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Research Paper

Assessment of Burnout and Vaccination Rates in Doctors During Onset of Second Wave of Covid-19 in India

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ABSTRACT

Being at the forefront of the pandemic, doctors are exposed to the risk of infection, long working hours, psychological distress, fatigue, occupational burnout and stigma. With the advent of the second wave of Covid-19 in India, once again, doctors prepare themselves to fight the battle against the unprecedented health crisis. The current study aims to assess burnout (Emotional Exhaustion, Depersonalization, Personal Accomplishment) and vaccination rates in doctors during the onset of second wave of Covid-19 in India. A convenience sample of 200 Government and Private Hospital doctors (23 to 63 years), who had sought full, single or no dose of Covid -19 vaccine(s) was taken. A single administration of Maslach Burnout Inventory–Human Services Survey was carried out. Data was examined using descriptive and correlational analysis. Age correlated significantly with all three components of burnout. Mann Whitney U and Kruskal Wallis tests were conducted to assess the difference in burnout rates w.r.t hospital type and number of vaccine doses sought by the participants. Significant differences were found between Personal Accomplishment of Government and Private hospital doctors. Implications and suggestions for future research have been discussed.

Keywords: *Burnout Rates, Covid-19, Doctors, Second Wave, Vaccination Rates*

Pandemics, a potential creator for the medical form of a Hobbesian nightmare - the war of all against all (Strong, 1990), are defined as "epidemics occurring over a very wide area, crossing international boundaries, and usually affecting a large number of people" (Porta 2014). The most recent pandemic that has wreaked a havoc in countries across the world is Covid-19, a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Originated in Wuhan, China, in December 2019 (Centers for Disease Control and Prevention, 2020), the disease has since spread worldwide and has been declared as a global pandemic by World Health Organization (WHO) (NPR, 2020; Nature, 2020).

In India, the first coronavirus case was reported in India on January 30, 2020, marking the onset of first wave of the deadly disease in the country. As of 18 June 2020, 366,946 Covid-

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19 cases and 12,237 deaths have been reported in India (Suryavanshi et al.,2020). The infection rate has been reported to be 1.7 in India, which is significantly lower than in some of the worst affected countries such as China, South Korea, Italy, the United States, and Iran (Indian Ministry of Health and Family Welfare, 2020; Indian Council of Medical Research, 2020). However, with a population of 1.3 billion (making India the second most populous country in the world), India has a limited amount of public health resources. Evidence demonstrates that India has 0.8 doctors per 1000 population (Worldbank, 2020) alongwith just 0.7 hospital beds per 1000 population (Worldbank, 2020).

Among the few studies from India examining health care workers at the initiation of the pandemic, reported rates of anxiety and depression were found to be of around 17 % and 12 % (Chew et al., 2020; Wilson et al., 2020) respectively. Moreover, as highlighted by World Health Organization (2020), being at the forefront of the global pandemic, the health workers are susceptible to psychological distress, fatigue, occupational burnout, stigma, and physical and psychological violence as well (Ahmed et al.,2020). An exhausted mental state negatively affects not only professional behavior (Dyrbye et al.,2010) but quality of care (Wallace, Lemaire & G Ghali, 2009) as well.

Studies have demonstrated that healthcare workers in India are mostly affected by internal and external stigma related to the Covid-19 virus and its impacts (Salvagioni et al.,2017; Menon, Padhy & Pattnaik, 2020). For instance, on 19 April 2020, the burial of a neurosurgeon who had died after contracting Covid-19 in Chennai was disrupted by a mob who attacked the undertakers. A similar incidence took place with a group of public health workers in Indore, who were trying to 'contact-trace' a person, were descended upon by a group of 100 people pelting stones and drove them away (Iyengar, Jain, & Vaishya, 2020).

Even though, much has been talked about the deteriorating mental health of doctors in India, limited scientific literature exists that focuses exclusively on the burnout rates of doctors amid the global Covid-19 pandemic that too in Indian context. Thus, it is imperative to address the issue of mental exhaustion levels that the doctors of our country are experiencing as they sail through the storm that has shaken the healthcare system of the country to its core.

Current evidence suggests a significant association between occupational burnout and age. While some studies have found the younger doctors to be prone to experiencing high burnout rates (Dinibutun, 2020; Chekole et al.,2020; Khasne, Dhakulkar, Mahajan, & Kulkarni, 2020). Others indicate that older doctors are more likely to develop metal exhaustion symptoms (Elhadi et al.,2020). Another factor contributing to the mental burden of doctors is the hospital type they are working in - Public (Heponiemi, Kouvonen, Sinervo, & Elovainio, 2013; Aslam, Mansoor & Suleman, 2013) and Private (Hafiz, Ima-Nirwana & Chin, 2018).

The current study attempts to assess differences in the burnout rates of government and private hospital doctors in the context of the ongoing pandemic, a time when the healthcare system of the entire nation is under threat.

During the first wave of Covid-19 pandemic itself, the World Health Organization and the Centers for Disease Control and Prevention identified healthcare professionals particularly doctors, as a population with significant elevated risk of being infected from the deadly

coronavirus. In view of this, India rolled out the world's largest vaccination drive on January 16, 2021 to vaccinate around 300 million priority groups against the coronavirus disease (WHO,2021). Approval was given to two Covid-19 vaccines - Covaxin developed by Bharat Biotech and Covishield from the Oxford/AstraZeneca stable manufactured by the Serum Institute of India (SII) - for emergency use in the country (Perappadan,2021).

While inoculation drives brought a ray of hope in the tumultuous times, controversies regarding the efficacy of these vaccines also sprung up (Voysey et al.,2021; Bhuyan, 2021), (Ella, Vadrevu, Jogdand, Prasad, Reddy, Sarangi & Bhargava, 2021), resulting in vaccine hesitancy and low turnout of vaccine recipients. According to a Times of India (TOI) survey (2021), healthcare workers had a general feeling that they were being used as "guinea pigs" by administering Covaxin on them. Consequently, the percentage of healthcare workers going for the Covaxin shot did not reach even 50%. The Sassoon General Hospital and 104 Health Advice Call Centre, reported that between 20th January to 20th February, 2021, 20% of the calls they received were regarding vaccine concerns and 3% regarding vaccination related events, made by doctors and nurses (Mascarenhas, 2021).

Thus, it is important to explore the extent of vaccination among doctors and understand the impact that being the 'guinea pigs' may have had on their mental health as they thrive to combat the fight against the novel coronavirus. Is getting immunized against the deadly disease adding to the mental burden that they are experiencing in these stressful times or is it aiding in relieving the same is a question that needs to be answered in an empirical manner.

With lockdown relaxations and a laxity in following Covid-19 appropriate behaviours, world is grappled by another wave of Covid-19. Majority of the western countries including UK, Belgium, Germany, Spain and USA declared a spike in Covid-19 cases in the summer of 2020 (Looi, 2020). As a result, doctors who had not recovered fully from the previous Covid-19 wave experienced fatigue and exhaustion yet again. A survey by Royal College of Physicians (2021) found that that despite the positive news about vaccinations, the pressures placed on doctors by the second wave of pandemic took a significant toll. Conducted across, England, Wales, Scotland, and Northern Ireland the survey reported 64% of the healthcare workers felt tired or exhausted, and 48% felt worried.

Moreover, a British Medical Association survey (2021), reported that 67% of doctors reported that their current levels of fatigue and exhaustion were higher than normal as they tackle a mounting second wave and a growing backlog of care, on top of the usual seasonal demand.

In India, a minor change in the Covid-19 cases trajectory that began towards the second half of February in Maharashtra and Punjab became a steady stream of increasing new infections of Covid-19 across the country in the first week of April, 2021. On March 31, the government reported that the entire country was at risk and the health infrastructure could be swamped (Mullick, 2021). Despite mounting fears regarding the severity of second wave of Covid-19 and its consequent impacts on the health care system of our country, to the best of my knowledge, till date, no research has been conducted, especially in the Indian context, in this regard. The current study aims to understand the burnout rates in doctors during the onset of the second wave of Covid-19 in India. The results obtained from the study would provide a baseline for the fatigue levels in doctors who are about to face a more gruesome version of the Covid-19 pandemic in the coming months.

METHODOLOGY

Objectives

1. To study burnout (Emotional Exhaustion, Depersonalization, Personal Accomplishment) and vaccination rates in doctors during the onset of second wave of Covid-19 in India
2. To study the relationship between age and burnout rates (Emotional Exhaustion, Depersonalization, Personal Accomplishment) in doctors during the onset of second wave of Covid-19 in India
3. To assess differences in burnout rates (Emotional Exhaustion, Depersonalization, Personal Accomplishment) of Government and Private hospital doctors during the onset of second wave of Covid-19 in India
4. To examine differences in burnout rates (Emotional Exhaustion, Depersonalization, Personal Accomplishment) of doctors who have taken full, single and no dose of vaccine jabs during the onset of second wave of Covid-19 in India

Hypotheses

H_1- A statistically significant relationship exists between age and burnout rates (Emotional Exhaustion, Depersonalization and Personal Accomplishment) of doctors during second wave of covid-19 in India

H_2- A statistically significant difference exists in burnout rates (Emotional Exhaustion, Depersonalization and Personal Accomplishment) of Government and Private Hospital doctors during second wave of Covid-19 in India

H_3- No statistically significant difference exists in burnout rates (Emotional Exhaustion, Depersonalization and Personal Accomplishment) of doctors who have sought full, single and no dose of vaccine jabs during the onset of second wave of Covid-19 in India

Sample

For the current study, a convenience sample of 200 doctors (101 females, 99 males) within the age range of 23 to 67 years (M = 40.5250 ± 1.41) working in government (64.00%) and private (36.00 %) hospitals across India was taken. The sample consisted of doctors who have either received full dose (66.50 %) or partial dose (24.00 %) or no dose (9.50%) of Covishield (70.00%) or Covaxin (20.50%) vaccine jabs.

Instrument

Maslach Burnout Inventory–Human Services Survey (MBI-HSS). The burn out rate of doctors was measured by carrying out a single administration of Maslach Burnout Inventory–Human Services Survey (MBI-HSS) (Maslach, Jackson, Leiter, Schaufeli & Schwab,1986). The 22-item questionnaire explores the burnout rates of doctors, physicians, nurses in terms of Emotional Exhaustion (EE) (9 items), Depersonalization (DP) (5 items) and a reduced sense of Personal Accomplishment (PA) (8 items). Each response is marked on a 7-point Likert scale ranging from 0 (indicating never) to 6 (indicating always). A total score of each subscale is calculated that states the degree of burnout a participant is experiencing at the moment- higher the EE and DP subscale score and lower the PA score, stronger the degree of burnout rate (Maslach, Schaufeli & Leiter,2001; Sahraian, Fazelzadeh, Mehdizadeh & Toobaee, 2008; Shanafelt, Bradley, Wipf & Back, 2002; Luan, Wang, Hou, Chen & Lou, 2017). The MBI-HSS scale displays high reliability and validity (Maslach, Schaufeli & Leiter, 2001; Kilfedder, Power & Wells,2001; Coker & Omoluabi, 2009).

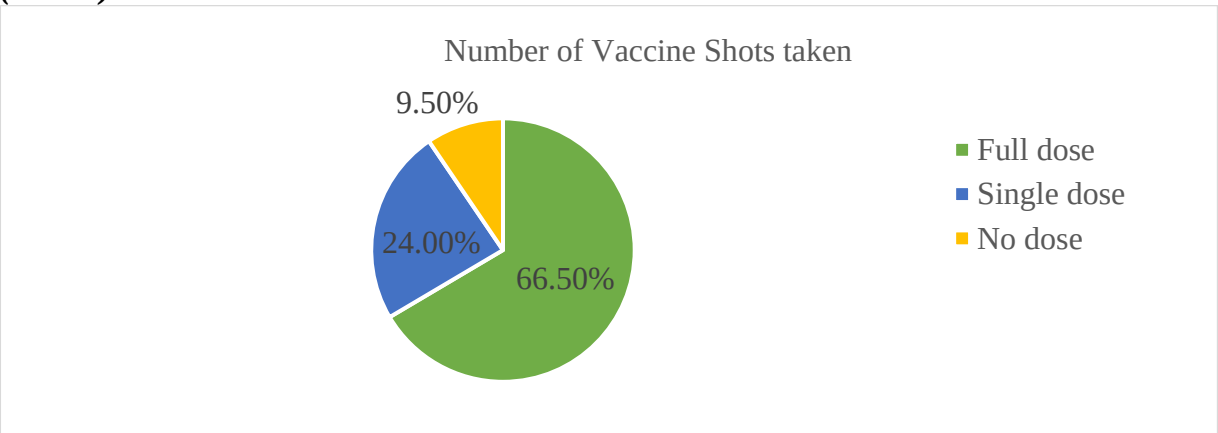
Procedure

As India was encountering a resurgence in Covid-19 cases, data for the current study, had to be collected via online mode. For this purpose, a google form was created that consisted of demographic details (name, age, gender, vaccinated or not, vaccine type etc.) as well as the 22 items from Maslach Burnout Inventory– Human Services (MBI- HSS) (Maslach, Jackson et al.,1986). Research participants were contacted on various social media platforms (LinkedIn, Instagram, Facebook and WhatsApp) and were requested to fill the forms as honestly as possible. Also, participants were assured that their responses will be kept confidential and be utilized only for research purposes. Prior to participants filling out the google form, it was ensured that their queries regarding the research were clarified over a call or text(s).

Data was collected in the first week of April, 2021. Thereafter, data analysis was carried out using SPSS version 20.0 and results obtained were interpreted in light of the existing research relevant literature.

RESULTS

Figure 1 Percentage of Doctors with Full, Single and No Dose of Vaccines in the sample (N=200)



As it can be seen from figure 1, a majority of the participants (66.50%) had sought full dose of vaccination followed by single (24.00%) and no dose (9.50%) of vaccination jabs during the onset of the second wave of Covid-19 in India.

Table 1 Mean, Standard Deviation of Emotional Exhaustion, Depersonalization, Personal Accomplishment scores and Age (N= 200)

Variable	M	SD
Emotional Exhaustion	19.53	1.33
Depersonalization	7.24	6.37
Personal Accomplishment	32.60	9.27
Age	40.52	1.41

As shown in Table 1, the mean values for Emotional Exhaustion (*M* =19.53 ± 1.33), Depersonalization (*M* =7.24 ± 6.37) and Personal Accomplishment (*M* =32.60± 9.27) suggest that participants experienced a moderate level of burnout at the onset of the second wave of Covid-19 in India. Also, the mean age of the sample (*M* =40.52± 1.41) indicates that most of the participants were in their middle adulthood at the time of data collection.

Table 2 Correlations between Emotional Exhaustion, Depersonalization, Personal Accomplishment scores and Age (N= 200)

Variable	Emotional Exhaustion	Depersonalization	Personal Accomplishment
Age	-.24**	-.30**	.26**

Note: ** Correlation is significant at the 0.01 level (2-tailed)

As given in Table 2, a statistically significant relationship exists between Age and all the three dimensions of Burnout – Emotional Exhaustion (ρ =. -.24, $p < 0.01$), Depersonalization (ρ = -.30, $p < 0.01$) and Personal Accomplishment (ρ =.26, $p < 0.01$). In other words, increased age is likely to be associated with less mental fatigue and more satisfaction with professional achievements. Thus, the hypothesis that a significant relationship exists between age and burnout rate of doctors during the onset of second wave of Covid-19 in India was fully retained.

Table 3 Results of Mann Whitney U Test Examining Differences in Burnout rates of Government and Private Hospital Doctors (N=200)

Burnout Component	U	p
Emotional Exhaustion	4535.00	.85
Depersonalization	4511.00	.80
Personal Accomplishment	3573.50	.008

As shown in Table 3, no statistically significant difference was found between Emotional Exhaustion (U=4535.00, $p > .01$) and Depersonalization (U=4511.00, $p > 0.01$) of Government and Private Hospital doctors during the onset of second wave of Covid-19 in India. However, a statistically significant difference was found in case of the Personal Accomplishment (U=3573.50**,** $p < 0.01$) of doctors working in Government and Private Hospitals during second wave of Covid-19. Thus, the hypothesis in this regard was partially retained.

Table 4 Results of Kruskal Wallis Test Examining Differences in Burnout Rates of Doctors with Full, Single and No Dose of Vaccination (N=200)

Burnout Component	$\chi 2$	p
Emotional Exhaustion	1.21	0.55
Depersonalization	1.89	1.89
Personal Accomplishment	0.33	0.39

As given in Table 4, no statistically significant difference was found between Emotional Exhaustion ($\chi 2$=1.21**,** $p > 0.01$), Depersonalization ($\chi 2$=1.89**,** $p > 0.01$) and Personal Accomplishment ($\chi 2$=0.33, $p > 0.01$) of doctors who sought full, single and no dose of vaccination jabs during the onset of second wave of Covid-19 in India. Thus, the hypothesis that no significant difference exists between the burnout rates of doctors who have taken full, single and no dose of the two vaccines available in India for emergency use was fully retained.

DISCUSSION

The aim of the current investigation was to understand the burnout and vaccination rates in doctors during the onset of the second wave of covid-19 in India. The mean value for Emotional Exhaustion scores (Table 1), indicate a moderate emotional exhaustion in the

participants. In other words, at the onset of the second wave of Covid-19, participants seem to frequently feel emotionally overwhelmed and 'trapped' in the situation. For Depersonalization as well, the mean scores reflect a moderate level of cynicism in doctors toward their job and patients. There are two aspects to the current findings that need to be focused upon. Firstly, the participant's scores are not demonstrating excessive burnout rate. This is perhaps because their commitment (particularly affective commitment) toward their job and patients has surpassed their threshold of working under pressure. Research evidence (Gemlik, Sisman & Sigri, 2010; Tosun & Ulusoy, 2017) has shown a negative relationship between organizational commitment and burnout rates in doctors. Immense dedication toward their profession and their selfless attitude (Pandey & Sharma, 2020) seems to be helping doctors in maintaining their mental balance and efficiently coping with the extraordinary demands of their job during the pandemic.

However, the participant's scores reflecting moderate burnout (not low burnout) is the other aspect of the current study's finding that needs to be paid attention to. Despite their best efforts to maintain their calm and composure, doctors seem to be experiencing mental fatigue that too on the very beginning of the second wave of covid-19. A probable reason for the same could be their incomplete recovery from the struggles - mental and physical of the previous wave. During the first wave of Covid-19, from the grief of watching patients to grasp for their breath to informing family members about their deaths, doctors have been through an emotional turmoil (The New Indian Express,2020). Perhaps, when doctors needed space and time to regain their mental strength, the second wave of this health crisis has once again compelled them to selflessly serve the country and prioritize the needs of the citizens over their own mental health.

In case of the third component of Burnout, the mean value suggests a moderate level of Personal Accomplishment. In other words, the participants are likely to be content with the performance at their job of treating and saving patients but not immensely. Also, it needs to be noted that though the level of Personal Accomplishment is designated as moderate (as per the MBI- HSS scoring key), the mean value for the same is just one point above the low Personal Accomplishment category. They are likely to experience high burnout if they continue to work under pressure without the provision of psychological support. Their best efforts to remain satisfied with their work performance and positively evaluate the worth of their job during these challenging times may head south. Thus, it is imperative to pay heed to the mental health of the doctors as they prepare themselves for fighting against another wave of Covid-19.

The spearman correlation value suggests that age shares an inverse relationship with Emotional Exhaustion (Table 2). In other words, younger doctors are more likely to feel overwhelmed by challenging and demanding situations such as the covid-19 pandemic. This is perhaps because, as found by Rashid and Faisal (2020), young doctors experience extreme emotional vulnerability as working at ground zero with Covid positive patients incites cognitive dissonance of putting away worries about their own safety in to fulfill their professional obligation. In addition, an essential element of the Indian culture is the practice of staying with one's parents even during adulthood. This in turn puts the responsibility of looking after their parent's needs- emotional as well as financial entirely on the shoulder of the young people (Dhar,2020). With high risk of contracting the virus as they work with patients and exposure of the same to their loved ones, many doctors have been staying away from their family for months during the pandemic (Mathur,2020*;* Shankar,2021). The

concern for their parent's health and children (if they have) may further contribute to the emotional exhaustion that they are already facing at the professional front (Agrawal, Sharma, Dabas, & Mishra, 2021).

Akin to Emotional Exhaustion, age was found to be negatively linked to Depersonalization. The finding suggest that young doctors are more likely to negatively evaluate their job and its associated outcomes during the onset of the second wave of Covid-19. This is perhaps because being young, these doctors don't have an exposure to a wide spectrum of medical emergencies and the effective ways to cope with the same. The level of resilience that the current unprecedented times are demanding has probably outweighed the medical expertise that they have gained till date. This may increase the likelihood of them developing a cynical attitude not just toward their job but also their colleagues and/or patients.

In case of Personal Accomplishment and age (Table 2), a significant positive correlation exists between the two variables. In other words, older doctors are more likely to be satisfied with their professional achievements during the onset of the second wave of Covid-19. This is perhaps because, older doctors have mastered the art of embracing every aspect of their job–positive or negative. With their previous work experience, doctors seem to have become wiser in terms of the awareness regarding what is under their control and what is not. As Covid-19, once again, hit the already crumbling health care system of our country, they have probably made peace with the fact that they are putting their best foot forward to come out of the current health emergency. Moreover, they seem to be investing their mental energy on the achievements, even the minuscule ones, that they are gaining even in these challenging times.

No statistically significant differences were found between Emotional Exhaustion and Depersonalization of doctors working in Government and Private Hospitals at the onset of the second wave of Covid-19 (Table 3). A probable reason for the finding could be that the current health crisis has been a threat to the entire healthcare system of the country including government and private hospitals. From working relentlessly in PPEs and multiple layers of face masks for long hours to watching people die in front of their eyes, Covid-19 has been a traumatic experience for doctors across all sectors. With the advent of the second wave, all doctors irrespective of the hospitals they are working in, once again brace themselves up for another round of emotional turmoil that lies ahead of them.

Unlike Emotional Exhaustion and Depersonalization, a statistically significant difference was found between Personal Accomplishment of Government and Private Hospital doctors. The current finding can be attributed to the fact that private doctors are extrinsically more satisfied than the government hospital doctors (Singh,2017). With more advanced infrastructure at workplace and a good pay (Singh,2017), these doctors seem to be evaluating their jobs with a positive mindset even in these challenging circumstances. The financial security that comes with their high salaries is probably helping them in feeling accomplished not just in their professional but personal life as well. As they gear up for another gruesome wave of covid-19, the participants seem to be sharing a differing mental state in terms of the professional achievements they have gained till now in their medical career.

No significant difference was found between the Emotional Exhaustion, Depersonalisation and Personal Accomplishment of doctors who sought full, single and no dose of vaccine jabs

(Table 4). The current finding can be attributed to the demographics of the present study. Out of 200 doctors most of the doctors (66.5%) had taken both shots of vaccine followed by doctors who had sought single (24%) and no dose (9.5%) of the vaccine shots (Figure 1). The results thus obtained are likely to be skewed, giving an unclear picture of the statistical differences that may exist between burnout rates of doctors with varied vaccine doses. Another possible explanation for the current finding can be understood in light of the factors (variables) that may be moderating the relationship between burnout rates and number of vaccine doses taken. Variables such as presence of comorbidities or a chronic disease or allergies to specific chemicals may play a role in increasing or reducing the burnout rates of the participants. Thus, further research needs to be conducted in this regard with a focus on the factors associated with vaccine anxiety or hesitancy and/or unwillingness.

From the above discussion, it can be concluded that the participants of the current study seem to be moderately burned out during the onset of the second wave of Covid-19 in India. Despite mounting controversies regarding Covid-19 vaccines, majority of the participants had taken at least one shot of the vaccine. While, the young doctors are more prone to burnout, the older ones are embracing their professional achievements as they navigate through the current challenging times. Also, significant differences exist in the personal accomplishment levels of Private and Government Hospital doctors. Moreover, differences in burnout rates w.r.t number of vaccine shots taken require further research.

These findings imply that at the very beginning of the second wave of Covid-19, a time when the peak hasn't hit India yet, the frontline warriors are already feeling burned out. Their mental health in the current circumstances is at a volatile stage wherein it is likely to deteriorate if they are not given the time and space that they need to recover and regain their mental strength. Thus, the need of the hour is to provide these doctors with a platform wherein they can share and express the agony and misery that they have been facing for the past one year. Psychological interventions focusing on developing resilience and healthy coping strategies can help these doctors, especially the younger ones, to face the challenges that the future beholds, with utmost mental capacity.

For future research, using a more representative sampling technique may enhance the generalizability as well as predictability of the study findings. Also, collecting data and comparing the sample w.r.t variables such as marital status, parental status, years of work experience, presence of a chronic disease could be helpful in gauging a nuanced picture of doctor's burnout rates during the onset of second wave of Covid-19 in India. Also, conducting one to one telephonic interview with the participants may further contribute to the richness of the data collected. Moreover, despite sincere efforts to understand the mental state of the doctors as they gear up for another round of health crisis, the effects of social desirability on participant's responses cannot be eliminated fully.

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