

Anxiety Levels among Health Care Professionals during COVID-19 Sampling

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Abstract

Background: Prevalence of anxiety and other mental disorders have increased in medical health care workers during the Covid-19 Pandemic. **Aim:** To assess the anxiety among health care professionals during sampling for COVID-19 and its assessment via RT-PCR technique. **Material and methods:** A questionnaire based online survey was carried out on 134 health care workers including Dentists, Doctors and Nursing officers. The Questionnaire had demographic details and a set of 11 questions that analyzed the anxiety during various phases of sampling. **Results:** Out of 134 participants, 61.9% were males and 38.1% were females. The mean age of the participants was 25.34 years. The anxiety among the health care professionals while undergoing sampling for covid-19 via. RT-PCR technique was found to be high. **Conclusion:** The anxiety among the health care professionals undergoing sampling for Covid-19 with RT-PCR technique was high considering the invasiveness of the nasal, the fear of getting a positive result for COVID and fear of acquiring infection from personnel/patients in the waiting hall. Post vaccination trials can possibly help in evaluating the change in anxiety among the various Health Care Workers (HCW'S) on receiving the COVID report.

Keywords: Covid-19, RT-PCR, HCW, Anxiety, Swab.

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INTRODUCTION

Coronaviruses constitute the subfamily Orthocoronavirinae of the family Coronaviridae, order Nidovirales, and realm Riboviria [1, 2]. They have characteristic club-shaped spikes that project from their surface, which appears as an image reminiscent of the solar corona in electron micrograph, from which their name is derived [3]. The name was coined by June Almeida and David Tyrrell who first observed and studied these human coronaviruses [4].

Coronaviruses are a group of related RNA viruses (SARS, MERS, and COVID-19) that cause diseases in mammals and birds. They cause infections majorly affecting the respiratory system and manifesting as mild illnesses like Common Cold (which is also caused by other viruses, predominantly rhinoviruses), to even lethal conditions. The severity of Novel Corona Virus (Also known as Covid-19, SARS-CoV 2 virus) in its outbreak has occurred in a much more severe form than the past two forms of Covid

infections (SARS CoV and Middle East respiratory syndrome Corona virus). The entire human race tried in unison to control the spread, but it still engulfed the entire globe due to its rampant nature. The general public and Medical health care professionals have become psychologically affected due to its widespread and increasing mortality [5]. Medical health care professionals have an additional stress of bearing the professional responsibilities and thus having a greater risk of acquiring the infection from the affected population. Their frequent exposure to deaths related to Covid-19 and an access to unlimited information on this subject (especially related to its transmission) is another factor that has contributed to an inculcated fear in some health care workers [6]. Increasing demand and shortage of production of good quality PPE kits has also increased stress among the health care workers [7]. Many of the nonclinical health care workers are being posted in fields like Emergency Triage and Covid-19 sampling areas which are new to them. Continuously evolving protocols and an increasing case load have also added to the stress of the health care workers [8].

Health care professionals, because of their close proximity to the covid-19 positive individuals are at an increased risk of acquiring the infection and passing on to their loved ones and family members and also to the neighborhood adds to their stress [9].

Health care workers are experiencing stress, similar to Post traumatic stress disorder (PTSD) seen in soldiers deployed in war though a number of studies have shown an increased prevalence of Stress, Anxiety and Depression during Covid-19 Pandemic. A 2020 survey carried out among 15,000 physicians reported that 15 to 18% of them experienced depression, 21% to 22% had suicidal ideations and 1 to 2% had attempted suicide.¹⁰ Prevalence of depression and other mental disorders amongst HCWs is thought to be underreported, and relevant literature is sparse. There is growing concern that these baseline numbers will increase as health care workers are experiencing stress and adversities during COVID-19. The current study was planned to assess the anxiety of health care-workers undergoing sampling for Covid-19 using RT-PCR analysis.

MATERIAL AND METHODS

The present survey was conducted following the approval by Institutional ethical committee for the sole purpose of assessing the anxiety among the various medical health care professionals during the sampling for COVID-19 using swabs.

The study sample included health care professionals from various health institutions in India who had undergone COVID 19 swab collection for RT-

PCR Technique using either the nasopharyngeal or Oropharyngeal route. Health care workers of all ages belonging to any institution/background were included in the final analysis. Informed consent was obtained from the participants before filling the online survey and study was conducted in a short time frame between Dec 21, 2020 to Jan 27, 2021.

A pilot study was conducted earlier on 10 participants to check the validity and comprehensibility of the questionnaire. The results of the pilot study showed an acceptable clarity of the questionnaire and a few questions were edited. These 10 participants from the Pilot Study were not included in the final analysis.

A Google survey form was created and the link was shared using social media platforms like WhatsApp, Instagram, Facebook, SMS and Email. The survey link was sent only to the participants who confirmed to have undergone sampling for RT-PCR. By participating in the survey the participants provided their consent as well. The contents of the first section of the survey form included background information on COVID-19, questions related to demographic details of participants and obtaining an informed consent. Second section had questions on assessing the anxiety while undergoing sampling for RT-PCR. The questionnaire consisted of a set of 11 multiple choice questions in English language, where the participants were asked to select the most relevant answer. The participants were told the importance of answering the questions honestly and confidentially.

Table 1: Distribution of responses by the health care workers

Serial No.	Questions	Agree		Neutral	Disagree	
		Strongly Agree	Agree		Disagree	Strongly disagree
1.	Did you feel that you were at an increased risk of acquiring an infection while sitting in the waiting area before the sample was collected?	21.6%	53.7%	17.2%	6%	1.5%
2.	Do you think that you are at increased risk of getting covid 19 infection while you are in the line of duty?	29.9%	55.1%	9%	6%	0%
	Level of Anxiety	Anxious		Neutral	Not- Anxious	
		Highly Anxious	Anxious		Non anxious	Relaxed
3.	How anxious you were while awaiting for covid report results?	20.1%	45.5%	22.4%	3%	9%
4.	How anxious you felt when you were asked to give your samples for the Covid-19 test?	3.7%	45.5%	36.6%	7.5%	6.7%
5.	How anxious you felt, that your result might have been false positive?	12.7%	36.6%	32.8%	10.4%	12.7%
6.	How anxious you feel while performing covid duty, feeling risk for elderly people/ children at home?	32.8%	44%	18.7%	3.7%	0.7%
7.	How anxious do you feel when someone working alongside you becomes positive?	30.6%	54.5%	13.4%	1.5%	0%

	Level of Distress	Mild discomfort	Moderate discomfort	Severe discomfort			
8.	How much discomfort did you feel when the swabs were taken?	40.3%	46.3%	13.4%			
	Preferred route	Naso-pharyngeal	Oro-pharyngeal				
9.	Which route in your opinion is less anxiety-provoking while collecting a sample for COVID-19?	28.4%	71.6%				
	Adverse events	Gagging	Sneezing	Nasal Secretion	Tears	Pain	Nasal Bleeding
10.	Which of the following symptoms did you develop while covid samples were taken?	30.6%	42.5%	33.6%	67.2%	33.6%	2.2%
	Safety	Safe	Neutral		Unsafe		
		Extremely safe	Safe		Unsafe	Extremely unsafe	
11.	How safe do you wearing a PPE kit?	6.7%	65.7%	22.4%	2.2%		

RESULTS

A total of 134 health care professionals across India participated and completed the questionnaire based survey for assessing the anxiety during the sampling of COVID-19 via swab collection. The survey responses carried out were downloaded onto google sheets and it was found that 61.9% and 38.1% of participants were males and females respectively, and the mean age of the participants was 25.35 years. Result regarding the level of anxiety among the healthcare workers is tabulated in Table 1.

53.7% of them agreed that there is an increased risk of contracting COVID wave waiting in the queue for sampling and 55.1% felt an increased risk while working on patients. On assessing the level of anxiety among HCWs it was found that 3.7% to 32.8% felt highly anxious and 36.6–54.5% felt anxious. The level of distress regarding various aspects of COVID while collecting the sample showed that 46.3% had moderate discomfort while taking swab sampling and 71.6% preferred oropharyngeal swab over nasopharyngeal swab. The most common adverse events reported by HCWs were tears & sneezing and nasal bleeding was reported by a very few (2.2%). Around 65.7% of HCWs felt safe with PPE kit during sampling.

DISCUSSION

COVID-19 has been a topic of global discussion in media and among the public throughout this year and it has introduced varying levels of anxiety in the lives of everyone especially those in the medical fraternity including the HCWs. Even with various forms of vaccines available for use, anxiety regarding the disease has affected our life and our day to day activities. It thus becomes important to investigate the Anxiety, knowledge, perceptions and attitudes of HCWs regarding Covid-19. Hopefully with the invent of COVID vaccine and masses above 18+ getting vaccinated across the world, the anxiety levels are decreasing and routine work starts in the world. It is a

proud moment for Indians, as India plays a pivotal role in equitable global distribution of Covid-19 vaccines.

Our Study reveals an increased level of anxiety among the various healthcare professionals while they were being sampled for Covid-19 and later on the thoughts of results being false positive. Many of the HCWs felt anxious while dealing with Covid-19 positive patients, especially the ones with small children or old age parents.

Majority of the participants (71.6%) felt that nasopharyngeal swab collection provoked less anxiety when compared to Oropharyngeal swab collection, and studies have shown that nasopharyngeal swab has more positive detection rate when compared to Oropharyngeal swabs [20-23]. Swab collection is sometimes also associated with mild adverse reactions like nasal secretion, tears, gagging (seen during Oropharyngeal swab collection) and even nasal bleeding and sometimes severe adverse reactions like cerebrospinal Fluid leak [14], Swab separation in the nasal cavity due to fracture of the swab at the breakpoint mark [15]. This situation could arise due to sudden head movements in non-cooperative patients, such as those with advanced dementia, severe learning difficulties, and children. In current study, tear secretion was the most common (67.2%), followed by Sneezing (42.5%), pain (33.6%), nasal secretion (33.6%), and gagging (30.6%). Nasal bleed was also reported by (3) 2.2% participants.

It was also seen that 12.7% and 36.6% participants were highly anxious and anxious respectively with the thought of possibility of their result being false positive. Review of external quality assessments of RT-PCR assays had revealed false positive rates in 0-16.7%, with an interquartile range of 0.8-4.0% [17]. The anxiety in HCWs is also related to these understanding that no test is 100% fool proof and there is always a chance for false positivity. Studies

have shown that false positive results in RT-PCR technique can occur in 16.7% % of cases due to Cross contamination [17], Amplification errors [16], sample mix-ups, Data error, software malfunctioning and also misinterpretation of non-SARS-CoV-2 Virus [18].

As regards wearing of PPE kits only 6.7% participants felt extremely safe and another 65.7% felt safe, indicating that not all the HCWs fully relied on the safety of the PPE kits. Due to inadequate supply, HCWs have reported reusing PPE kits, raising the issue of damage and loss their fit with time [19], this is because for necessary respiratory and general protection, HCWs must ensure an appropriate fit of the facemask and PPE kit by following the "Fit checks" mentioned in the manual of the manufacturers.

53.7% participants agreed that they are at an increased risk of acquiring the infection while sitting in the waiting area before the sample collection. Proper arrangements during waiting must be done and time be allotted to every patients to decrease the infection from spreading from an Undiagnosed positive person to others. Multiple small cabins can be made to avoid crowding of patients in the same area. Multiple time schedules can also reduce the risk of spread of infection. Circular painted rings are also mandatory to maintain the social distancing while waiting in a queue.

This study has shown that 45.5% participants were anxious when they were asked to give their test samples for Covid-19 investigation. Similarly, 20.1 % were highly anxious while waiting for Covid report results. Spoorthy *et al.* (2020) in a review commented about HCWs encountering a considerable degree of stress, anxiety, depression, insomnia due to the COVID-19 pandemic. Irrespective of getting exposed or being infected, people develop a fear of falling ill or dying, excessive worry/anxiety, helplessness and a tendency to blame other people who are ill [11]. Studies done in the past have reported that HCWs especially those working in emergency units, intensive care units, and infectious disease wards are at higher risk of developing adverse psychiatric impact (Naushad *et al.*, 2019). Studies conducted at the time of the SARS outbreak have also shown that emergency department staff is at higher risk of developing posttraumatic stress disorder (PTSD) compared to the staff in psychiatric ward, HCWs in the emergency were at a higher risk of developing posttraumatic stress disorder [12].

As regards sampling, 53.7% of the participants agreed that they felt they were at an increased risk of acquiring the infection while sitting in the waiting area for sample collection. Proper arrangements during waiting must therefore are made and a specific time be allotted to every patient to decrease the spread of infection from an undiagnosed positive person to others. Multiple small cabins can be made to avoid crowding of patients in same area. Time scheduling can also reduce

the risk of spread of infection. Circular painted rings are mandatory to maintain social distancing while waiting in a queue.

The study has an inherent limitation it being a questionnaire based study where the subjectivity of each participant in understanding and answering the questions can affect the results to some extent.

Future Implications

Post vaccination trials in future may help in assessing the change in anxiety among the various Health care workers, once vaccinated.

CONCLUSION

The anxiety among the health care professionals undergoing sampling for Covid-19 with RT-PCR technique was high considering the invasiveness of the nasal swab; fear of a positive result and also of acquiring infection while being in the waiting hall.

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