

BURNOUT AMONG DOCTORS WORKING IN AN INTENSIVE CARE UNIT DURING A PANDEMIC.

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ABSTRACT

INTRODUCTION: Burnout is defined as a state of psychological, emotional and physical stress in response to prolonged exposure to occupational stress.⁽¹⁾ The COVID 19 pandemic has put an immense burden on the medical fraternity. In an Intensive Care Unit, where there is a need for constant contact with the patient for a prolonged period of time it has become a challenge to overcome. Burnout is prevalent in highly stressful departments such as Emergency departments and Intensive Care Units. In this study we attempted to understand the level of burnout present in doctors working in COVID19 Intensive Care Units.

METHODOLOGY: After obtaining institutional ethics committee approval, written informed consent was obtained from 390 participants who have worked in the intensive care unit. It was an observational descriptive questionnaire based study. An online questionnaire was administered to the participants using google forms and the questionnaire contained demographic details and Copenhagen Burnout Inventory(CBI). The collected data was analysed by frequency, percentage chi square test. $p < 0.05$ was considered significant. The statistical software SPSS version 23 was used to analyse the data.

RESULTS: There were 217(55.6%) males and 173(44.3%) females who participated in the study. Maximum participants were doctors 50.7%. Among the three domains highest prevalence was found in the personal domain(80%) followed by work related(73.8%) and least in the patient related domain(55.9%). The prevalence of personal burnout was significantly ($p < 0.05$) higher in females(89.6%) compared to males(55.9%). The prevalence among residents of personal burnout was 96.5%, work related burnout was 83.4% and patient related burnout was 57.1%.

CONCLUSIONS: Burnout is highly prevalent in the ICU setting. The identification of symptoms, introduction of coping strategies, having a worker friendly environment is necessary to ensure the well-being of doctors and striking a balance between work life and personal life.

KEYWORDS: Burnout, ICU, COVID 19, Copenhagen burnout inventory.

Burnout - this term was coined by Herbert Freudenberger in 1970. It is defined as a state of psychological, emotional and physical stress in response to prolonged exposure to occupational stress.⁽¹⁾ It affects all speciality fields and various sectors in the hospital setting. It is an obstacle for obtaining better working conditions. It appears to be the negative result of work-life imbalance, high stress, job disengagement and job dissatisfaction.⁽²⁾ It is a threat to personal well-being, mental health as well as determines the quality of care which would be provided. The COVID 19 pandemic has put an immense burden on the medical fraternity. It is an infectious disease which leads to pneumonia and acute respiratory distress syndrome (ARDS) requiring ICU care and ventilatory support. It can be fatal resulting in death. Taking care of these patients has proven to be a challenge owing to the infectious nature of this virus. In an Intensive Care Unit, where there is a need for constant contact with the patient for a prolonged period of time it has become a challenge to overcome. This has caused increased levels of anxiety, fear and social stigma.

Burnout is prevalent in highly stressful departments such as Emergency departments and Intensive Care Units. This puts an individual's health at risk and is associated with increased medical errors, poor decision making ability, as well as poor quality of health care.⁽³⁾

In this study we attempted to understand the level of burnout present in doctors working in COVID19 Intensive Care Units.

OBJECTIVES:

1. To evaluate the prevalence of burnout in doctors in ICU during COVID 19 pandemic.

REVIEW OF LITERATURE:

Jalili Mohammad *et al.*(2020)⁽⁴⁾in their study titled “Burnout among health-care professionals during COVID 19 pandemic – a cross-sectional study” concluded that 326 persons (53%) experienced high levels of burnout. The average score in emotional exhaustion, depersonalization and lack of personal accomplishment was 26.6,10.2,27.3 respectively. The level of burnout in the three subscales varied based on the personal as well as work related factors and gender was the only variable that was associated with high levels of all three domains.

Zarei Ehsan *et al.*(2019)⁽⁵⁾ in their article titled “Prevalence of Burnout among Primary Health Care Staff and Its Predictors: A Study in Iran” found that 90.5% of the staff had high DP, 55.3% had high EE, and 98.9% had low PA scores. Also, 52.9% (277 people) of the staff suffered from high burnout. Single people (OR = 3.33), less experienced employees (OR = 9.09), people aged over 35 years (OR = 2.35), physicians (OR = 1.72), and staff with permanent employment (OR = 5.0) were more likely to suffer high levels of burnout. Less experienced, younger, single employees and physicians were more at risk of suffering from high burnout. Preventive measures, such as strengthening social skills, communication competencies, and coping strategies, and reduction of risk factors such as job stress, were suggested for reducing employees' risk of burnout.

Chemali Z *et al.*(2019)⁽⁶⁾in their study called “Burnout among healthcare providers in the complex environment of the Middle East: a systematic review” reviewed 138 articles and have come to a result that The Maslach Burnout Inventory was the most common tool to measure burnout. Burnout is common among physicians, nurses, and other healthcare professionals, with prevalence estimates predominantly ranging between 40 and 60%. Burnout among

healthcare providers in the Middle East is associated with characteristics of their work environments, exposure to violence and terror, and emotional distress and low social support.

B Ratnakaran *et al.* (2016)⁽⁷⁾ in their study titled “Prevalence of burnout and its correlates among residents in a tertiary medical center in Kerala, India: A cross-sectional study” concluded that more than one third of the participants were found to have burnout in one or another dimension of the Copenhagen burnout inventory (CBI). Burnout was found to be the highest among the interns in the domains of personal burnout (64.05 %) and patient related burnout (68.62 %) and in junior residents for work related burnout (40%). Super specialty senior residents had the least prevalence of burnout in all three dimensions. Among the residents, non-medical/non-surgical residents had the least prevalence of burnout in all three dimensions, whereas surgical speciality residents had the highest of personal burnout (57.92 %) and Medical speciality residents had the highest patient related burnout (27.13%). Both medical and surgical specialty residents had equal prevalence of work burnout. The study also showed that as the number of years of residency increased, the burnout also increased in all three dimensions.

Lebensohn Patricia *et al.* (2013)⁽⁸⁾ in their article titled “Resident Wellness Behaviors : Relationship to Stress, Depression, and Burnout” concluded that the average reported perceived stress levels were consistent with ranges found for medical students and residents. Twenty-three percent of residents scored in a range consistent with depression risk. In terms of burnout risk, 13.7% scored in the high emotional exhaustion range and 23.8% in the high depersonalization range. Two thirds reported high life satisfaction. Higher depersonalization and less time in nurturing relationships were associated with greater likelihood of medication use for sleep, mood, and anxiety in females. Higher alcohol use was associated with increased levels of perceived stress, burnout, and depression. The two wellness behaviours most associated with higher well-being were restful sleep and exercise.

Nyssen A.S *et al.* (2003)⁽⁹⁾ in their article titled “Occupational stress and burnout in anaesthesia” has reported that the mean stress level in anaesthetists was 50.6 which is no higher than that found in other working populations. The three main sources of stress reported were a lack of control over time management, work planning and risks. Anaesthetists reported high empowerment, high work commitment, high job challenge and high satisfaction. However, 40.4% of the group were suffering from high emotional exhaustion (burnout); the highest rate was in young trainees under 30 years of age.

Li Ping Chou *et al.* (2014)⁽¹⁰⁾ in their study titled “Job stress and burnout in hospital employees: comparisons of different medical professions in a regional hospital in Taiwan.” concluded that among the five medical professions, the prevalence of high work-related burnout from highest to lowest was nurses (66%), physician assistants (61.8%), physicians (38.6%), administrative staff (36.1%) and medical technicians (31.9%), respectively. Hierarchical regression analysis indicated that job strain, overcommitment and low social support explained the most variance (32.6%) of burnout.

METHODOLOGY:

After obtaining institutional ethics committee approval, written informed consent was obtained from 390 participants who have worked in the intensive care unit. The study group consisted of doctors, residents, and interns. It was an observational descriptive questionnaire based study.

An online questionnaire was administered to the participants using google forms and the questionnaire contained demographic details and Copenhagen Burnout Inventory(CBI).

The prevalence of burnout was derived using the CBI. It has been used in the study - 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. *Journal of Postgraduate Medicine* 2016; 62(3):157-61. The Copenhagen burnout inventory focuses on exhaustion and its attribution by the person. The CBI has scales on personal burnout (six items on general exhaustion without a specific attribution), work-related burnout (seven items on exhaustion attributed to work in general), and client-related burnout (six items on exhaustion attributed to work

with clients) (client in our study would mean patients). All items have five response categories in a Likert scale, ranging either from “to a very low degree” to “to a very high degree” or from “never” to “always.” Each scale ranges from 0 to 100 points, with high scores indicating higher levels of burnout. Total score on the scale is the average of the scores on the items.

a) Inclusion criteria:

- All physicians, residents, interns, who have taken care of patients in the intensive care unit.

b) Exclusion criteria:

- Those unwilling to participate.

STATISTICAL ANALYSIS:

The following formula was used to obtain the sample size n

$$n = \frac{z^2 p(1-p)}{e^2}$$

$z = 1.96$ (at 95% confidence interval)

$p = 51.85$ (reference article)

$e =$ allowable error

$e = 5\%$, $n = 384$

This sample size has been chosen using the following article as reference

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. *Journal of Postgraduate Medicine* 2016; 62(3).

The collected data was analysed by frequency, percentage chi square test. $p < 0.05$ was considered significant. The statistical software SPSS version 23 was used to analyse the data.

RESULTS:

The questionnaire was answered by 390 individuals working in the intensive care unit. There were 217(55.6%) males and 173(44.3%) females who participated in the study. Maximum participants were doctors 50.7%. The demographic details and distribution of participants are available in table 1.

Table 1		
	MALES	217(55.6%)

GENDER	FEMALES	173(44.3%)
DOCTORS	198(50.7%)	
RESIDENTS	180(46.4%)	
INTERNS	12(2.9%)	

Table 1: Demographic details

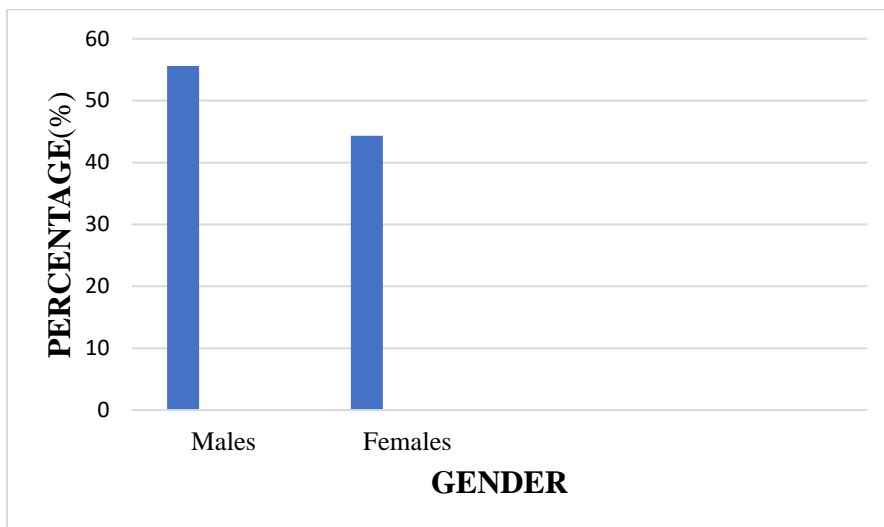


Figure 1: Demographic detail

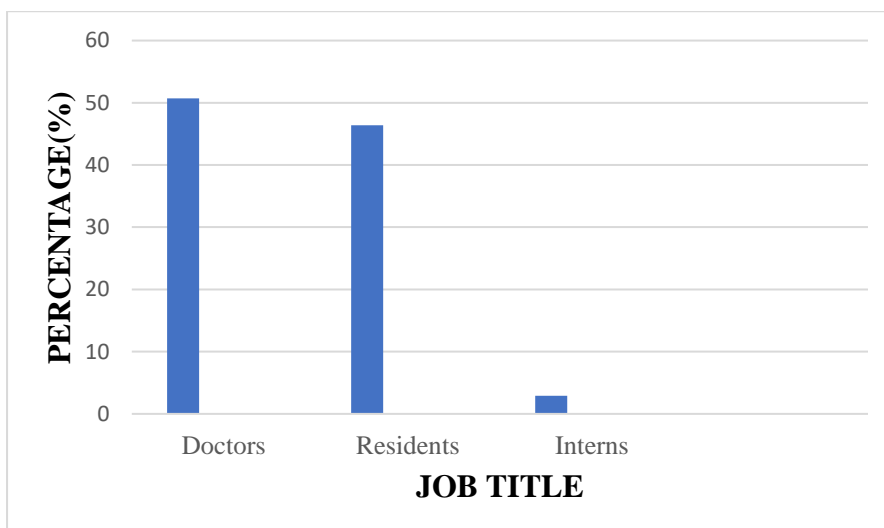


Figure 2: Demographic detail

The prevalence of burnout in all three dimensions of CBI was analyzed and tabulated in Table 3. The mean, median, and standard deviation scores for each burnout score were as given in Table 2. Age wise statistical analysis was not done as it was noticed that there was no useful spread of age groups.

Table 2			
	PERSONAL	WORK RELATED	PATIENT RELATED
MEAN	64.5620	59.7253	54.5339
MEDIAN	58.3333	60.7143	54.1667
STANDARD DEVIATION	17.8253	14.8198	18.5633

Table 2: Mean, median and standard deviation scores of each dimension of CBI

Among the three domains highest prevalence was found in the personal domain(80%) followed by work related(73.8%) and least in the patient related domain(55.9%). In the personal and work related burnout there was significant difference between males and females($p < 0.05$). The prevalence of personal burnout was significantly ($p < 0.05$) higher in females(89.6%) compared to males(55.9%)

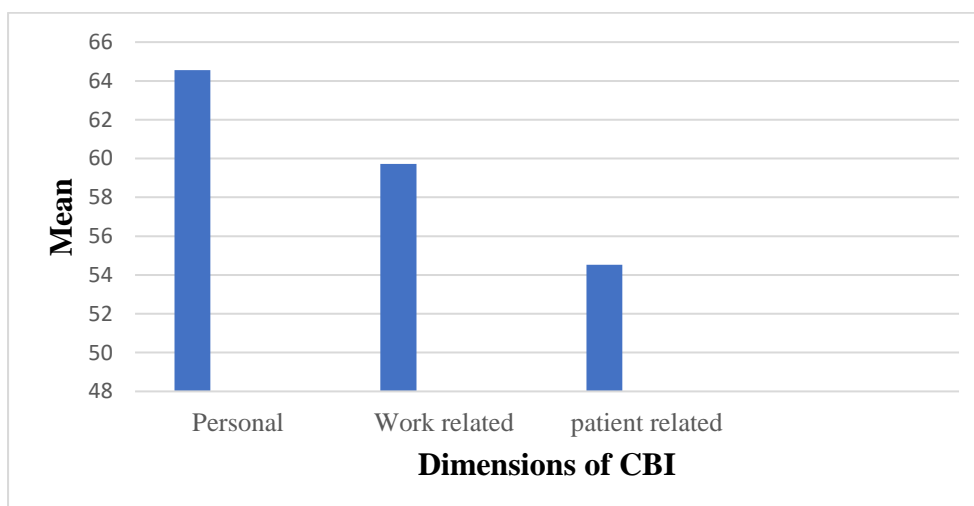


Figure 3: Mean in each dimension of CBI

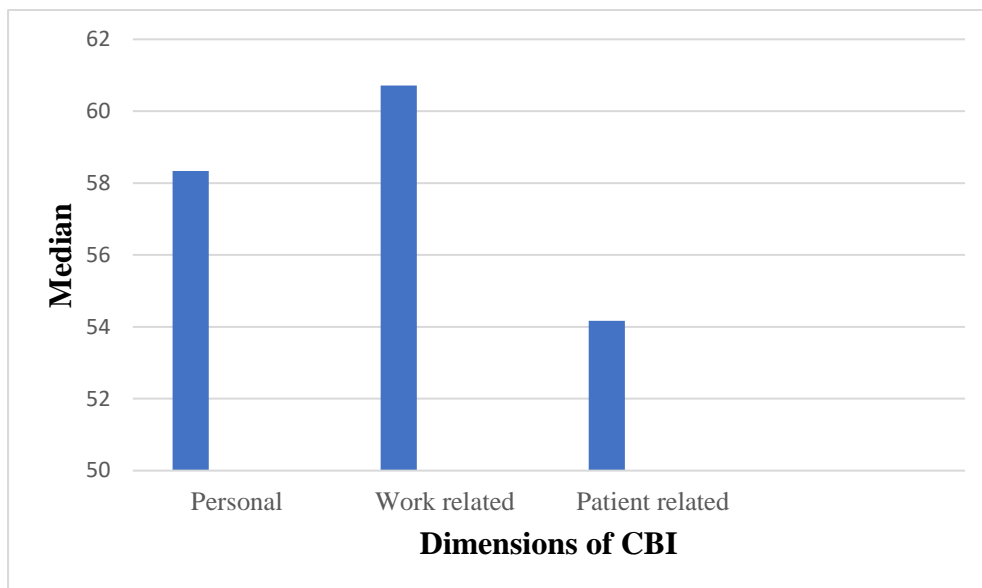


Figure 4: Median in each dimension of CBI

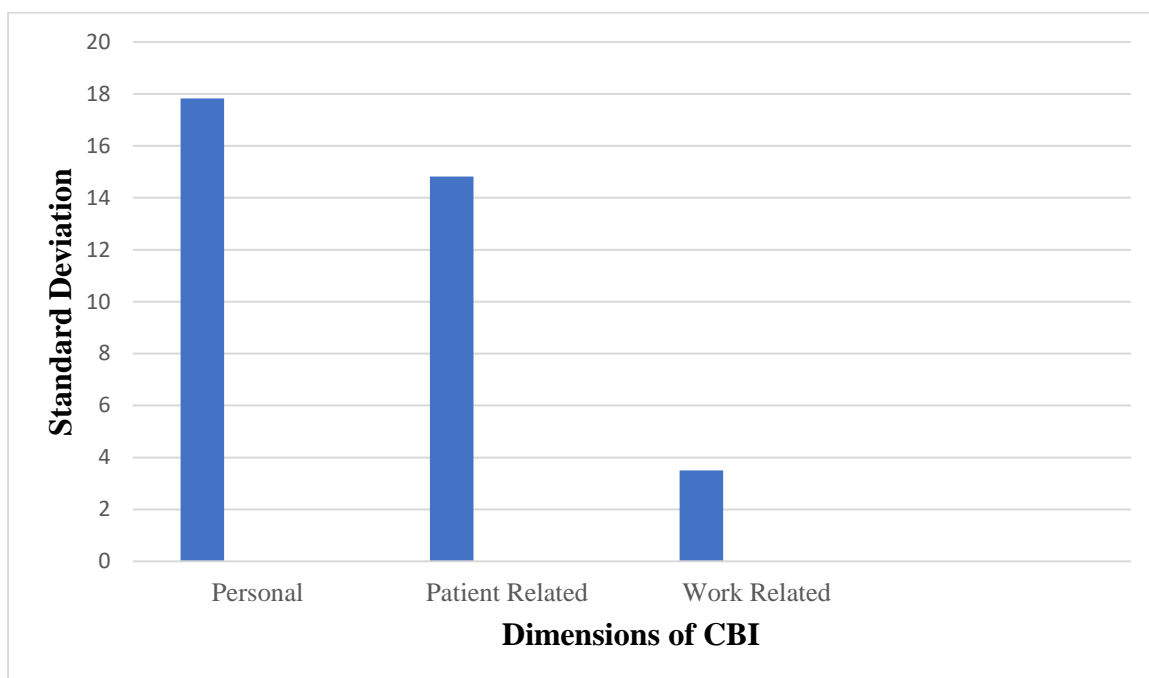


Figure 5: Standard deviation in each dimension of CBI

The residents were found to have the highest prevalence of personal burnout. The prevalence of personal burnout was 96.5%, work related burnout was 83.4% and patient related burnout was 57.1%. The interns had highest prevalence of work-related burnout 92% followed by the prevalence of 94% in the personal burnout and they had the least prevalence of burnout in the patient related burnout of 20%. Patient related burnout was similar in the PG residents and the doctors (56%,57.1%). The prevalence was statistically significant($p < 0.05$) and has been given in detail in table 3.

TABLE 3

	PERSONAL BURNOUT		WORK RELATED BURNOUT		PATIENT RELATED BURNOUT	
	n%	X ² (p value)	n%	X ² (p value)	n%	X ² (p value)
OVERALL	80		73.8		55.9	
MALE	55.9	p<0.000	73.0		64.9	p=0.032
FEMALE	89.6		74.2		52.3	
DOCTORS	61	p<0.000	61.6	p<0.000	56	p<0.000
PG RESIDENTS	96.5		83.4		57.1	
INTERNS	94		92		20	

Prevalence(n%), Pearson chi square test (X²) of each dimension of CBI

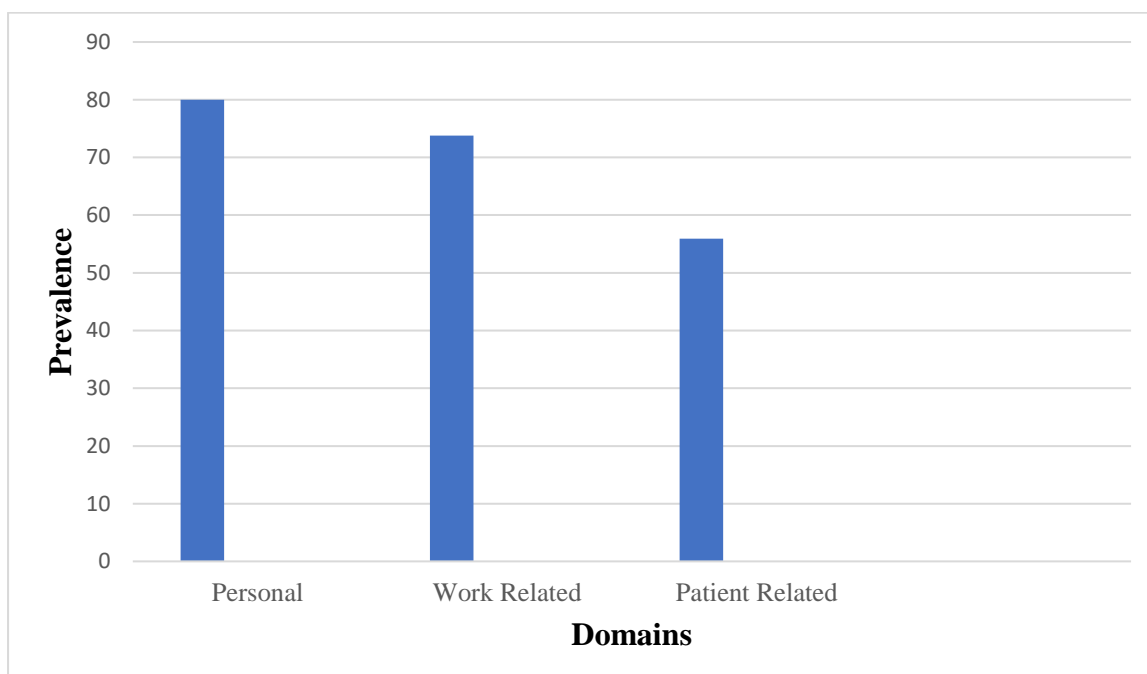


Figure 6: Overall prevalence of burnout in the various domains of CBI

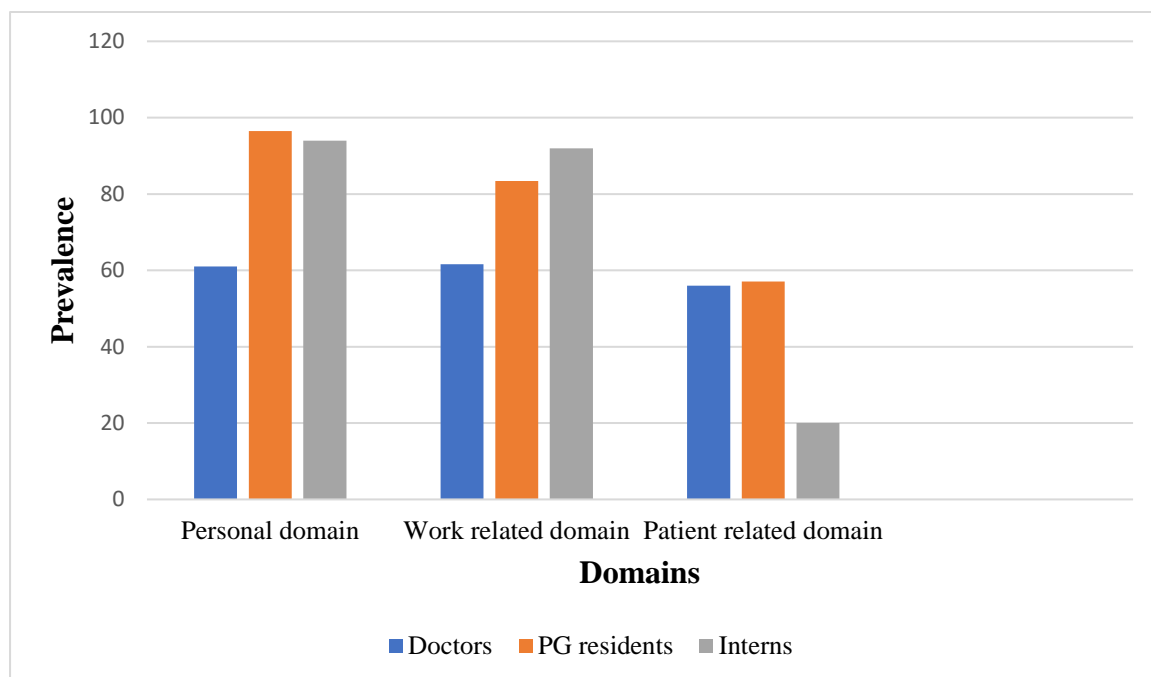


Figure 7: Prevalence of burnout in the 3 domains of CBI among doctors, residents and interns

DISCUSSION:

A pandemic puts an immense burden on the medical fraternity. Highly stressful departments such as Emergency departments and Intensive Care Units have shown to predispose the healthcare workers to burnout.⁽³⁾ This study aimed at determining the prevalence of burnout in an ICU setting. The study is based on the CBI as it is a simple and self-explanatory questionnaire with excellent psycho-metric properties.⁽⁴⁾

Burnout has been described by Maslach and coworkers⁽¹²⁾ as a condition in which professionals “lose all concern, all emotional feeling for the people they work with, and come to treat them in a detached or even dehumanized way.” Professional burnout is a psychological syndrome arising in response to chronic interpersonal stressors on the job⁽¹⁴⁾. A long list of difficulties that have been associated with burnout such as physical illness, emotional problems, increased turnover, absenteeism (14), and poor job performance and negative attitudes in general (13). The quality of patient care maybe affected by burnout.^(15, 16). Burnout syndrome can occur due to caring for the acutely ill patients.⁽¹³⁾

In our study the prevalence of burnout overall is the highest in the personal domain 80%. This is similar to Khasne et al. (2020)⁽⁵⁾ in their study who found the prevalence to be highest in personal burnout 44.6%. The prevalence of personal and work-related burnout was significantly ($p < 0.01$) higher among female respondents. Chemali Z et al. (2019)⁽⁶⁾ in their study which was a systematic review of 138 articles and have found burnout is common among physicians, nurses, and other healthcare professionals, with prevalence estimates predominantly ranging between 40 and 60%. We also found a higher level of burnout in the personal domain among PG residents. Ratnakar et al. (2016)⁽⁷⁾ in their study have established that high levels of burnout are present in the personal domain. Another study, among 300 residents working in public hospitals in Mumbai, found a high prevalence of personal (66.67%) and work-related (57.14%) burnout⁽⁸⁾. Li Ping Chou et al. (2014)⁽¹⁰⁾ in their study concluded that

among the five medical professions, the prevalence of high work-related burnout from highest to lowest was nurses (66%), physician assistants (61.8%), physicians (38.6%), administrative staff (36.1%) and medical technicians (31.9%), respectively. Hierarchical regression analysis indicated that job strain, over-commitment and low social support explained the most variance (32.6%) of burnout. Thus supporting our result of higher burnout among PG residents.

The study limitations include a lack of uniformity of responses, regional bias, self-reporting bias. Most participants were working in the high-risk areas and were not screened for past psychiatric issues. Follow-up studies are required to assess and analyze the long-term impact of this pandemic if the situation worsens further assessment. The study is a cross-sectional study which will not explain how burnout varies and progresses over an extended period of time. Multicenter prospective studies will provide a better picture of burnout among doctors in the intensive care unit in the country.

Thus, we would like to conclude by saying that burnout is highly prevalent in the ICU setting. The identification of symptoms, introduction of coping strategies, having a worker friendly environment is necessary to ensure the well-being of doctors and striking a balance between work life and personal life.

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