

Original Article

Immediate Psychological Impact among ENT-HNS doctors during the second wave of COVID-19 havoc in Nepal

Asbina KC¹, Neeta Shakya Malla¹, Luna Mathema², Bijay Khatri³

Author's Affiliations

¹Department of ENT-HNS, Janaki Medical College, Janakpur, Nepal

²Department of Otorhinolaryngology, Hospital for Children, Eye, ENT and Rehabilitation Services, Bhaktapur, Nepal

³Academic and Research Department, B.P. Eye Foundation, Kathmandu, Nepal

Correspondence to:

Dr. Asbina KC,
Assistant Professor,
Department of ENT-HNS,
Janaki Medical College,
Janakpur, Nepal.
Email: kcasbina@gmail.com.

ABSTRACT

Background and Objectives: The priority after the outbreak of COVID-19 pandemic has been treating cases and counting the number of fatalities. But mental health impact has been neglected, even though evidence show that frontline health care workers are at risk of mental health issues in such situations. This study aimed to determine the status of anxiety among ENT-HNS doctors and the associated factors in Nepal during the second wave of COVID-19 havoc in Nepal.

Material and Methods: This is a web-based cross-sectional study carried out from 1st May to 31st May 2021. The study participants: ENT-HNS consultants and residents, were approached for the study through different social media, and data was collected through an app-based self-administered questionnaire. The anxiety level was measured using the GAD-7 scale, and the chi-square test was applied to study the factors associated with anxiety.

Results: Among sixty-two participating ENT-HNS doctors, 33.9% already had contracted COVID-19, and 77.4% had mild to severe anxiety. Just below half (45.2%) of the participants worked in COVID-dedicated hospitals and treated patients every working day. None of the respondents could comply with social distance at their workplace, and 75.8% believed they lacked sufficient personal protection equipment (PPE). The potential aerosol-generating procedures like epistaxis management, tracheostomy, and flexible endoscopy were regarded as the highest risk of viral transmission by 35.5%, 30.6%, and 21.0% of respondents, respectively. The young doctors, female doctors, and residents were more likely to be anxious than their counterparts. The ENT-HNS doctors who had lost a family member, close relatives, or colleague were seven times more likely to have anxiety.

Conclusion: The ENT-HNS doctors are neither immune to the COVID-19 infection nor the anxiety. They must have access to required PPE as well as psychosocial support to prevent anxiety. Early identification and timely intervention at the institutional level are vital to maintaining a well-staffed workforce during a pandemic like COVID-19.

Keywords: Anxiety, Frontline, GAD-7, PPE, Residents.

INTRODUCTION

After 100,000 cases within 100 days of the outbreak, the World Health Organization declared COVID-19 a pandemic on 12th March 2020 [1, 2]. In the next two weeks, there was a second case of COVID-19 in Nepal, forcing

the government to enter into nationwide lockdown as a public health measure to help slow the spread of the disease [3]. At the end of that lockdown, there were 17,994 positive cases and 40 deaths [4] and was deemed the first wave of outbreak. This wave had lower than expected infectivity and fatality [5]. This led to the public and local leaders ignoring the public health and social safety measures of COVID-19. The public health experts warned about impending second wave, new variant and urged to prepare for worst-case scenarios [6]. Despite all warnings, the second wave started in mid-April 2021 [7], and for the next two months, there were new records of cases and fatalities every day [8].

The priority after the outbreak has been the treatment of cases, counting the number of fatalities, reversing economic loss, and waiting for vaccinations. But the mental health impact has been neglected, even though evidence have shown that health care workers are at risk of mental health issues in past outbreaks and present pandemic [9, 10]. Studies in different months of the outbreak in 2020 have shown that Nepali health care workers also suffered from mental health issues [11, 12], even though Nepal had lower than expected infectivity and fatality [5]. There are many causes for such mental health problems, including increased workload, constant exposure to critical events such as deaths, lockdown, isolation, fear or vulnerability of being infected, and infecting their family members, inadequate support, and the shortage of biosafety equipment, including personal protective equipment (PPE) [13, 14].

Besides Ear, Nose, and Throat, and Head and Neck Surgery (ENT-HNS) doctors need to have close contact with their patients during the physical examination, especially given the high risk of encountering aerosolized viral

particles while using instruments to examine the nasal passages and upper airway, they are deemed to be at one of the high-risk group of contracting COVID-19 [15]. The first physician fatality of COVID-19 was an ENT-HNS doctor [16]. The reasons above may have made the fraternity anxious, and studies showed the same in the early months of the outbreak [17, 18].

No similar study describing the mental health status of this most vulnerable fraternity in Nepal was found. Hence, we aimed to evaluate the immediate psychological impact of COVID-19 during the second wave among ENT-HNS doctors in Nepal.

MATERIAL AND METHODS

This was a web-based cross-sectional survey carried out from 1st May to 31st May 2021. The study was approved by the Institutional Review Committee of Janaki Medical College, Janakpur. The study participants, ENT-HNS consultants, and residents were approached for the study through different social media. Online consent was obtained from all the participants before starting the self-administered questionnaire developed in <https://forms.app/> which was accessible through both mobile and web-browsers.

The study tool was adapted from similar studies [17, 18], and anxiety level was measured using Spitzer's 7-item General Anxiety Disorder (GAD-7) scale and the outcome variable, the anxiety level was grouped into no anxiety, mild anxiety, moderate anxiety, and severe levels of anxiety [19]. The independent variables included information about socio-demographic characteristics, work-related characteristics, vaccination status, and morbidity and mortality of COVID-19 related variables.

Incomplete forms were excluded from the study. The collected data were imported into Microsoft Excel and checked for completeness and coded. The statistical analysis was done using IBM SPSS version 23. The categorical data is presented as frequency and percentage. Chi-square and, where applicable, Fisher's exact test was done to determine the association of categorical variables with anxiety. Binary logistic regression analysis was performed on variables having $p < 0.05$ on bivariate analysis to calculate adjusted and unadjusted Odds Ratio, including 95% confidence interval.

RESULTS

There were 62 completely filled forms fully-filled and eligible for analysis. More than half of the participants were male and aged between 31-40 years old. The majority of the participants lived with their families, as shown in Table 1, and 11 doctors had underlying comorbidities like diabetes or hypertension.

Table 1: Sociodemographic characteristic of participants (n= 62)

Variables	Categories	Numbers	Percent
Age-group	21 - 30 years	18	29.0
	31 - 40 years	35	56.5
	41 - 50 years	6	9.7
	51 - 60 years	3	4.8
Sex	Male	35	56.5
	Female	27	43.5
Present accommodation status	With Family	54	87.1
	With Colleagues	5	8.1
	Alone	3	4.8
Underlying co-morbidity	Yes	11	17.7
	No	51	82.3

More than three-fourths were consultants, and nearly two-thirds were practicing the specialty for less than five years. Just below half of the participants were working in a COVID-dedicated hospital and treating patients every day. None of the respondents were able to comply with social distance at their workplace, and more than three-fourths believed they had insufficient PPE to deal with the patients (Table 2).

Fifty-four (87.1%) doctors had received at least a single dose vaccination against COVID-19. More than one-third of the participants had already contracted COVID-19 before the survey. More than 50% and nearly 90% of the participants' families and colleagues had also contracted COVID-19, respectively. More than one-third of the participant had lost a family member, relative, or colleague due to COVID-19, as depicted in Table 3.

More than three-fourths of the participants had some level of anxiety. Maximum participants felt that ENT-HNS doctors were a more exposed group than other surgical specialties and felt they were very likely to contract COVID-19. Exactly half of the participants felt they were capable of protecting themselves from COVID-19. More than half of participants responded that OPD was a likely place to get exposure to COVID-19. Similarly, one-third responded during epistaxis; one was more likely to get exposed to COVID-19 (Table 4).

The ENT doctors aged 21-40 years old were three times anxious than older doctors. The resident doctors were twice likely to be anxious than consultant doctors and the ones who were practicing every day during the COVID-19 were 1.6 times likely to be anxious. The doctors who had lost their family, relative,

Table 2: Work-related characteristics of participants (n=62)

Variables	Categories	Numbers	Percentages
Type of health facility	COVID-dedicated hospital	28	45.2
	ENT-HNS Hospital	9	14.5
	General hospital	21	33.9
	ENT-HNS Clinic	4	6.4
Position	Consultant	48	77.4
	Resident	14	22.6
Years of Practice	1 – 5 years	41	66.1
	More than 5 years	21	33.9
Frequency of direct patient contact	Every day	28	45.2
	Few days a week	34	54.8
Ability to comply with social distance measures at workplace	Always	0	0.0
	Usually	18	29.0
	Sometimes	16	25.8
	Rarely	7	11.3
	Never	21	33.9
Sufficient PPE at the workplace	Yes	15	24.2
	No	47	75.8

Table 3: COVID-19 related characteristic of Participants (n=62)

Variables	Categories	Numbers	Percentages
Vaccination status	Completed 2 doses	52	83.9
	1 dose	2	3.2
	Not vaccinated	8	12.9
Ever tested positive for COVID-19	Yes	21	33.9
	No	41	66.1
Family member tested positive for COVID-19	Yes	35	56.5
	No	27	43.5
Colleague tested positive for COVID-19	Yes	54	87.1
	No	8	12.9
Mortality due to COVID-19 within family, close relatives and colleagues in 1 st wave (2020)	Yes	7	11.3
	No	55	88.7
Mortality due to COVID-19 within family, close relatives and colleagues in 2 nd wave (2021)	Yes	14	22.6
	No	48	77.4

or colleague were seven times more likely to have mild to severe anxiety (Table 5).

Table 4: Anxiety and perceptions of participants regarding ENT and COVID-19 (n=62)

Variables	Categories	Numbers	Percentages
Anxiety (GAD-7)	No anxiety	14	22.6
	Mild anxiety	34	54.8
	Moderate anxiety	4	6.5
	Severe anxiety	10	16.1
More or less exposed than other surgical specialties	More exposure	60	96.8
	Same level	2	3.2
	Less exposure	0	0.0
Likelihood of contracting COVID-19	Very likely	52	83.9
	Likely	10	16.1
	Neither likely nor unlikely	0	0.0
	Unlikely	0	0.0
	Very unlikely	0	0.0
Capability of protecting yourself from COVID-19	Very capable	0	0.0
	Capable	31	50.0
	Neither capable nor incapable	26	41.9
	Incapable	5	8.1
	Very incapable	0	0.0
Location with most exposure to COVID-19	Emergency	17	27.4
	Operation Theater	10	16.1
	OPD	35	56.5
Procedure with most exposure	Tracheostomy	13	21.0
	Epistaxis	22	35.5
	Flexible endoscopy	19	30.6
	Ear micro suction	8	12.9

Table 5. Factors associated with anxiety among ENT health workers

Characteristics	Category	Anxiety level		COR	p-value
		Mild to Severe n (%)	No n (%)		
Age - group	21 -40 years	43 (81.1)	10 (18.9)	3.440 (0.780 – 15.172)	0.189 (F)
	41 and above	5 (55.6)	4 (44.4)	Ref	
Gender	Male	26 (74.3)	9 (25.7)	Ref	0.502
	Female	22 (81.5)	5 (18.5)	1.523 (0.444 – 5.221)	
Working Hospital	Dedicated COVID-19 Hospital	22 (78.6)	6 (21.4)	1.128 (0.339 – 3.750)	0.844
	Not dedicated	26 (76.5)	8 (23.5)	Ref	
Position	Consultant	36 (75.0)	12 (25.0)	Ref	0.492 (F)
	Resident	12 (85.7)	2 (14.3)	2.000 (0.391 – 10.242)	
Years of practice	1 -5 years	33 (80.5)	8 (19.5)	1.650 (0.486 – 5.599)	0.524 (F)
	More than 5 years	15 (71.4)	6 (28.6)	Ref	
Number of working days	Every day	23 (82.1)	5 (17.9)	1.656 (0.483 – 5.672)	0.420
	Few days a week	25 (73.5)	9 (26.5)	Ref	
Medical Co-morbidity	Yes	8 (72.7)	3 (27.3)	1.364 (0.309 – 6.022)	0.700 (F)
	No	40 (78.4)	11 (21.6)		
Mortality among family, closed relatives or co-workers	Yes	17 (94.4)	1 (5.6)	7.129 (0.857 – 59.287)	0.049* (F)
	No	31 (70.5)	13 (29.5)	Ref	

*: Significant at p<0.05, F: Fisher’s exact test, COR: Crude Odds Ratio

DISCUSSION

This web-based cross-sectional study showed that more than three-fourths (77.4%) ENT-HNS doctors had some level of anxiety, and 96.8% of them felt that they were a more exposed group than other surgical specialties and felt they were very likely to contract COVID-19.

In our study, more than three-fourths (77.4%) ENT-HNS doctors had some level of anxiety. Using the same scale, among ENT-HNS doctors in Ireland, 34% had anxiety in 2020 [17]. In another study in early 2020 in Hubei, China, among otolaryngology healthcare workers, 29.18% had anxiety symptoms [18]. The higher level of anxiety among our study participants might be due to teetering health system of Nepal, struggling to meet the increasing demands of oxygen, life-saving drugs, ventilators, and Intensive Care Unit beds, with overworked and under-resourced staff unable to handle the influx of patients during the second wave in Nepal [7].

In our study, 56.5% of ENT-HNS doctors responded that OPD was a likely place to contract COVID-19. The respondents regarded potential aerosol-generating procedures like epistaxis management, tracheostomy, and flexible endoscopy as the highest risk of viral transmission. The guidelines from the Society of Otolaryngologists Nepal and other novel innovations worldwide need to be practiced in such times to minimize exposure. One standard advice from all guidelines is using PPE to minimize the exposure, but our study showed that 75.9% of ENT-HNS doctors are also deprived of sufficient PPEs, which could be another source of fear for exposure, henceforth the higher anxiety among them. This might be why half of them felt that they could not protect themselves from exposure. With the pandemic period extending, coping

with stress, fear, and worry might have increased the anxiety among our ENT-HNS doctors. Besides, one-third (33.9%) of the doctors, more than half (56.5%) of their family members, and nearly 87.1% of their colleagues had already contracted the virus and would have experienced the severity of the disease. The number of ENT-HNS doctors living with their families in our study was 87.1%, which might have added woes to them about the fear of infecting their families. Additionally, 12.9% of the doctors had not vaccinated against COVID-19, and 3.2% had received only a single dose of the recommended two doses at the time of study, making them more anxious.

We didn't find any specific study in Nepal related to ENT-HNS health workers in Nepal, but among the health workers in different studies in Nepal, anxiety varied between 35-42% [11, 20] during the COVID-19 outbreak in 2020. In our study, 45.2% of the participants were working in COVID-dedicated hospitals and were treating patients every day, and one-third (33.9%) couldn't comply with social distance measures. The doctors who were practicing every working day were 1.6 times likely to be anxious in our study. Besides, ENT-HNS health workers being at one of the higher risks of contracting COVID-19, our study's higher level of anxiety might be due to the unprecedented number of cases and fatalities in Nepal during the second wave compared to the first wave [7]. Besides, our study also showed that almost 96.8% of ENT-HNS doctors felt that they were the most exposed surgical specialty, and 83.9% felt they were most likely to contract COVID-19.

In our study, the younger doctors aged 40 or below were more anxious than older doctors. This finding in our study contrasts the study of Otolaryngological health workers in Hubei, China, where older health workers were more

anxious than younger ones [18]. The younger doctors in our study are either residents or new consultants who work more than the senior consultants and are more likely to be very close to the patient's upper airway and secretions, and they might be exposed to pathogens during the physical examination, procedures, and surgeries, and subsequent anxiety.

Similarly, in our study, the resident doctors were twice likely to be anxious than consultant doctors. Anxiety was more prevalent in those doctors who had working experience of fewer than five years. The study in Hubei province during the early months of the COVID-19 outbreak didn't show any pattern to work experiences [18]. Studies have shown that during residency, they suffer from the high workload and extended working hours, which have several negative consequences on their mental health [21, 22], and the situation during the COVID-19 pandemic could have been worse and be more anxious than senior consultants.

In our study, female ENT-HNS doctors were 1.5 times more anxious than their male counterparts during the second wave of COVID-19 in Nepal. Study in Nepal during the first year of COVID-19 among health workers also showed that female health workers were nearly twice likely to be more anxious than males [11]. Studies all over the world have shown that women report greater fear and are more likely to develop anxiety disorder [23]. Moreover, a study done before the COVID-19 time also showed that female doctors were more prone to have anxiety than male doctors [24].

More than one-third of the participant had lost a family member, close relatives, or a colleague due to COVID-19. The doctors who had lost their family, close-relative or

colleague were seven times more likely to have mild to severe anxiety, and the association was statistically significant in our study. The death of a near and dear one is a highly stressful life event, and studies have shown that such events increase the risk of mental ill-health and psychosocial problems, including anxiety [25]. This is no exception even among ENT-HNS doctors, who might have been more stressed, even though they have saved the lives of several others during their service but could not save the lives of closed people in their circle due to COVID-19.

Health care workers are also prone to anxiety disorders [26], be it in emergency department works [27] or during previous outbreaks like Middle East Respiratory Syndrome [28] and Ebola [29] and other outbreaks, including COVID-19 [30]. Literatures have shown that outbreaks can negatively affect healthcare workers' mental health [9-14, 17, 18, 20, 26, 28-30]. The possible causes of anxiety include being a front liner, being overworked, inadequate PPE, and fear of infecting family members. Providing support and resources to those who have mental illness is very important during a pandemic and critical to maintaining a well-staffed workforce in times of pandemics.

Our study has some limitations. This study investigated doctors of the ENT-HNS fraternity, and the results of our study may not be directly extrapolated to other health care workers of the same department and other departments. Our study did not consider the impact of their environment and family support, which may affect the interpretation of our data. Additionally, this study used self-application surveys and the diagnosis of psychological condition need to be evaluated more accurately by psychologists. Nevertheless, this study provides essential

data for further research to analyze the level of anxiety among ENT-HNS doctors in Nepal.

CONCLUSION

The ENT-HNS doctors are neither immune to the COVID-19 infection nor anxiety. It is crucial that they have access to required PPE as well as psychosocial support to prevent anxiety. Early identification and timely intervention at the institutional level are vital to maintain a well-staffed workforce during a pandemic like COVID-19.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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