not only associated with the work environment as once thought but also is seen in other domains like personal and mental wellbeing of an individual. A proper shift-based system of work, work related support and counseling for HCWs are some solutions to tackle burnout during the pandemic period.

Table 1: Personal burnout score and distribution of responses (n = 130 & %)

Questions	Never	Rarely	Sometimes	Often	Always	Mean Score (±SD)
How often are you physically exhausted?	2 (1.5%)	6 (4.6%)	49 (37.7%)	51 (39.2%)	22 (16.9%)	66.35 (±21.72)
How often are you emotionally exhausted?	7 (5.4%)	14 (10.8%)	48 (36.9%)	44 (33.8%)	17 (13.1%)	59.62 (±25.55)
Do you feel worn out (extremely tired)?	5 (3.8%)	16 (12.3%)	54 (41.5%)	46 (35.4%)	9 (6.9%)	57.31 (±22.75)
How often do you think "I can't take it anymore"?	25 (19.2%)	32 (24.6%)	46 (35.4%)	21 (16.2%)	6 (4.6%)	40.58 (±27.71)
How often do you feel weak and susceptible to common illness?	5 (3.8%)	32 (24.6%)	63 (48.5%)	25 (19.2%)	5 (3.8%)	48.65 (±21.63)
Average score						54.50 (±17.8)

Table 2: Work-related burnout score and distribution of responses (n = 130 & %)

Questions	Never	Rarely	Sometimes	Often	Always	Mean ± SD
Do you feel that working every hour is tiring you?	10(7.7%)	31(23.8%)	45(34.6%)	33(25.4%)	11(8.5%)	50.77 ± 26.767
Do you feel burn out (complete physical or mental exhaustion) because of your work?	9(6.9%)	27(20.8%)	60(46.2%)	24(18.5%)	10(7.7%)	49.81 ± 24.805
Does your work frustrate you?	21(16.2%)	25(19.2%)	51(39.2%)	20(15.4%)	13(10%)	45.96 ± 29.334
Do you feel that your work is the reason for emotionally exhaustion?	18(13.8%)	23(17.7%)	48(36.9%)	27(20.8%)	14(10.8%)	49.23 ± 29.357
Are you	23(17.7%)	12(9.2%)	36(27.7%)	38(29.2%)	21(16.2%)	54.23 ±

exhausted in the morning at the thought of another day's work?						32.817
Do you have enough energy for family and friends during leisure time?	13(10%)	41(31.5%)	51(39.2%)	19(14.6%)	6(4.6%)	43.08 ± 24.711
Average score						48.85 ± 17.98

Table 3: Pandemic related burnout score and distribution of responses (n=130 & %)

Questions	Never	Rarely	Sometimes	Often	Always	Mean ± SD
Does it drain more of your energy to work during this current scenario?	1 (0.8%)	5(3.8%)	32(24.6%)	56(43.1%)	36 (27.7%)	73.27 ± 21.609
Do you feel depressed of the current scenario?	7 (5.4%)	16 (12.3%)	50(38.5%)	38(29.2%)	19 (14.6%)	58.85 ± 26.204
Do you feel it's hard to work in the current scenario?	6 (4.6%)	20 (15.4%)	41(31.5%)	40(30.8%)	23 (17.7%)	60.38 ± 27.277
Do you feel the lock down has increased your stress in the present scenario ?	11 (8.5%)	17 (13.1%)	45(34.6%)	29(22.3%)	28 (21.5%)	58.85 ± 29.997
Do you feel supported by colleagues during the current scenario?	4 (3.1%)	17 (13.1%)	37(28.5%)	44(33.8%)	28 (21.5%)	64.42 ± 26.572
Do you have fear of death while	34 (26.2%)	45 (34.6%)	32(24.6%)	13(10%)	6(4.6%)	33.08 ± 27.705

working in the current scenario?						
Do you have fear of family members catching infection while working in the current scenario?	2 (1.5%)	7(5.4%)	21(16.2%)	36(27.7%)	64 (49.2%)	79.42 ± 24.799
Do you find it fruitful while performing your work in the current scenario ?	5 (3.8%)	13(10%)	45(34.6%)	38(29.2%)	29 (22.3%)	64.04 ± 26.597
Do you hesitate to work in the current scenario?	52 (40%)	30 (23.1%)	31(23.8%)	16(12.3%)	1(0.8%)	27.69 ± 27.359
Do you feel you are properly protected by the hospital while working in the current scenario?	10 (7.7%)	22 (16.9%)	41(31.5%)	36(27.7%)	21 (16.2%)	56.92 ± 28.870
Are you indulging in any substance abuse in the current scenario?	120 (92.3%)	2(1.5%)	6(4.6%)	2(1.5%)	0(0%)	3.85 ± 14.081
Do you feel welcomed by the community because of your community work in the current scenario?	12 (9.2%)	32 (24.6%)	36(27.7%)	31(23.8%)	19 (14.6%)	52.50 ± 29.995
Do your fear catching covid infection in the current scenario?	5 (3.8%)	13(10%)	46(35.4%)	37(28.5%)	29 (22.3%)	63.85 ± 26.608
Do you feel your patience is tested in the current	5 (3.8%)	18 (13.8%)	46(35.4%)	39(30%)	22 (16.9%)	60.58 ± 26.205

scenario?						
Do you feel you are giving more than what you get back while working in the current scenario?	10 (7.7%)	12(9.2%)	34(26.2%)	40(30.8%)	34 (26.2%)	64.62 ± 29.823
Average Score						54.82 ± 10.68

Table 4: Results of the Tukey's Multiple comparison of different domains

(I) domain	(J) domain	Mean Difference (I-J)	Std. Error	<i>p</i> value	95% Confidence Interval	
					Lower Bound	Upper Bound
Work	Personal	-5.65385	1.96669	.012	-10.2810	-1.0267
	Client	5.97436*	1.96669	.007	-10.6015	-1.3472
Personal	Work	5.65385	1.96669	.012	1.0267	10.2810
	Client	-.32051	1.96669	.985	-4.9477	4.3066
Client	Work	5.97436*	1.96669	.007	1.3472	10.6015
	Personal	.32051	1.96669	.985	-4.3066	4.9477

*Statistically significant difference ($p < 0.005$)

Figure 1 : Gender wise distribution of mean burnout scores in the domains of burn out

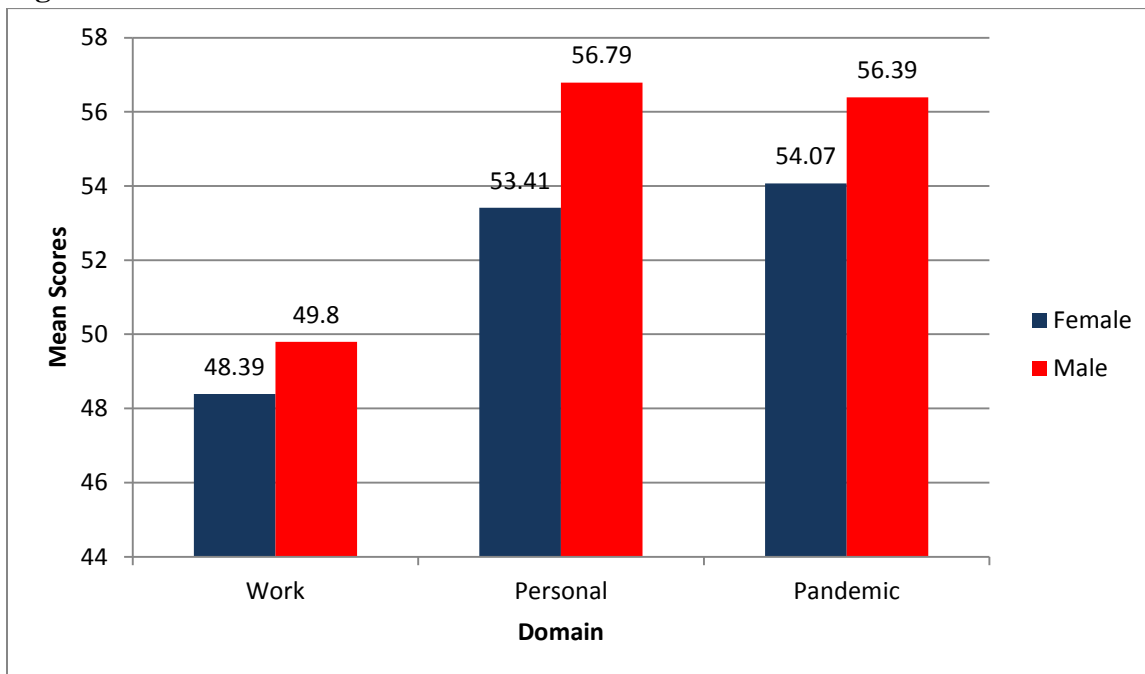
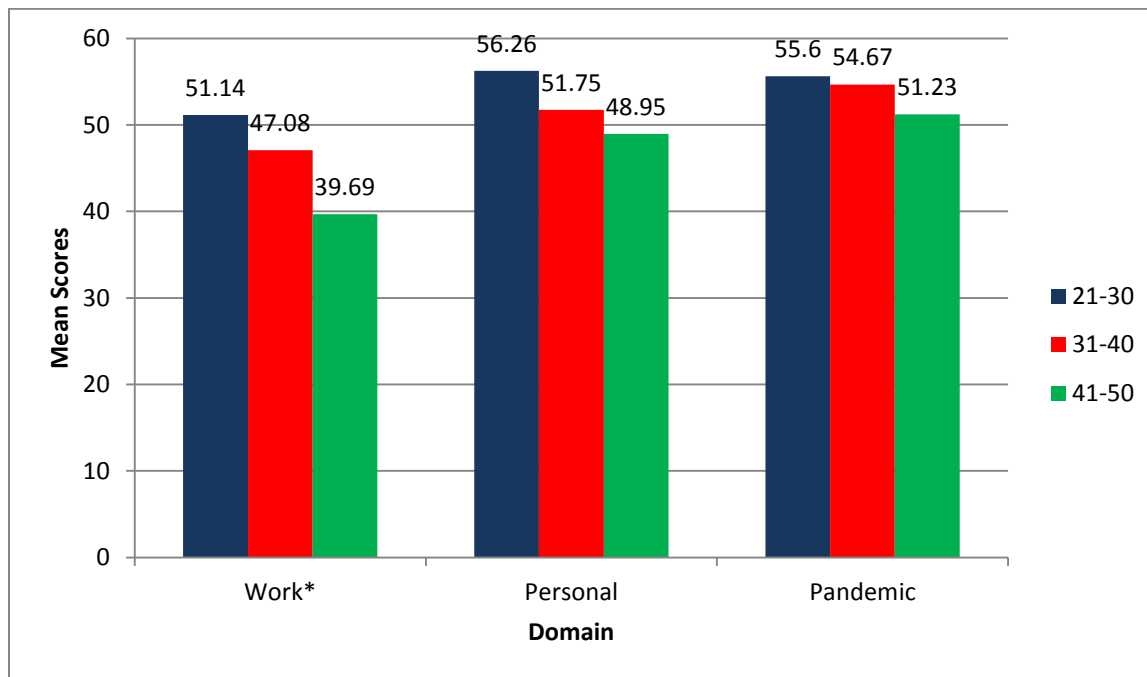
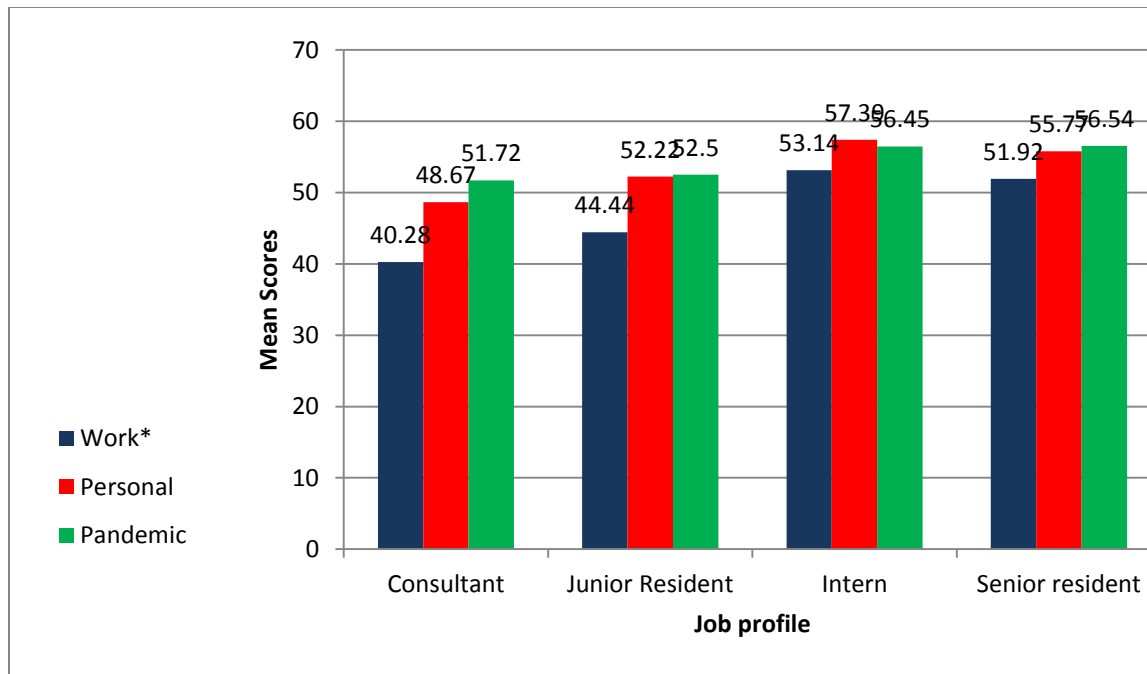


Figure 2 : Age wise distribution of mean burnout scores in the domains of burn out**Figure 3 : Job profile wise distribution of mean burnout scores in the domains of burn out**



Acknowledgement:

The authors acknowledge the participants of the study as well as the administration of Indira Gandhi Medical College and Research Institute for making the study possible.

Conflict of interest:

No Conflict of interest

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Supplementary Material for “Prevalence and Correlates of Burnout among Medical Professionals in a Covid-19 designated Hospital - A cross sectional study

Copenhagen burn out inventory (CBI) scale.

General Questions

1. What is your job profile in health care sector (Please choose category)?

- Doctor
- Paramedic (nurse, dietician, physiotherapist, pharmacist etc)

- Ward boy
 - Administration staff
2. What is your age?
- 21–30 year's
 - 31–40 year's
 - 41–50 year's
 - 51–60 year's
 - >61 year's
3. Gender
- Male
 - Female
4. Do you feel mental health is equally important as physical health?
- Yes
 - No
5. How is your working environment?
- High risk (ER, OPD, Wards, ICU, OT)
 - Low risk (other areas)

Personal Burnout

Following questions are to assess personal burn out regardless of COVID-19 scenario:

1. How often are you physically exhausted?
2. How often are you emotionally exhausted?
3. How often do you think: "I can't take it anymore?"
4. How often do you feel weak and susceptible to illness?
5. How often do you feel worn out (extremely tired)?

Work-related Burnout

Following questions are to assess work burn out regardless of COVID-19 scenario:

1. Are you exhausted in the morning at the thought of another day at work?
2. Do you feel that every working hour is tiring for you?
3. Do you have enough energy for family and friends during leisure time?
4. Do you feel that your work is emotionally exhausting?
5. Does your work frustrate you?
6. Do you feel burnt out (complete physical or mental exhaustion) because of your work?

Client Related :

Following questions are to assess burn out because of current scenario – COVID-19:

1. Do you feel it is hard to work in the current scenario?
2. Does it drain more of your energy to work during the current scenario?
3. Do you find it fruitful while performing your work during the current scenario?
4. Do you feel that you are giving more than what you get back while working in the current scenario?
5. Do you hesitate to work during this current scenario?
6. Do you feel depressed because of the current scenario?
7. Do you feel that your patience is tested while working in the current scenario?
8. Do you feel lock down due to the current scenario has added stress on you?
9. Do you have fear to catch COVID-19 infection while working in the current scenario?
10. Do you have a fear of family members catching infection because of your work exposure?
11. Do you feel welcomed by the community because you are a health care worker and working in the current scenario?
12. Are you indulging in any substance abuse (alcohol/drugs/smoking) during this period of lockdown?
13. Do you have a fear of death while working in the current scenario?
14. Do you feel you are being properly protected by the hospital while working in the current scenario?
15. Do you feel you are being supported by colleagues during the current scenario?