

Awareness and Psychosocial Effects of COVID-19 Pandemic on Health Care Professionals and Medical Students across the State of Maharashtra

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ABSTRACT

COVID 19 - The pandemic which has advanced globally in mere time, is a disease resulting from an infection by newly discovered strain of coronavirus- ' SARS-coV-2'. The healthcare professionals, are working tirelessly, and are honoring their services towards the general population, despite the threat of getting infected. Our study assessed the knowledge and attitude of the medical professionals towards this pandemic, and also discussed the effects that this crisis is causing on their psychosocial stability. From the 1611 responses collected through all over the state of Maharashtra, the results concluded that out of all the healthcare professionals 20% were comorbid with hypertension and diabetes. 71.4% medical executives took appropriate training before joining their COVID duties. 43% voted "air borne" mode being the primary route of transmission. 37.2% workers used the face mask in their hospitals even before the onset of this pandemic, while 48% medical professionals changed their facemasks once every day. 74.8% of these were trained about the prime subject of proper "hand washing". 43.5% voted that the windows of the COVID wards should be kept tightly closed. 14% believed that antiviral drugs along with antiretroviral drugs should be the treatment of choice in the absence of vaccine. On the other hand 21.3% had an anxious feeling regarding the pandemic, due to the stigma of the infection 53% voted to wear PPE kits even when coming in contact with non-covid patients, as a result it was seen that 27% opted to avoid their duties due to the risk of getting infected, while 55.8% were in the favour to carry on the hospital duties amidst the pandemic. 21.6% doctors along with 28.2% nurses got the coronavirus infection while on postings. Due to all the stress 35.1% medical professionals suffered from insomnia as a result of which 44% had frequent temper out bursts, which led to difficulty in spending quality with families.

Key words: Covid-19, Psychological effects, Pandemic, Healthcare professionals and medical students

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INTRODUCTION

The International Committee on Taxonomy of Viruses (ICTV) [1] termed this infection as, COVID-19, which was previously known as 2019-nCov [2], has turned out to be a rapidly expanding pandemic. The vast aura of this pandemic is leading to anxiousness and uncertainty not only in the general population but also healthcare industry.

This vigorous spread of the pandemic has become alarming for medical staff as well as general population.

Healthcare professionals-The first line fighters against COVID 19 are facing an elevated risk of acquiring the infection by getting exposed to lengthy, tiring shifts to compensate the health requirements

The patients who showed symptoms of viral pneumonia were the first cases reported and diagnosed as COVID 19 in Wuhan, China [3]. This pandemic was declared as an emergency On January 30 and all the nations globally were asked to make efficient efforts to break the chain of transmission of COVID 19 [4]. This infection was declared as a pandemic on March 11, 2020 [5]. The very first death of an 61 years elderly patient due to COVID was announced by China on 11 January [6]. The infection has escalated through the globe rapidly [7]. This pandemic is an additional load for the medical along with the tiring hours leading to psychological stress, burnout, and fatigue [8].

COVID-19 is an infection having mainly droplet transmission, also faceo -oral, and direct contact routes

have been identified, and has an incubation period of 2-14 days [9]. Till today, no accurate treatment or vaccine has been explicitly developed to treat COVID-19. Therefore, applying preventive measures to control this infection is the line of treatment. Covid response teams have been set up, which is helping in raising funds that are aimed to control the spread, offer prompt treatment, and reduce financial and communal impact.

METHODOLOGY

Study design

Cross sectional study.

Study population

Qualified healthcare professionals and medical students across various hospitals and colleges across the state of Maharashtra.

Study period

June 2020–July2020.

Study setting

The survey will be conducted in the form of an online questionnaire which will be sent to various eligible participants including medical students, nurses, Asha workers, COVID-19 counselors, interns, residents and medical specialists in the state of Maharashtra through the links which will be shared by using the platform of social media.

The eligible study participants include medical practitioners, post graduates, residents, medical interns and medical students from across the state even those who are stuck in lockdown or at their home or both working and non-working doctors in covid19 wards. The participants will participate voluntarily in this survey.

The survey will be done after gaining the approval from the institutional ethical committee (IEC). Electronic consent will be taken from all the eligible responders before answering the questionnaire. Based on the guidelines for clinical and community management of COVID-19 by the National Health Commission of the People's Republic of China [10], a questionnaire will be created. This will consist questions elaboration the socio-demographic status of the participants. Other questions would be based on awareness and psychological effects of the pandemic. Questions will also be adapted from the insomnia Severity Index [ISI] [11], Patient Health Questionnaire 2 [12].

The question will be based on socio-demographic criteria for Age, gender, education, place of practicing medicine/undertaking medical education. Rest of the questions will be added to assess the knowledge and attitude of the participants towards factors such as route of infection, safety measures, possible treatment and ways to stop the chain of transmission. Also, the psychosocial effects of the pandemic will be analysed using the basis of insomnia severity index (ISI) [11], and various attributes

regarding the emotional health of the participants.

For the process of data collection a convenient sampling method will be used which will be presented in the form of frequencies and percentages. Illustrative statistics will be presented for all the categories based upon the responses.

Selection criteria

All the participants should be either certified healthcare professionals or medical students.

Implications

The results of this survey will help to assess the awareness of COVID 19 and the effects it is causing on the emotional health of the participants.

Methodology in PICOT format

P (Population)

More than 500 health care professionals and medical students, as Study participants.

I (Intervention)

Assessment of views regarding knowledge and psychological effects of health care professionals and medical students.

C (Comparison)

Not applicable.

O (Outcome)

Identification of knowledge of preventive measures taken, and its psychological as well as psychosocial effects and analyzing it in percentages.

T (Time)

Study was conducted over a duration of 1 months.

Measurements

Questionnaire based evaluation of opinions.

Quantitative variables

None.

Statistical methods

The inputs will be noted from questionnaire, statistically and will be analysed in percentages.

RESULTS

An online survey was conducted amongst the healthcare professionals across the state of Maharashtra, assessing factors such as awareness and attitude, anxiety experience and the mental perspective of the participants towards the COVID-19 pandemic. A total of 1611 healthcare professionals across Maharashtra responded to the survey, wherein maximum representation was seen in the district of Wardha, followed by Mumbai, Pune and Nagpur (Figure 1).

As shown in Table 1 the majority of the responders

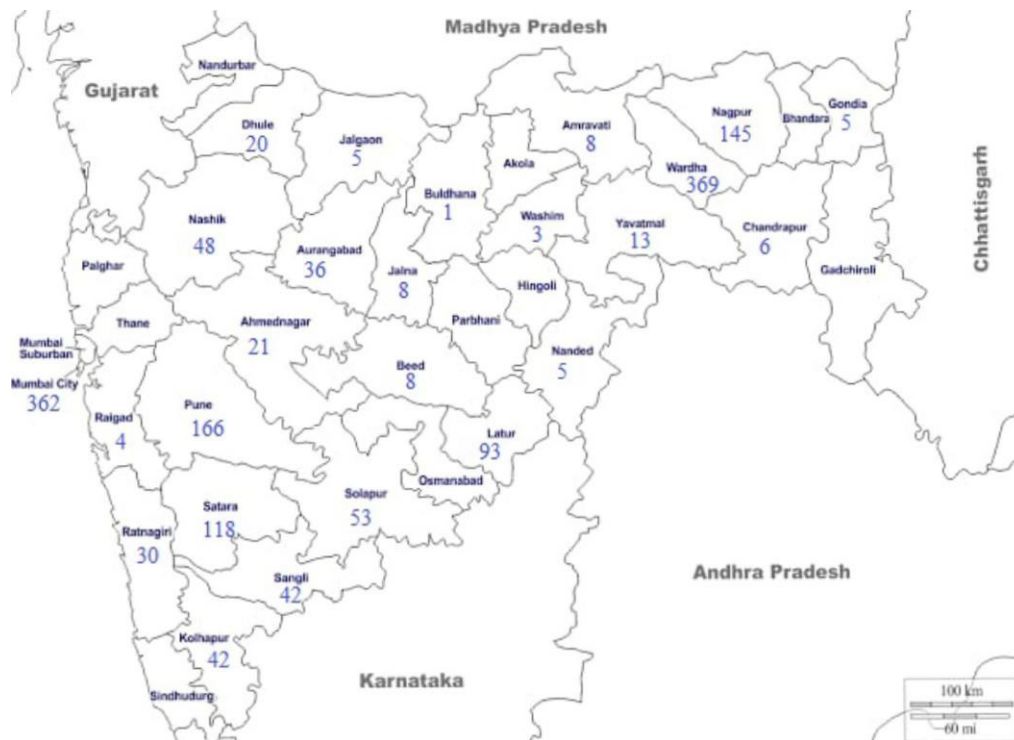


Figure 1: Healthcare professionals across Maharashtra responded to the survey.

Table 1: Participant characteristics at baseline.

Characteristics	Subgroups	Overall (n)	Percentage
Sex	Female	763	47.44%
	Male	848	52.60%
Age group	18-30	940	58.30%
	31-45	441	27.40%
	>45 yrs.	230	14.30%
	Doctors (Clinical/Spec./Surgeon)	471	29.10%
Profession	PG (Resident)	171	10.60%
	Intern	134	8.30%
	Nurse (Clinical)	85	5.3%
	Medical student	595	36.90%
	Asha worker	155	9.80%
	Medical history	CHD	36
CLD		19	1.13%
Hypertension		173	10.70%
Diabetes		145	9.00%
Obesity		111	6.90%
None		1127	69.90%

were from the age group 18-30 yrs.- 58.3% [n=940]. Approximately 52.6% [n=848] participants were male. Among the various subgroups, 29.1% [n=471] of the doctors, 10.6% [n=171] residents, 8.3% [n=134] interns, 5.3% [n=85] nurses, 36.9% [n=595] of medical students and 9.8% [n=155] Asha workers completed the survey. Amongst the responders, 10.7% [n=173] and 9.0% [n=145] healthcare professionals were co-morbid with hypertension and diabetes mellitus respectively.

Part 1: Awareness about COVID-19 pandemic

A considerable number of participants were passably aware about the basic elements of the disease as shown in (Figure 2). Out of the total participants, 71.4% [n=1150]

took appropriate training regarding the details about safety measures to prevent the outspread of coronavirus infection, before joining their respective duties during the pandemic. Comparatively 43% [n=693] healthcare professionals answered in the favour of mode of infection being 'air-borne' or 'close direct contact' with the infected patient. Also 62.9% [n=1013] participants voted that 'close-contact' is particularly defined, either as, to be in Proximity of 6 feet I.e. 2m distance with the infected patient or having a direct contact with the infectious secretions from the patient.

Out of the total 1611, 37.2% [n=600] participants were using face masks during the hospital rounds and duty

hours, even before the onset of this pandemic. The scenario during the pandemic indicated that 48% of the healthcare professionals predominantly changed their face masks daily once, in the subgroups, nurses with 64.7% [n=55], doctors with 46.7% [n=220] and 49% [n=76] residents agreed to this motion as indicated in Figure 3.

Concerning the most important safety measure to follow during the pandemic 'the hand hygiene' it was seen that only 74.8% [n=1205] healthcare professionals had been properly advocated regarding, keeping a good hand hygiene, 91.6% [n=142] Asha workers, 88.2% [n=75] nurses and 71.7% [n=338] doctors undertook the training (Figure 4).

Results indicated that 59.3% [n=955] responders were being attentive and were keeping themselves updated with the progress of this pandemic from the very start. Only 84.7% [n=1365] participants believed that the patients infected with the Coronavirus must be isolated/quarantined. Also, while 43.5% [n=700] of the total felt that the windows of the COVID ward should be tightly closed, the other 29.9% were inclined towards the opinion of keeping the windows open (Figure 5).

It was seen that 14% [n=226] of the total responders believed that in the absence of a specially designated

drug, the appropriate treatment for the infection would be antiviral/antiretroviral therapy. While 18.7% [n=301] believed that only supportive treatment was the way to go (Figure 6).

Part 2: Mental perspective and psychosocial inhibitions during the pandemic.

On analyzing the results obtained from the survey it was found that a promising number of 50.2% [n=809] healthcare professionals had an optimistic mind-set towards the pandemic, though 21.3% [n=343] also were feeling anxious enough due to the stress from the hectic hospital duties and hardly any time to rest, during the pandemic (Figure 7).

Due to the stigma of this infection, 73.1% [n=1178] healthcare professionals felt the need to wear a medical protective kit when coming in contact with the bodily secretions of a non-infective patient. Moreover amongst all, a major 53% [n=854] participants insisted on wearing protectives such as face shield, N95 mask, gown and gloves even while examining patients with non-infectious complaints such as hypertension and diabetes mellitus.

As analysed from (Figure 8A) during this global crisis, 76% [n=358] doctors, 81.8% [n=140] residents and

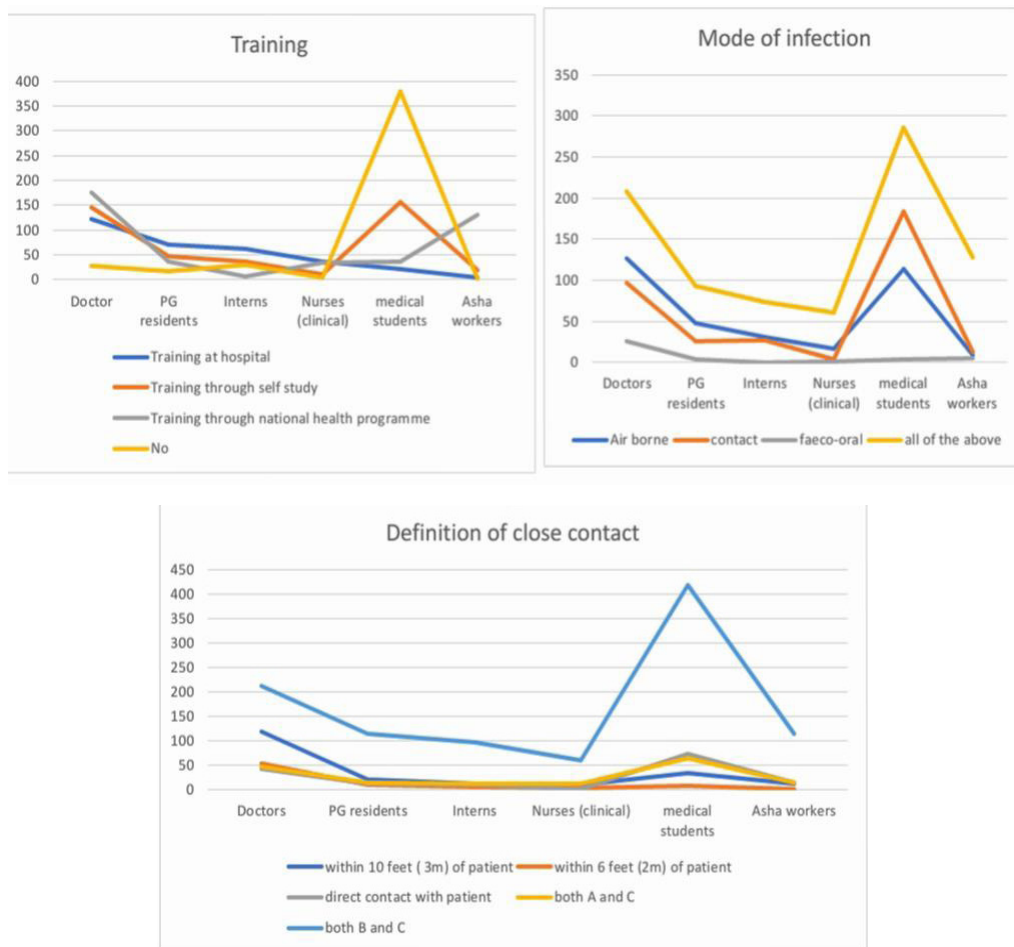


Figure 2: Awareness about COVID-19 pandemic.

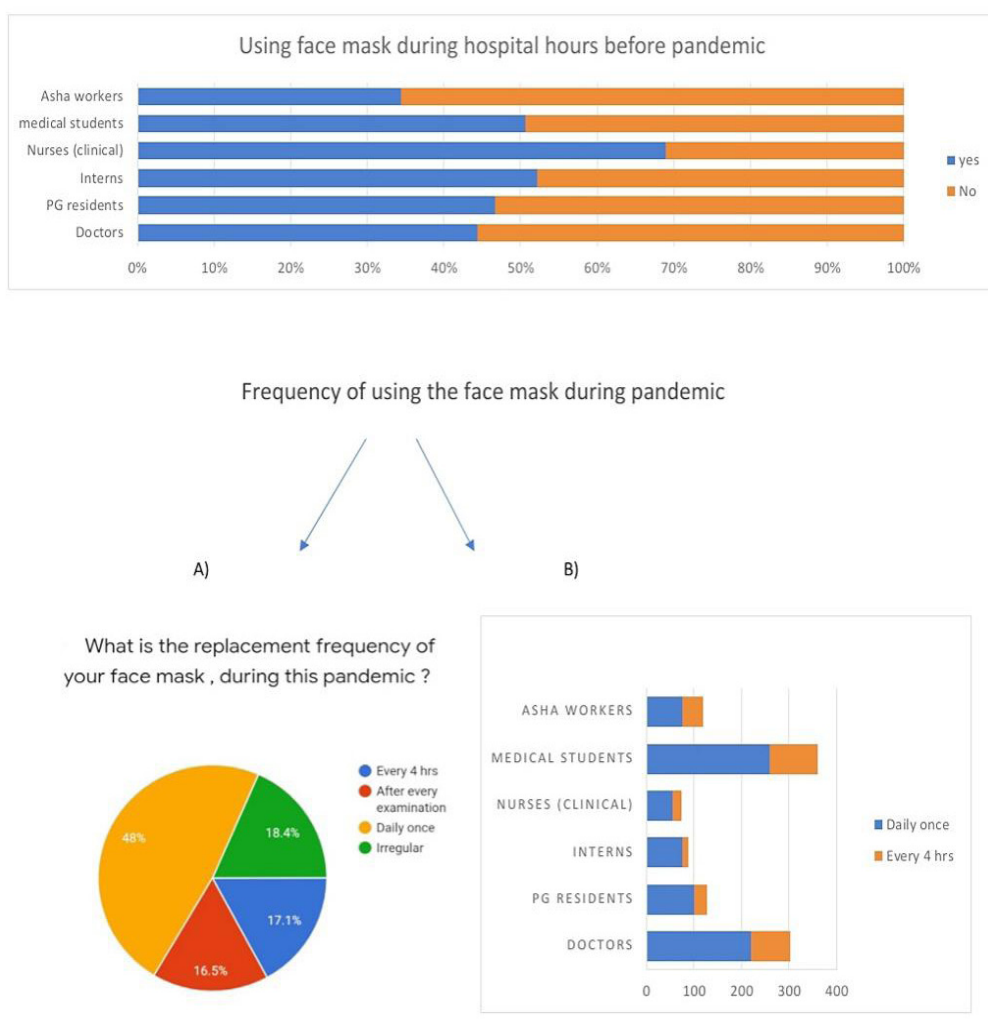


Figure 3: Using face mask before and after pandemic.

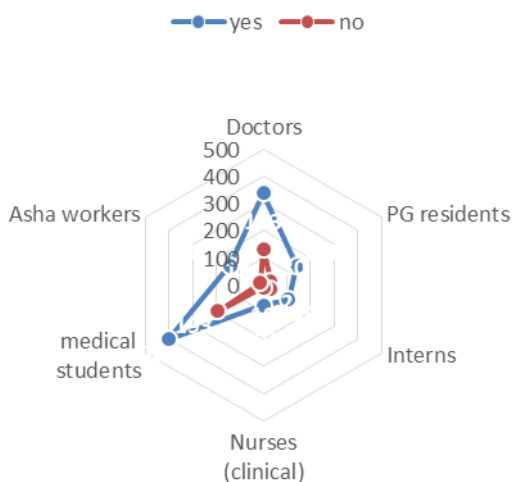


Figure 4: Maintenance of hand hygiene.

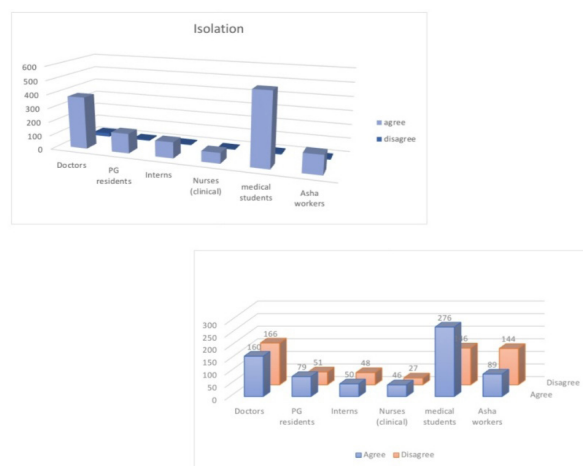


Figure 5: Isolation.

90.6% [n=77] nurses considered themselves obliged to serve patients suffering from Covid infection and terminal illness. While it was seen that 27% [n=435] of all the responders would avoid coming in contact with the patients with symptoms suggestive of Covid infection due to the issues of putting family health at jeopardy

and disease related stress, 11.6% [n=18] Asha workers, 16.5% [n=14] nurses answered in favour of avoiding the risk. As shown in (Figure 8B) 55.8% [n=899] healthcare professionals made a strong statement by voting to serve for the community in any given crisis, and to execute their hospital duties without fearing of any risk of getting infected. Among all the participants, While

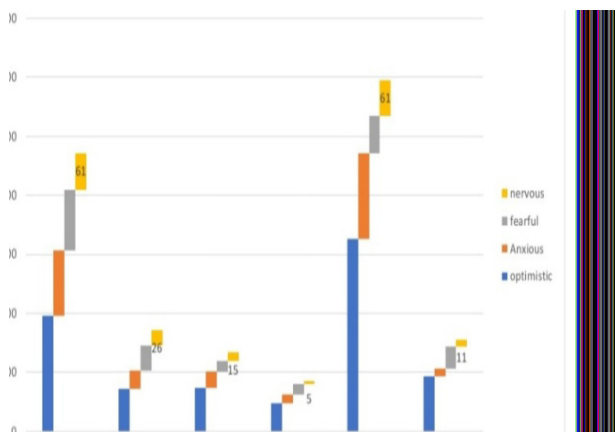


Figure 6: Supportive treatment.

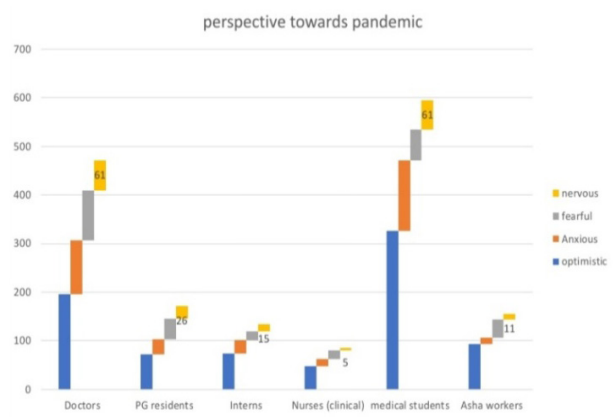


Figure 7: Perspective towards pandemic.

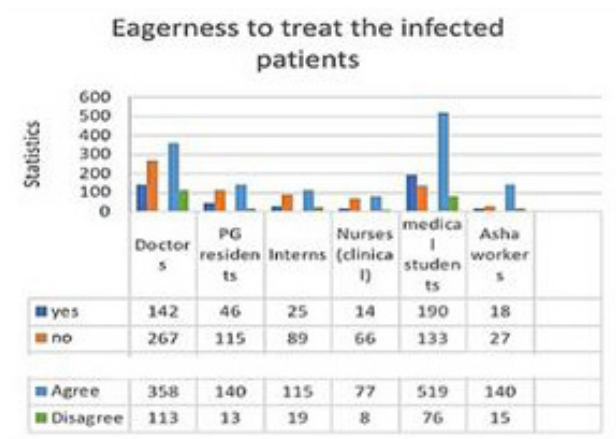


Figure 8A: Eagerness to treat the infected patients.

pursuing their duty to treat the Covid infected patients, 21.6% [n=102] doctors along with 28.2% [n=24] clinical nurses working in Covid wards and 46.5% [n=72] Asha workers got infected with the Coronavirus disease, who later on were completely recovered.

Part 3: Anxiety towards the COVID-19 pandemic

Drawing from data mentioned in (Table 2), 21.3% [n=343] of all responders, feel anxious during the pandemic. 35.1% healthcare professionals agreed on experiencing difficulty in getting a healthy sleep due to stress at hospital, as a result 37.4% participants were feeling tensed or stressed during the hospital duty hours. In our study, 44% medical executives affirmed of having frequent temper outbursts at work, especially during this pandemic, ultimately making it difficult to have spent quality time with family and friends, 35.4% medical practitioners agreed to this.

DISCUSSION

Pandemics, which are periodic in occurrence, affect the community drastically leading people to face challenges. Often it is seen that the society is not prepared to fight these situations due to lack of awareness. These pandemics leave intense aftereffects which have serious influence on the mental health, creating fear and anxiety, influencing the behaviour in the given population. In this crisis, medical executives are affected in one way or the other and are at a higher risk of developing the infection. Creating awareness regarding the clinical aspects is

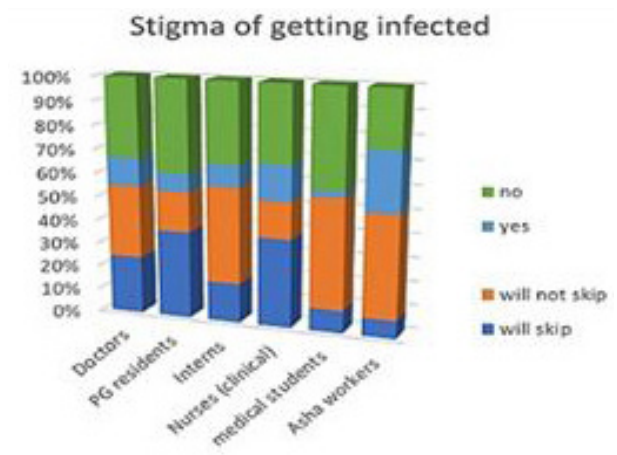


Figure 8B: Stigma of getting infected.

Table 2: Anxiety related to COVID-19 pandemic.

Items	% of responses who feel anxious (Often and always), N=1611					
	Doctors (n=471)	PG (Residents) (n=171)	Interns (n=134)	Nurses (Clinical) (n=85)	Medical students (n=595)	Asha workers (n=155)
During this pandemic how often are you experiencing difficulty in sleeping?	51.80%	57.9%	44.80%	62.60%	44.20%	49.70%
During this phase how often do you feel tensed or stressed?	52.20%	47.90%	60.40%	50.60%	58.80%	58.10%
How often are you experiencing temper outbursts?	55.20%	49.10%	40.30%	63.50%	44.90%	47.70%
Difficulty in spending quality time with friends and family?	62.40%	62.60%	64.90%	62.40%	32.30%	56.10%

needed [13]. Thus, this study attempted to evaluate the overall knowledge of covid in healthcare professionals. More than 400 individuals have been confirmed positive in India, as updated by the Indian Council of Medical Research [14]

The Indian health ministry recently suggested considering medical undergraduate students for the covid duties, which would help in overcoming the shortage of the medical executives during this pandemic [15] This proposal would help to overcome the shortage of healthcare professionals and potentially provide care to a large number of people. Hence, the medical students were also included in our study. According to a survey by Modi, et al. that took place in 2020, medical practitioners and students from the Mumbai zone exhibited consciousness of COVID-19 with a percentage of 71.2% accurate responses [16]. It was seen that awareness among medical students was comparatively higher than any other clinical/non-clinical branch. Instead in our study it came to highlight that though the medical students had an optimistic view and were ready to fight the pandemic, due to the less hospital experience, and as the educational sessions were concluded, they were lacking in proper training and so that appropriate knowledge. It shows that it is rather very important to get the medical students acquainted with the accurate attributes of the COVID-19 pandemic and train them to perform their hospital duties efficiently and safely considering the situation. In our study it was seen that Doctors along with nurses and Asha workers were notably more aware with the situations of this pandemic. 71.4% participants took appropriate training before starting the hospital duties. 62.9% of the staff defined the term "close contact" correctly, ensuring that the hospitals had a proper process for screening patients. The CDC has also published other key definitions providing Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease [17] the healthcare professionals working tirelessly in the COVID ward being at outmost risk, require immense safety measures to ensure the smooth working. It was a positive conclusion from our study that the medical staff was well appraised with the knowledge about the pandemic. A previous study showed that, Nurses along with the doctors had better knowledge regarding the pandemic [16] A survey done in the kingdom of Saudi Arabia amongst the healthcare workers depicted rather poor knowledge about emerging infectious diseases and self-reported infection control practices were found to be atrocious [18]. A previous study concluded that healthcare professionals often have better awareness, positive attitudes towards pandemics making them experiencing low levels of anxiety [19]. Though a study reported, poor knowledge and inaccurate understandings of healthcare professionals required instant training [20]. In a study held in Trinidad and Tobago in 2016, after the H1N1 epidemic, it was seen that majority proportion of the

general public was unaware of the seriousness and preventive measures of the epidemic [13].

This study encased an important trait showing that 37.2% of the medical staff of the total responders was using the Face mask during the hospital duties even before the start of the pandemic. The awareness among the medical staff was good regarding the proper undertaking of safety measures to ensure a healthy environment. 48% responders believed that changing the face mask once daily was an appropriate measure, while a number of staff believed that changing of the mask after every clinical examination was essential. Regarding this point, in a study conducted in Mumbai, it came forward that. A controversial advice to be considered is of prevention of the usage of widespread of masks, to avoid the shortage [21]. A concerning conclusion from our study came that only 74.8% of the total responders have had undergone the most important aspect of 'hand hygiene' amidst of the pandemic. To improve the arena of hand hygiene is the foremost need of the time. Proper training could help in reducing the rate of getting infected immensely not only amongst the medical staff but across the community. World Health Organization has given the "Five Moments of hand hygiene" that defines key moments when healthcare professionals must carry out hand hygiene [22].

On a controversial question, that whether the windows of the COVID ward be kept open or closed, we received a vague response, where 43.5% staff were of the opinion that windows should be closed, other 29% were inclined in opposite direction. To clear the view here, no specific guidelines have been issued regarding the matter, it is of the opinion that if the ward is situated in rather populated surroundings, the windows should be strictly closed. A study that took place in Guangdong, published in 2003 in context of SARS virus, concluded that keeping big windows open for ventilation could reduce the risk of cross infection in case of airborne diseases significantly [23].

The results that we got from our study, proved to be important on getting a closer look at the mental perspective of healthcare providers towards this pandemic. 73.1% staff was of the opinion to use the personal protective kits when coming in contact with the bodily secretions of even non-infective patients. Whereas 43% preferred to wear the protective equipment's even while examining the patients with non-infectious complaints such as hypertension and diabetes. This on one hand indicates that healthcare professionals were highly conscious about the use of personal protective equipment's, while on the other hand it also showed that how the stigma of this pandemic had affected the ways of how the staff has adapted to the new ways of working. A study conducted in Mumbai metropolitan region showed that awareness of the use of personal protective equipment (PPE) for suspected/confirmed COVID-19 cases was high among all groups of healthcare professionals. The CDC has provided Infection Prevention and Control for Patients regarding the usage of PPE [24]. While a study conducted by Manson, et al. during

this pandemic in 2020, concluded that only a fifth of infected personnel were regularly wearing the personal protective equipment [25]. The risk of acquiring infection was also higher due to inappropriate use of PPE (e.g. repeated use of masks).

It is important to deal with the psychological aspect in this lockdown. Similarly, additional changes like-isolation, social distancing, self-quarantine; restriction of travel and the ever-spreading rumors in social media are also likely to affect mental health adversely [26]. Similar results we obtained from our study, surprisingly we found that factors such as the risk of getting infected, absence of the cure for infection and constant probability of the family getting infected, and even the medical executives faced certain inhibitions while performing their COVID duties. 21.3% of the medical staff felt anxious and were insecure in terms of ensuring the safety. Out of all the responders 27% of them preferred to avoid coming in contact of the patients that showed the symptoms of COVID-19 infection. When compared the responses it was seen that out of this 27%, majority of the staff was worried of putting their own family in jeopardy if they themselves get infected while doing the duties. It is a very important factor in the view that, there are so many things expected from the medical executives that it shades over the reality that, they are giving their best by taking the most dangerous risks to treat the patients during the pandemic. From our study it was seen that even though a high number of 21.6% of healthcare providers got infected with the COVID-19 virus while performing the duties, other 55.8% of them still were in the favour of continuing the hospital duties including the postings in COVID wards knowing the risks involved in it, showing strong perseverance and the loyalty towards their profession.

Previous studies that took place in Nepal concluded that 38 % of the healthcare professionals on COVID-19 duty in Nepal were suffering anxiety and/or depression. A Chinese study reported that about half (50.4 %) of the HCWs showed symptoms of depression, 44.6 % had symptoms of anxiety, 34 % had insomnia and 71.5 % reported distress [27]. Also some studies conducted by wenrui zhang enlightened the fact that the healthcare professionals during this pandemic had some impacts that showed effects of severe insomnia, anxiety, depression, and obsessive-compulsive symptoms [28]. From our study it was concluded that due to the anxiety, 51% of the doctors along with 65% nurses faced difficulty in sleeping either due to the long hospital duties or the excessive stress at work, as a result 44% of the medical executives had temper outbursts in the hospitals and were filling tensed continuously. Stress reaction symptoms such as anxiety, depression, somatization and hostility have been reported in about 10% of healthcare workers during and in the aftermath of previous outbreaks [29]. It is important to note that amid of these uncertain situations, healthcare professionals are doing their duties for the sake of the patients. In this situation considering online mental health consultation might be

more beneficial and it can deliver the consultation at the doorstep [30]. Different studies reflected the effects of Covid-19 on mental health [31-35].

The results which will be concluded from this study will definitely help in putting a light on the attributes of healthcare professionals towards COVID 19.

CONCLUSION

Healthcare professionals from across the state of Maharashtra have an adequate awareness about COVID-19 pandemic in the healthcare setting. Doctors along with the nurses, residents and Asha workers show positive intend and will to do their best in serving the community. There is an urgent need to train the medical students in performing the hospital duties ensuring safety during the pandemic alongside conducting periodic webinars for educational intervention. The guidelines regarding the appropriate use of masks and PPE kits are needed to be reinitiated positively. Our study further indicated that the exhaustive workload, lower logistic support, lower support from peers and supervisors and lower feelings of occupational competence during covid-19 related tasks cause a more emotional impact in medical executives working in the frontline. Mental wellbeing of healthcare workers is crucial for ensuring the sustainability of healthcare services during our struggle with Covid. It is must to explore the effectiveness of interventions to promote psychological well-being of physicians.

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