

Psycho-economic impact of Covid 19 pandemic on Otorhinolaryngology practice in low and middle income countries

Prahlad Duggal¹, Arun Gupta², Madhu Gupta³, Jagdeep Thakur⁴, Satinder Singh⁵, and Harshvardhan Singh⁶

¹SWIFT HOSPITAL

²National Health Authority

³Post Graduate Institute of Medical Education and Research

⁴Indira Gandhi Medical College

⁵Government Medical College Amritsar

⁶Dr Rajendra Prasad Government Medical College

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Abstract

Objectives To determine the perceived threats, psychological stress and economic concerns among practicing otolaryngologists in low and middle income countries facing the furry of COVID-19 pandemic, exposing the soft underbelly of healthcare systems in resource limited economies. **Design** A cross sectional anonymous, self-reported questionnaire-based study was carried out among otolaryngologists in India over a period of 3 weeks during the countrywide lock-down. **Setting** An online platform was used to host a questionnaire, publicized using various social media platforms. **Participants** A total of 178 participants landed on the page, 73 were excluded at the first question itself, in all 105 otolaryngologists, who were allowed to proceed, completed the questionnaire. **Main Outcomes and Measures** There are clear indications of psychological stress among the practicing otolaryngologists. Main reasons being anxiety about risk of infection from patients for self, staff members and family, and economic impact of the increased protective measures needed in view of pandemic. **Results** Out of the 105 Otolaryngologists who completed the survey, 57 (52.8%) were from private sector. Significantly ($p=0.001$) higher number of private doctors (66.7%) feared about escalated cost of running out-patient clinics compared to government doctors (33.3%). Majority (80.8%) were against routine surgeries during pandemic and difference between private and government doctors was not significant ($p=0.765$). Increased stress during this pandemic was perceived by 73.1%. **Conclusions** It can be safely concluded based on this survey based study that to alleviate fears of otolaryngologists in low middle income countries; a comprehensive policy intervention is the need of the hour.

Introduction

A pneumonia of unknown cause detected in Wuhan, China was first reported to the WHO Country Office in China on 31 December 2019.¹ The causative agent was found to be severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). The outbreak was declared a Public Health Emergency of International Concern by World Health Organisation (WHO) on 30 January 2020.² WHO also advised about the possible modes of transmission and thereafter, world-wide, different national governments have issued guidelines on how to run the clinical practice with appropriate safety measures so that the health professionals can be protected from the infection. Ministry of Health & Family Welfare (MoHFW), Government of India (GoI) also issued a guidance note on the subject.³ However, the perception and practice at the ground level can be different. The present paper is an attempt to capture the perceptions and practice of those involved in delivering the care at the ground level in limited resource settings.

Practice of Otorhinolaryngology (ORL) unarguably involves exposure to the anatomical regions of the body with the highest viral load.⁴ Fear of getting infected and attendant morbidity and mortality are bound to affect the psyche of healthcare workers,^{5,6} especially so in ORL.

Practice of medicine in a LMIC differs from those in developed nations as public spending on health is less.⁷ Private sector is usually the bigger healthcare provider and social security penetration is not universal.^{8,9} These characteristics make economic factors more important in healthcare delivery to masses. After huge number of Covid-19 patients in China, Europe and United States, the focus is now shifting to developing nations and countries like Brazil and India are seeing a bigger and bigger surge of Covid-19 cases on daily basis.¹⁰ This is affecting the health of healthcare service providers where apart from pandemic related psychological stress as felt worldwide, economics of running the clinical practice is also playing on the minds of healthcare professionals. To do a ground check, authors decided to carry out an online cross-sectional survey to assess the economic and psychological impact of COVID 19 among different partners of ORL workforce in India; a first of the kind in any of the LMIC.

Methods

A cross-sectional survey was conducted amongst Otorhinolaryngologists (ORLs) practicing in India by widely advertising on various social media platforms, an online hosted digital questionnaire (**Appendix 1**). Participation in the anonymous survey was voluntary, an informed consent was taken from all the participants at the beginning of the survey and participants could terminate the survey at any time they desired. The survey was conducted between 18th April 2020 and 10th May 2020. India was under lockdown since 25th March 2020. This was the time when government was contemplating on how to implement a phased unlock, which eventually started on 8th June 2020. Hence the timing of survey coincides with the time when the ORLs must be grappling with the questions on how to restart their practice and how to reshape their standard operating procedures.

The questionnaire captured demographic parameters like age, gender and location of the practicing ORLs. It took into account the difference in risk perceptions depending upon the workplace and technical title of the respondent. Few of the questions were aimed to assess the personnel protective equipment (PPE) used by the doctors and its impact on economics of running a clinical practice. The data including the technical title/professional designation was self-reported by the participants. Validated scales to know about stress were not used as that would have made the questionnaire very long. A scale of 1 to 10 was used to measure the stress which was divided in to low (1-3), intermediate (4-7) and high (8-10) categories. The questionnaire was pretested, face and content validity was checked by the experts. The survey began with a question asking, whether you are an ORL and those who answered in negative were automatically eliminated from the survey. Data collected was exported to Microsoft Excel 2013 (Microsoft Corporation) software (**Appendix 2, in PDF**), cleaned and analyzed using Statistical Package for Social Sciences (SPSS) version 24. Proportions of different categories were estimated. Differences in proportions between groups were considered significant at 95% confidence level.

Results

Online survey was completed by 105 ORLs working in 17 states in India (including states of Maharashtra, Tamil Nadu and Delhi which are having relatively higher incidence of Covid-19 infection) giving a pan country representation. No response to few questions by some respondents was taken into consideration and 'n' calculated for each table as per Excel sheet. Majority of the participants were from private sector (52.8%), out of which 69.4% were males and 27.8% females. Public sector ORLs constituted 45.7% of the respondents. The survey got maximum response from 25-35 years age group (37.0%) followed by 46-55 years (25.0%). When queried about the position in which they were working, 46.3% were working in the position of Professor/Owner of the practice/Consultant followed by Associate Professor/Assistant Professor/ Junior Consultant/Senior resident (30.6%) and residents (20.4%) respectively.

(Table 1)

Almost all the respondents (99.0%) were following one or the other Covid-19 guidelines for healthcare professionals although there was no unanimity among the participants about the source of those guidelines. When asked about whether the regular ORL out-patient department (OPD) should function during the Covid-19 pandemic, majority (69.2%) responded in negative while 30.8% were in favour. Significantly ($p=0.005$) higher percentage of doctors in private sector (42.9%) were in favour of running the OPD during the lockdown period as compared to those in government sector (16.7%) [Table 2]. While the reason for public health specialists being not in favour of practice may be that they receive a fixed salary whether practicing or not but on analysis why the private sector are not in favour of regular OPD during pandemic the reasons varied from having small clinic area ($p=0.012$) to unavailability of in house Covid-19 testing ($p=0.004$) and treatment facilities ($p=0.001$) [Table 3]. Greater number (75.0%) of respondents were of the opinion that triage clinic outside the OPD should be run even after the end of lock down.

While 61.1% respondents were using one or the other PPE, escalated cost of running OPD due to these measures caused worry to two third (66.7%) of the respondents even though in case of 69.9% of the participants, hospitals were bearing the cost of PPE. Significantly ($p=0.001$) higher number of private doctors (66.7%) feared about escalated cost of running OPD due to safety measures compared to government doctors (33.3%) [Table 2]. N95 masks (52.8%) followed by gloves (50.9%) and face shield (37.0%) were respectively the most frequently used PPE by the ORLs who participated in the survey.

On being queried about whether routine surgeries should be performed or not during the Covid-19 pandemic, majority said no (80.8%) while 8.7% said government should issue directions on the subject and the difference between the government and private sector doctors was not significant ($p=0.765$). High viral load in ENT region and fear of own or staff getting infection was the most important reason (67.6%) for not favouring routine surgeries during Covid-19 pandemic. A statistically significant fear of escalated cost of working during Covid-19 pandemic due to various safety measures was found in ORLs working in private sector as compared to those in government sector ($p=0.001$) [Table 2]. Majority of the doctors (71.3%) were performing emergency procedures during the pandemic, and most of them (57.4%) were using PPE during emergency procedures as a safeguard for preventing infection to themselves.

As healthcare providers, 73.1% of the ORLs perceived increased stress during this pandemic. Significantly ($p=0.017$) higher proportion of Professors/Associate professors/Consultants (31.8%) and junior residents (30%) had high level of stress as compared to Associate/Assistant professors/Junior consultants (18.5%). The difference in stress levels among the government and the private sector doctors was not significant ($p=0.765$) [Table 4].

Discussion

Covid-19 pandemic has posed a huge medical challenge about which there is awareness in society, but social and economic facets of the challenge also have to be kept in mind while devising strategies to deal with it.¹¹ LMIC are struggling in their fight against Covid-19 pandemic as number of infected are rising with each passing day.¹⁰ Third world is showing an uptrend in five day moving average of the daily confirmed new cases with India leading in numbers at present, aptly necessitating the need for such a study. The current pandemic has stretched public health system with strains on man, money and material, especially the supply chains of PPE kits in every affected country.¹² LMIC usually have a shortfall of public spending on healthcare^{7,13} and beyond doubt this pandemic is stretching the already strained healthcare system in these countries. With out of pocket expenditure forming a significant part of total healthcare budget, there is no doubt that the pinch is being felt by patients and healthcare providers alike.¹⁴ Large population, disease with high infective potential, escalating number of cases and scarcity of resources makes fight with Covid-19 in LMIC, unique in many ways.

High level of awareness about 'Covid guidelines' among ORLs who participated in the survey goes along the expected lines, with the extensive mass media exposure this pandemic has got across the globe.^{15,16} Lack of unanimity among participants about source of these guidelines underlines the need for a set of comprehensive guidelines addressing the practical, psychological and economical aspects of ORL practice in limited resource

settings. These guidelines can be issued by one of the professional association or the statutory body like Medical Council of respective country or Ministry of Health.

Ear, nose and throat (Otorhinolaryngologists, ORL) doctors were among the first medical victims in Wuhan and according to press reports, ORL doctors continue to die as a consequence of contacting the infection during patient care.¹⁷ Undoubtedly majority of ORL in the present survey were not in favour of opening up of regular OPDs during the lockdown. However among those who favoured opening up, private doctors comprised significantly higher number, possibly explained by poor financial reserves of private healthcare establishments across the country.¹⁸ Apart from the popular perception of no pressure of resource generation on government doctors there can be another reason for government doctors not favouring regular OPDs: overcrowding in government hospital out-patient-departments in LMIC thereby making it difficult to follow social distancing norms. Infective potential of asymptomatic Covid-19 patients with possibility of getting infection and potential transmission to family members emerged as the major fear amongst ORLs in this survey. Similar fears for own and family member's life has been reported by various authors in the present pandemic as well as previous epidemics like SARS.¹⁹ In house facility for Covid testing and treatment are the most significant factors that can alleviate the fear of ORL responding to the survey. Hence it will be safe to conclude that widespread availability of testing and treatment can go a long way in removing the fear amongst practicing ORL in LMIC. With about half a million Covid tests being done daily,²⁰ in the country of survey (India) the figure does not compare favorably with the figures reported by various other countries.

This survey has found that majority of ORL know that ENT examination and surgeries carry high risk of viral exposure due to proximity and aerosol generation but still they are using only gloves and N95 mask as protective gear. They are not in favour of running routine out-patient-departments till they get adequate personal protective kits, to deal with present pandemic. Despite the shortage of PPEs and cost escalation, majority are performing emergency procedures, few even without proper personal protective kits. Apart from high professional commitment this may also indicate a severe crunch in availability and affordability of PPEs in LMIC.

Cost of treatment remains an important factor for those working in private sector compared to government sector as Indian healthcare system is very price sensitive because of out of pocket expenses by large section of population.^{14,21} Almost in every LMIC various reports in media have pointed to acute shortage and poor quality of PPE both in government and private sector, this may be adding to the fear of the ORLs.^{22,23} Similar reports of short supply and rationing of PPE for protection of healthcare workers have come from various other countries also.^{24,25,26} Long term interventions at strengthening the PPE supply chain at affordable cost have to be considered by the policy makers to tide over this crisis as well as prepare for any future outbreaks of diseases.

The cost of PPE is being borne by hospitals, which will strain the economic equation in a price sensitive setting like India and other LMIC, thus adding to the stress of those working as healthcare professionals in these countries. There are large numbers of reports coming regarding the poor financial conditions of private hospitals irrespective of the size of hospital. There are also demands of a relief package for healthcare industry in India as their balance sheets are being stretched.¹⁸ Even in United States and Europe, along with fear of overwhelming of healthcare infrastructure by sheer numbers, affordability of Covid-19 treatment by the patients and the financial viability of the private healthcare providers has added another dimension to the problem.²⁷ In countries with limited resources, every policy intervention needs to take into account these factors so as to win war against Covid-19. The higher stress levels among the senior most and junior most doctors as compared with the middle level doctors, observed in this study, can be explained by the fact that the senior doctors have the responsibility of carrying out the services despite hospitals facing financial difficulties and deficiencies in the supply chain related to PPE, and the junior most ORLs are the frontline doctors and would be examining the patient first of all and thus have higher risk of contracting the infection.

The strength of this study is that this is the first such study from a LMIC that provides the evidence on psychological and economical impact of the Covid -19 pandemic among ORLs. However, larger studies with representative samples need to be planned to give generalizable results.

Conclusion

With number of Covid-19 cases shooting up all over the world and countries going in for a gradually opening lockdown, it is all the more important to assess the psyche of ORLs in the country who are at the forefront in out-patients. With third world heading for a long drawn battle in this pandemic, adequate supply of affordable PPE with freely available economical Covid testing facilities are the need of the hour to instill confidence in the frontline workforce especially in low to middle income countries who are facing stressful situations during the ongoing pandemic. Apart from the present pandemic related fears faced by specialty doctors in developed countries, ORLs in India and other LMIC are also feeling the stress of keeping their clinical practice financially viable. All-inclusive comprehensive guidelines and policy interventions alleviating the apprehensions of both government and private doctors, dealing with clinical, psychological and economical issues concerning the specialty are the need of the hour and will also help in preparation for dealing with any future disease outbreaks.

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Table 1. Background Characteristics of Respondents

Parameters	Total n=105	Percentage (%)
Age in years		
25-35	40	37.0
36-45	20	18.5
46-55	27	25.0
56-65	18	16.7
Gender		
Male	75	69.4
Female	30	27.8
Clinic Setting		
Private	57	52.8
Government	48	44.4
Position		
Professor/Owner/Consultant	50	46.3

Parameters	Total n=105	Percentage (%)
Associate/Assistant/Junior consultant/Senior resident	33	30.6
Residents	22	20.4

Table2. Opinion of Government and Private ORLs Regarding Routine OPD and Surgeries during Covid-19 Pandemic and Fear of Cost Escalation

Parameters	Clinic Setting	Clinic Setting	Total n=104(%)	P value
	Private n= 56 (%)	Government n=48 (%)		
Do you think ENT & Head Neck Surgery OPD should be running during lockdown?	Do you think ENT & Head Neck Surgery OPD should be running during lockdown?	Do you think ENT & Head Neck Surgery OPD should be running during lockdown?	Do you think ENT & Head Neck Surgery OPD should be running during lockdown?	0.005
Yes	24 (42.9)	8 (16.7)	32 (100)	
No	32 (57.1)	40 (83.3)	72 (100)	
Do you think all routine surgeries should be performed during Covid-19 pandemic?	Do you think all routine surgeries should be performed during Covid-19 pandemic?	Do you think all routine surgeries should be performed during Covid-19 pandemic?	Do you think all routine surgeries should be performed during Covid-19 pandemic?	0.765
Yes	1 (50)	1 (50)	2 (100)	
No	44 (52.4)	40 (47.6)	84 (100)	
Follow Government directions	5 (55.6)	4 (44.4)	9 (100)	
Other	2 (100)	0	2 (100)	
No response	4 (57.1)	3 (42.9)	7 (100)	
Are you worried about the cost escalation in running OPD due to measures to prevent Covid-19 infection?	Are you worried about the cost escalation in running OPD due to measures to prevent Covid-19 infection?	Are you worried about the cost escalation in running OPD due to measures to prevent Covid-19 infection?	Are you worried about the cost escalation in running OPD due to measures to prevent Covid-19 infection?	0.001
Yes	47 (65.3)	25 (34.7)	72 (100)	
No	10 (30.3)	23 (69.7)	33 (100)	

Table 3. Reasons regarding Routine OPD functioning during Covid-19 Pandemic

Reasons for ‘Yes’	Private n=56 (%)	Government n=48 (%)	Total n=104 (%)	P value
I have all screening facilities for COVID	10 (17.8)	4 (8.3)	14 (13.5)	0.25
I have large clinical waiting area or patients maintaining 1 meter	16 (28.6)	4 (8.3)	20 (19.2)	0.012
I am not afraid of COVID even if get infected	1 (1.8)	1 (2.1)	2 (1.9)	1.0
COVID is not pandemic	0 (0)	1 (2.1)	1 (1.0)	0.4
Other diseases cause more deaths than COVID	4 (7.1)	2 (4.2)	6 (5.8)	0.686
Other	15 (26.8)	6 (12.5)	21 (20.2)	0.09
Reasons for ‘No’				
Asymptomatic COVID patients can infect others in the OPD	31 (55.3)	35 (72.9)	66 (63.5)	0.68
I don’t want to get infected and transmit the same to other patients	26 (46.4)	22 (45.8)	48 (46.1)	1.0
I don’t want to get infected and transmit the same to other patients	24 (42.8)	29 (60.4)	53 (60.0)	0.079
I can’t maintain safe distance in waiting hall as my facility is small in comparison to number of patients	10 (17.8)	17 (35.4)	27 (26.0)	0.045
My hospital doesn’t have kits for COVID testing	22 (39.3)	6 (12.5)	28 (26.9)	0.004
My hospital doesn’t have facilities for COVID treatment	20 (35.7)	4 (8.3)	24 (23.1)	0.001
Other	2 (3.6)	4 (8.3)	6 (5.8)	0.409

Table 4. Stress as Healthcare Provider during Covid Pandemic among Government and Private ORL

Parameters	Stress level among ORLs during Covid pandemic	Stress level among ORLs during Covid pandemic	Stress level among ORLs during Covid pandemic	Total n=91(%)	P value
	Low n=11 (%)	Intermediate n= 55 (%)	High n=25 (%)		
Age in years					0.768
25-35	3 (8.3)	23 (63.9)	10 (27.8)	36 (100)	
36-45	1 (5.9)	11 (64.7)	5 (29.4)	17 (100)	
46-55	5 (21.7)	12 (52.2)	6 (26.1)	23 (100)	
56-65	2 (13.3)	9 (60.0)	4 (26.7)	15 (100)	
Gender					0.180
Male	10 (15.9)	38 (60.3)	15 (23.8)	63 (100)	
Female	1 (3.6)	17 (60.7)	10 (35.7)	28 (100)	
Clinic Setting					0.784
Private	6 (12.2)	31 (63.3)	12 (24.5)	49 (100)	
Government	5 (11.9)	24 (57.1)	13 (31.0)	42 (100)	
Position					0.017
Professor/Owner/Consultant	3 (6.8)	27 (61.4)	14 (31.8)	44 (100)	
Associate/Assistant/Junior consultant/Senior resident	8 (29.6)	14 (51.9)	5 (18.5)	27 (100)	
Junior resident doctor	0	14 (70)	6 (30)	20 (100)	
Worried about the cost escalation in running OPD					0.939
Yes	8 (12.9)	37 (59.7)	17 (27.4)	62 (100)	
No	3 (10.3)	18 (62.1)	8 (27.6)	29 (100)	