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AN ONLINE QUESTIONNAIRE SURVEY TO ASSESS KNOWLEDGE ABOUT SCREENING OF PATIENTS, PERSONAL PROTECTION EQUIPMENT AND STERILIZATION PROTOCOL IN PRIVATE DENTAL CLINICS POST COVID-19 PANDEMIC

Paromita Mazumdar*[1], Sayantan Mukherjee[2] and Tanmoy Saha[3]

[1]Professor, Head of the Department of Conservative Dentistry and Endodontics.

[2]Professor Department of Conservative Dentistry and Endodontics.

[3]Post Graduate Trainee Department of Conservative Dentistry and Endodontics.

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***Corresponding Author**
Dr. Paromita Mazumdar
Head of the Department, Professor, Conservative Dentistry and Endodontics, Guru Nanak Institute of Dental Sciences and Research.

ABSTRACT

Background: The pandemic of COVID-19 has tremendously affected dentistry as a whole. Dentistry has become one of the peak professions at risk of transmission of the virus. **Aim:** This survey aims to analyze the concerns associated with COVID-19 among the dental surgeons of West Bengal. **Methodology:** A sample of 305 participants (dentists) was taken after assessing the sample size. The participants comprised of dentists practicing in various parts of West Bengal. A questionnaire was created on Google forms and circulated to participants using various social media platforms. The data of responses of participants were analyzed and evaluated with the help of pie charts. **Results:** This survey analyzed the major concerns of dental surgeons and tried to evaluate the various areas of anxiety. Majority of the participants believed that dentists were at higher risk of contracting the virus than any other healthcare professionals and they also would be a major reason for transmitting the infection to their patients. The also believed the fact that wearing PPE did not guarantee them complete protection against the virus. Majority of the dentists felt that the pandemic has affected dentistry as a career and that practicing dentistry amidst COVID19 was not safe. **Conclusion:** This questionnaire-based survey clearly helped in assessing the common concerns among the dental surgeons of West Bengal associated with COVID-19. Although the pandemic posed various drawbacks and threats to the profession of dentistry, it still stands out being one of the most lucrative specialties of health.

INTRODUCTION

At the dawn of a new decade, on 30th January 2019, the World Health Organization (WHO) declared a global public health emergency against the outbreak of coronavirus disease, which is termed as Coronavirus Disease 2019 (COVID-19), and since then has rapidly achieved a pandemic status.[1] There have been previous outbreaks of coronaviruses (CoVs) which include; the severe acute respiratory syndrome (SARS)-CoV and the Middle East respiratory syndrome (MERS)-CoV which have also been characterized as a great public health threat.[2] This disease with flu-like symptoms was initially observed among people residing in Wuhan, Hubei Province in China.[3,4] They were found to be related to the Huanan seafood market in Wuhan, in the Hubei province of China, where other nonaquatic animals were also being sold before the outbreak.[5] The causative organism responsible for this outbreak – the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) – belongs to the family Coronaviridae of the order Nidovirales.[5,6] This virus structurally comprises of a large, single, plus-stranded RNA as its genome. The outer part of the virus is made of 4 proteins namely Spike, Envelope, Membrane and Nucleocapsid. SARS CoV 2 uses spike glycoprotein for neutralizing antibodies, receptor binding, mediate membrane fusion and to enter the system. A two-step sequential protease cleavage model has been proposed for activation of S proteins of coronaviruses, priming cleavage occurs between S1 and S2 and activating cleavage on S2' site.[7,8] The receptor utilized for entry is Angiotensin-Converting Enzyme 2 (ACE-2).[9]

A total of 4 genera of coronaviruses have been discovered to date and these are: α- CoV, β-CoV, γ-CoV, and δ-CoV.[10] The α-CoV and β-CoV variants are observed to infect mainly the respiratory, gastrointestinal and central nervous system of humans and/or mammals, whereas γ-CoV and δ-CoV have been reported regarding the infections limited to bird species.[11] The presence of SARS CoV–2 has been reported in various species of the Rhinolophus genus of bat species. Studies done using PCR and Serological tests have shown a close relation between the genetic material of SARS CoV-2 and R. *sinicus*. R. *pearsoni*, R. *marcotis*, R. *pussilus* and R. ferrumequinum are the other species of bat that have shown some correlation with SARS CoV–2. Malayan Pangolins have been considered as intermediate host as they have shown 91% genetic correlation with SARS CoV–2.[12] Humans suffering from this disease clinically present with the primary symptoms of fever, cough, myalgia or fatigue, abnormal chest computed tomography (CT) image, and severe respiratory distress, whereas less common symptoms include sputum production, headache, hemoptysis, and diarrhea.

Initially, it was considered to have a zoonotic route of transmission; however, a new person-to-person route of transmission is causing the disease to spread rapidly across different continents and is more likely to affect elderly males.[13] Old age and patients with pre-existing illnesses (like hypertension, cardiac disease, lung disease, cancer, or diabetes) have been identified as potential risk factors for severe disease and mortality.[14,15] Environmental contamination has been singled out as the primary factor for the nosocomial spread of the newest strains of viruses.[16,17] Concerning SARS-CoV-2, researchers have confirmed its nosocomial transmission, although very little is known about its mode of transmission and the extent of environmental contamination. Healthcare workers (HCWs) are at the frontline of COVID19 pandemic response and are exposed to dangers like pathogen exposure, long working hours, psychological distress, fatigue, occupational burnout and stigma, and physical violence.[18] In a dental setting, as the dentist and their equipment are close to the patient, the chance of acquiring infection from the micro-droplets of an infected patient is high and there is a risk of cross-transmission, too. Dentistry is facing its darkest hour yet, with the growth and spread of the Coronavirus pandemic. Dental surgeons are at the highest risk of contracting and transmitting the Coronavirus, alongside paramedics, nurses, and other healthcare workers. With the pandemic still on the growth curve, there is no hope of revival anytime soon, compounded by reduced earnings by dental practitioners and staff at clinics.

Dentists are likely to contract the virus first, as they work in close contact with patients. On 15 March 2020, the New York Times published an article with the title "The Workers Who Face the Greatest Coronavirus Risk", where an impressive schematic figure described that dentists are the workers most exposed to the risk of being affected by COVID-19, much more than nurses and general physicians.[19] Therefore, for this, a dentist should take precautions before delivering the treatment. American Dental Association (ADA) has given a guideline regarding treatment protocol during this critical situation.: https://www.ada.org/en/press-room/news-releases/2020- archives/april/summary-of-ada-guidance-during-the-covid19-crisis? FDI World Dental Federation, also have published a guideline for an oral professional during this COVID-19 outbreak. https://www.fdiworlddental.org/covid-19- outbreak-guidance-for-oral-health-professionals.

While many vaccines are being formulated all around the world, research states that it would take minimum 1-2 years for the vaccine to pass animal and human trials. Additional time would be required for large scale production and distribution of the same. Dentists have no

option but to scale down their practices and treat only cases that require urgent care owing to the evolving nature of the disease, lack of knowledge and evidence. This survey focuses on the assessment of the common concerns and anxiety associated with COVID-19 among the dental surgeons of West Bengal and stresses on the impact this pandemic has caused on dentistry as a whole.

Aim

To analyze the post-COVID personal protective equipment/gear and hygiene protocols maintained in private dental clinics by registered dental practitioners.

Objectives

1) Assessment of dentist perception on screening of patients in private dental clinics after COVID-19.
2) Assessment of dental practitioners' knowledge and attitude amidst COVID-19 pandemic in private dental practice.
3) Preparedness of dental health personnel in private clinic against novel coronavirus (COVID-19).
4) To assess their views about the choice and reliability of PPE (personal protective equipment).
5) To assess if the pandemic has affected their earnings from the dental clinic.

Selection criteria

Inclusion criteria

1. Dentists who have completed BDS/MDS/other higher education in the field of dentistry registered under the state dental council
2. Dentists willing to give informed consent for participation in the study.
3. Dentists practicing in West Bengal.
4. Dentists practicing in private clinics.

Exclusion criteria

1. Participants without a degree in the field of dentistry
2. Participants unwilling to give informed consent for participation in the study.
3. Dentists practicing outside West Bengal.

Sample size – 305

Methodology

A Google form of the questionnaire was created to analyze the common concerns associated with COVID-19 among the dental surgeons of West Bengal. The questionnaire along with a brief synopsis explaining the aims and objectives of the study was sent to participants. The participants were approached by the principal investigator and co-investigator via personal connections and existing WhatsApp groups of dentists. The aims and objectives of the study were explained in a message accompanying the online questionnaire link. Informed consent was obtained from all the participants before responding to the questionnaire. The participation was voluntary and all the participants had an option of opting out of the study by not filling the questionnaire. The questionnaire consisted of 18 questions.

Questionnaire

The questions were a mix of multiple-choice questions. After a question regarding the informed consent, the following questions were asked:

Section 1: Knowledge about the screening of patients:	
1.	Should screening include a history of travel and symptoms like fever, dry cough, and myalgia?
2.	Is your clinic equipped with Pulse Oximeter and Infrared Thermometers?
3.	Is pre-procedural rinse with 0.2% povidone-iodine mandatory for every patient?
Section 2: Knowledge regarding the complete protection of the operator:	
4.	Do you feel that wearing PPE (Personal Protective Equipment) guarantees you complete protection against the virus?
5.	Should the use of Particulate respirators (N-95 Mask) be mandatory by all dental healthcare professionals?
6.	Do you prefer to reuse N95 masks by any of the following methods?
7.	Should the use of face-shields be mandatory for all dental health care professionals?
8.	The PPEs used by you during aerosol-generating procedures are?
9.	Masks that are worn by you while treating patients?
10.	Type of work done in your clinic?
Section 3: Knowledge about chair-side protocols:	
11.	Which isolation methods do you use in your routine dental practice?
12.	Do you agree that there is a need to switch to High Vacuum saliva ejectors (250-300l/min)?
Section 4: Knowledge regarding clinical protocols and instrument sterilization:	
13.	Air Purifier has become a desirable addition to the dental clinic. Which type of filters would u prefer?
14.	Should instrument sterilization include Class B autoclave?
15.	What is the concentration of hypochlorite used to disinfect the drain line?
16.	What concentration of sodium hypochlorite is used as a surface disinfectant?
Section 5: The general attitude towards changing trends during the COVID pandemic:	
17.	Has this pandemic affected your patient flow and monetary income via dentistry?
18.	Are you working for lesser clinical hours per day due to the pandemic?

RESULTS

A total of 305 submissions were recorded. The results of this questionnaire-based survey highlighted certain key features and analyzed the major concerns of registered dental surgeons practicing amidst the COVID 19 pandemic.

Section 1: Knowledge about the screening of patients

96.1% of the participants felt that screening of patients should include a history of travel and symptoms like fever, dry cough, and myalgia whereas 3.9% of the participants did not feel the same (Fig 1). 70.3% of the participants had both Pulse Oximeter and Infrared Thermometers in their clinics while 10.7% of the participants did not have any of the two (Fig 2). A majority of 77.6% of them felt that pre-procedural rinse with 0.2% povidone-iodine is mandatory for every patient, 9% favored other rinses, 10.9% were unsure whether it should be made mandatory while a minority of 2.6% felt that pre-procedural rinses are not required (Fig 3).

Section 2: Knowledge regarding the protection of the operator

40.8% of the participants felt that wearing PPE (Personal Protective Equipment) did not guarantee them protection against the virus, 38.8% of the participants believed that PPE did provide and guarantee protection, whereas a minority of 20.4% were confused about the effectiveness of PPE against the virus (Fig 4). On asking the participants whether the use of Particulate respirators (N-95 Mask) be mandatory by all dental healthcare professionals, a whopping majority of 79.6% strongly agreed and a minority of 4.3% strongly disagreed (Fig 5). A majority of 45.7% of the participants felt that reusing N95 masks after a gap of few days is the correct method, while 24.5% of the participants polled for reuse of the masks after autoclaving and 29.1% of the participants preferred not to reuse the masks at all (Fig 6). 76.2% of the participants believed that the use of face-shields should be mandatory for all dental health care professionals, whereas a minority of 1% of the participants believed the contrary and 22.8% of the participants felt that it should only be used during aerosol-generating procedures (Fig 7). A vast majority of 76.1% of the participants used N-95 mask, surgical mask, surgical gown, face-shield, head cap, and gloves as PPE whereas 23.9% polled for other combinations of PPE (Fig 8). 71.1% of the participants used N-95 masks and surgical masks; whereas 28.9% of them used other types of masks (Fig 9). The type of work done in the majority of the clinics is aerosol-generating work (46.5%), while 5.3% of the participants refrained from doing any work (Fig 10).

Section 3: Knowledge about chair-side protocols

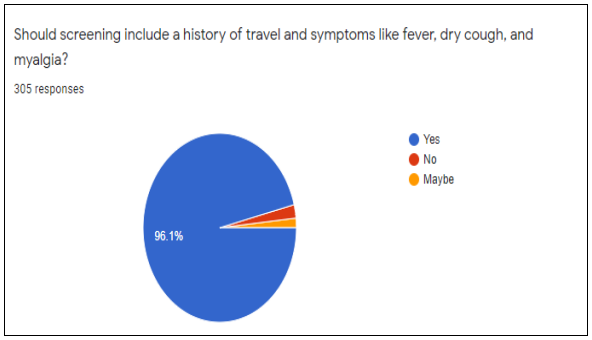
61.7% of the participants used intra-oral suction devices as isolation method, 59.7% used cotton rolls, 52.7% used rubber dams, 23.8% used High-Volume Extra-Oral suction, 7.7% used absorbent wafers, 7% used Dental Aerosol reduction tents while 16.1% used all of the methods (Fig 11). 66.7% of the participants agreed that there is a need to switch to High Vacuum saliva ejectors (250-300l/min), 25% were unsure while a minority of 8.3% disagreed (Fig. 12).

Section 4: Knowledge regarding clinical protocols and instrument sterilization

52% of the participants preferred HEPA filters over other types of filters, which were preferred by 48% of the participants (Fig 13). 66.3% of the participants felt the class B autoclave should be included in instrument sterilization while a minority of 6.2% disagreed with it and 27.5% were unsure (Fig. 14). 31.3% of the participants thought that the drain line should be disinfected with 0.1% of hypochlorite, closely followed by 31% of the participants who did not know the exact concentration, 29.9% of the respondents felt 1% hypochlorite should be used (Fig. 15). 38.3% of the participants used 1% sodium hypochlorite as a surface disinfectant, 28.5% used 2.5% as the concentration, 14.1 % of the participants used 3%, while 19.1% were not sure of the concentration to be used (Fig. 16).

Section 5: The general attitude towards changing trends during the COVID pandemic

The most highlighting feature of this study was that COVID-19 affected the monetary income of the majority of the dentists (88.2%), whereas a minority of 4.4% of the participants remained unaffected by the negative repercussions of the pandemic, while 7.9% were unsure of the effect (Fig 17). Also, a majority of dentists (78.7%) reported working for lesser clinical hours per day, which indirectly affected their income from dental clinics (Fig 18). This questionnaire-based survey was an attempt to address all the crucial areas of concern a dentist might have about the effects of the pandemic of COVID-19 on dental practice as a whole.



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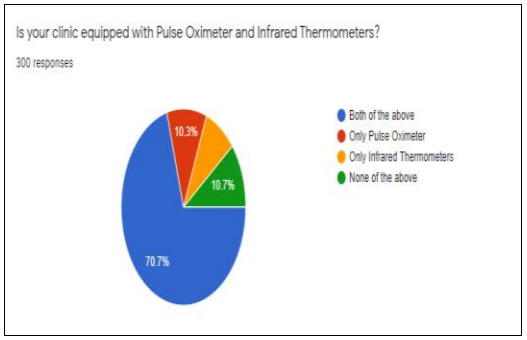

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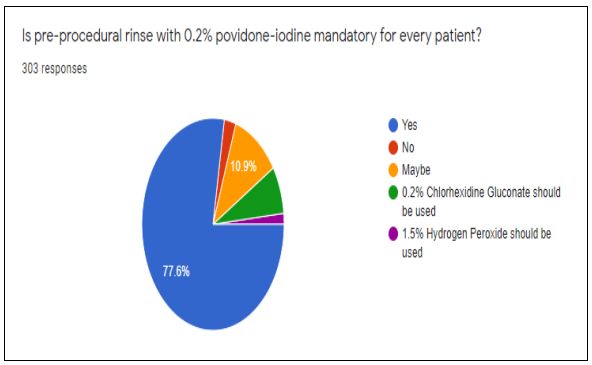

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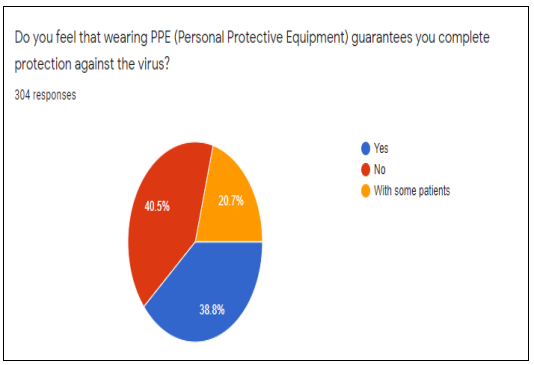

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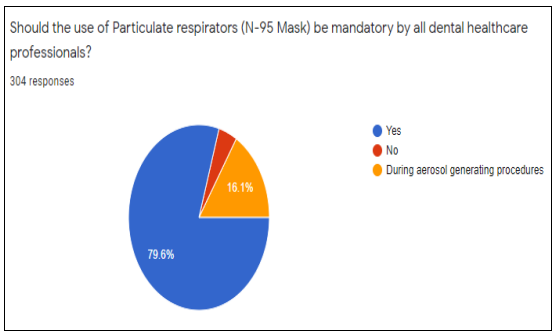

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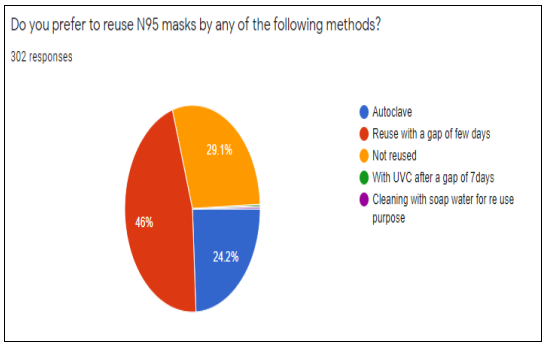

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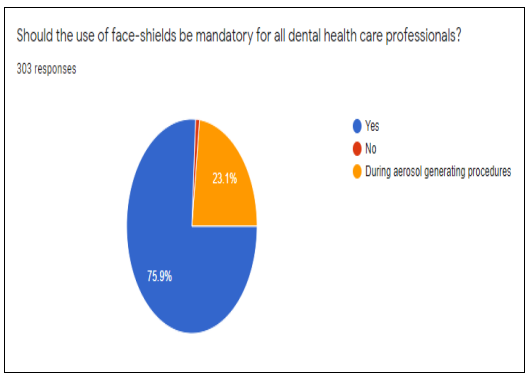

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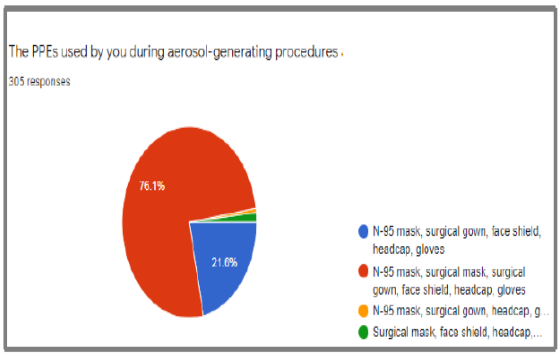

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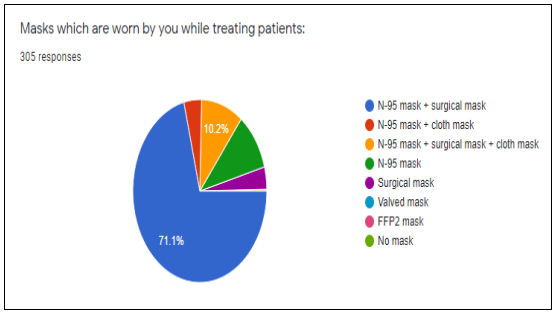

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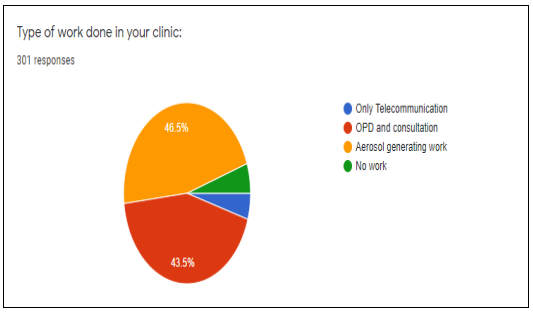

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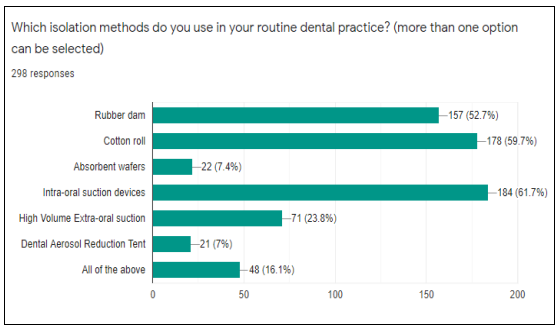

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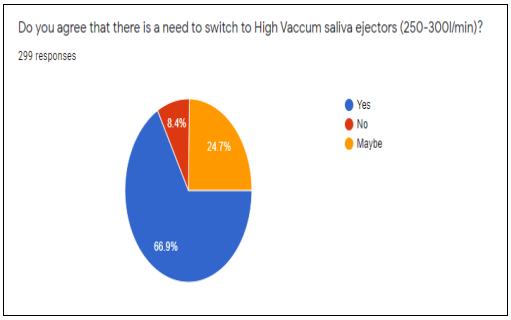

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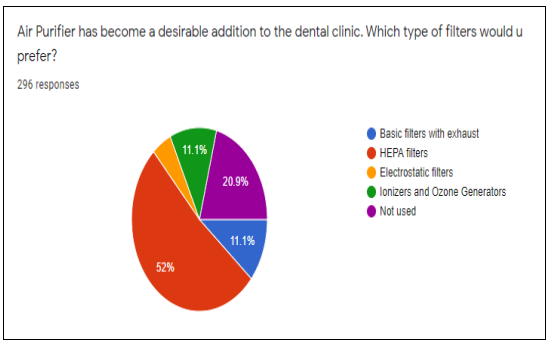

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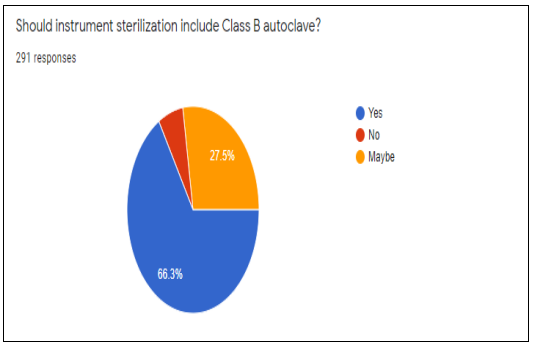

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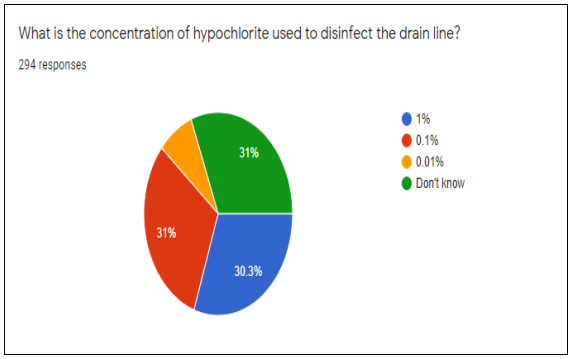

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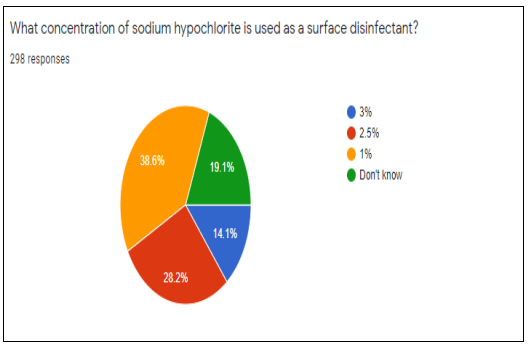

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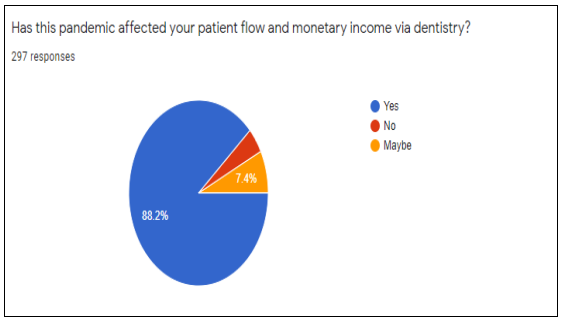

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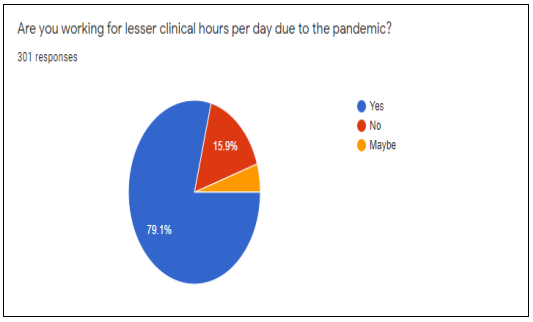

Fig. 18:

DISCUSSION

The transmission of COVID-19 poses a risk for people who come in close contact with an infected individual, and the risk is greater among those who are near or work near the patient, i.e., relatives and healthcare workers. The distance between the working field and the dentist is approx. 35–40 cm and certain procedures can be very time-consuming, which puts the dentist at a higher risk of contacting COVID-19.[20]

Knowledge about the screening of patients

According to Peng X et al, "If a patient replies "yes" to any of the screening questions, and his/her body temperature is below 37.3 °C, the dentist can defer the treatment until 14 days after the exposure event. The patient should be instructed to self-quarantine at home and report any fever experience or flu-like syndrome to the local health department. If a patient replies "yes" to any of the screening questions, and his/her body temperature is no less than 37.3 °C, the patient should be immediately quarantined, and the dental professionals should report to the infection control department of the hospital or the local health department. If a patient replies "no" to all the screening questions, and his/her body temperature is below 37.3 °C, the dentist can treat the patient with extra- protection measures and avoids spatter or aerosol-generating procedures to the best. If a patient replies "no" to all the screening questions, but his/her body temperature is no less than 37.3 °C, the patient should be instructed to the fever clinics or special clinics for COVID-19 for further medical care".[21,22,23] In this context, recording properly the travel history of the patient before any treatment becomes paramount. In developing countries, purchasing extra PPE (gowns, gloves, etc.) and the cost of the fumigation/sterilizing of the dental clinic can impact the dental clinician financially; hence, incorporating the travel history can help significantly reduce the transmission as well as the burden of the disease. In the present study, most of the dentists reported including the travel history while recording the history of the patient and this was important in a timely diagnosis, which could prevent further propagation of infection

As instructed by the Guideline for the Diagnosis and Treatment of Novel Coronavirus-Infected Pneumonia (5th edition) released by the National Health Commission of the People's Republic of China, it was reported that chlorhexidine, which is commonly used in dental practice, did not affect COVID-19. Instead, mouth rinses containing oxidative agents such as 1% hydrogen peroxide or 0.2% povidone should be preferred.[24] ADA and CDC only recommend peroxide to destroy the virus.[25] In this study, a majority of them felt that pre-procedural rinse with 0.2% povidone-iodine is mandatory for every patient.

Knowledge regarding the protection of the operator

In this study, majority of the participants felt that wearing PPE (Personal Protective Equipment) did not guarantee them complete protection against the virus, as per the Geo Sentinel surveillance survey, 11% of the respiratory tract infections were reported among the travelers returning to their country of residence, and PPE can provide protection as well as reduce the risk of any nosocomial infections and cross-transmission in the dental setting.[26] Therefore, the risk to the healthcare worker is not only from external travelers but also from their regular patients who travel regularly and to combat COVID-19, the use of PPE was deemed necessary by most dentists.

Dentists are forced to reuse N5 mask due to economic reasons. Most dental surgeons have stressed on the use of PPE and N95 masks to prevent transmission of COVID19. The type of work done in the majority of the clinics is mostly aerosol-generating work (46.5%). This further necessitates the need for PPE and proper mask in dental clinics.

Knowledge about chair-side protocols

There needs to be more awareness about the use of rubber dam in dental clinics.

Knowledge regarding clinical protocols and instrument sterilization

There is adequate awareness about the use of HEPA filters in dental clinics. The use of autoclave must be encouraged more in private dental setup. Most dentists were not aware of the disinfection protocol of the drain line.

The general attitude towards changing trends during the COVID pandemic

The most highlighting feature of this study was that COVID-19 affected the monetary income of the majority of the dentists from dental clinic. This is indeed an alarming state.

Also, a majority of dentists (78.7%) reported working for lesser clinical hours per day, which indirectly affected their income from dental clinics.

CONCLUSION

In the present study, dentists were found to obtain good knowledge and practice scores, which is important to combat COVID-19. Dentists should appropriately use social media to spread awareness among people, and in their clinical practice, they should screen, isolate and refer the potential cases having the symptoms of COVID-19. It is better for dentists to follow the CDC and WHO guidelines in their clinics, and sensitize their staff so that no stone is left unturned in defeating this pandemic.

Acknowledgement

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CONFLICT OF INTEREST

None.

REFERENCES

1. World Health Organisation. Coronavirus disease 2019 (COVID-19) Situation Report Geneva: WHO, 2020; 51. Available online at: www.who.int/ emergencies/diseases/novel-coronavirus-2019/situation-reports (accessed March 18, 2020).
2. World Health Organization. https://www.who.int/news-room/q-a-detail/q-a-coronaviruses Site accessed on 6th April, 2020.
3. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med, 2020; 382: 1199–207. doi: 10.1056/NEJMoa2001316.
4. Lu H, Stratton CW, Tang YW. Outbreak of pneumonia of unknown etiology in Wuhan, China: the mystery and the miracle. J Med Virol, 2020; 92: 401–2. doi: 10.1002/jmv.25678.

5. Cascella M, Rajnik M, Cuomo A, Dulebohn SC, DiNapoli R. Features, evaluation and treatment coronavirus (COVID-19) [Updated 2020 Apr 6]. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing, 2020.
6. Xiuyuan, Ou, et al. Characterization of spike glycoprotein of SARS-CoV-2 on virus entry and its immune cross-reactivity with SARS-CoV; NATURE COMMUNICATIONS https://doi.org/10.1038/s41467-020-15562-9.
7. Mackenzie J, Smith D. COVID-19: a novel zoonotic disease caused by a coronavirus from China: what we know and what we don't. Microbiology Australia, 2020. 10.1071/MA20013.
8. Peiris JS, Lai ST, Poon LL, et al, SARS Study Group. Coronavirus as a possible cause of severe acute respiratory syndrome. Lancet, 2003; 361: 1319–25.
9. To KK, Lu L, Yip CC, et al. Additional molecular testing of saliva specimens improves the detection of respiratory viruses. Emerg Microbes Infect, 2017; 6: e49.
10. Fan Y, Zhao K, Shi ZL, Zhou P. Bat coronaviruses in China. Viruses, 2019; 11(3): 210.
11. Fehr AR, Perlman S. Coronaviruses: An overview of their replication and pathogenesis. Methods Mol Biol, 2015; 1282: 1–23.
12. Ministry of Health and Family Welfare. Government of India https://www.mohfw.gov.in/ Site accessed on, 2020; 6.
13. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. Lancet, 2020; 395(10223): 507–513.
14. Shi H, Han X, Jiang N, Cao Y, Alwalid O, Gu J, et al. Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. Lancet Infect Dis, 2020; 20: 425–34. doi: 10.1016/S1473-3099(20)30086-4.
15. Tian S, Hu N, Lou J, Chen K, Kang X, Xiang Z, et al. Characteristics of COVID-19 infection in Beijing. J Infect, 2020; 80: 401–6. doi: 10.1016/j.jinf.2020.02.018.
16. Chowell G, Abdirizak F, Lee S, et al. Transmission characteristics of MERS and SARS in the healthcare setting: A comparative study. BMC Med, 2015; 13: 210.
17. Bin SY, Heo JY, Song MS, et al. Environmental contamination and viral shedding in MERS patients during MERS-CoV outbreak in South Korea. Clin Infect Dis, 2016; 62(6): 755–760.
18. World Health Organisation. Coronavirus Disease (COVID-19) Outbreak: Rights, Roles and Responsibilities of Health Workers, Including Key Considerations for Occupational Safety and Health. (2020). Available online at: www.who.int/publications-

detail/coronavirus-disease-(covid-19)- outbreak-rights-roles-and-responsibilities-of-health-workers-includingkey-considerations-for-occupational-safety-and-health (accessed April 05, 2020).

19. Gamio L. The Workers Who Face the Greatest Coronavirus Risk. [(accessed on 15 March 2020)]; Available online: https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-workerrisk.html?action=click&module=Top+Stories&pgtype=Homepage.
20. Pîrvu C, Pătraşcu I, Pîrvu D, Ionescu C. The dentist's operating posture – ergonomic aspects. J Med Life, 2014; 7(2): 177–182.
21. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci, 2020; 12(1): 9. Published 2020 Mar 3. DOI:10.1038/s41368-020-0075-9 https://doi.org/10.1038/s41368-020-0075-9.
22. Meng L. Hua F, Bian Z. Coronavirus Disease 2019 (COVID-19): Emerging and future challenges for dental and oral medicine [Epub ahead of print]. J Dent Res, 2020.
23. Iqbal MA. Questionnaire to evaluate COVID-19 suspected patient before the dental procedure. UpDCJ, 2020; 10(1): 1-2. DOI: https://doi.org/10.3329/updcj.v10i1.46683.
24. S. Mehtar, O. Shisana, T. Mosala, R. Dunbar. Infection control practices in public dental care services: findings from one South African Province. Journal of Hospital Infection, 2007; 66: 65-70.
25. Guo H, Zhou Y, Liu X, Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. J Dent Sci. 2020 Mar 16. https://doi.org/10.1016/j.jds.2020.02.002.
26. Fotedar S, Sharma KR, Bhardwaj V, Fotedar V. Precautions in dentistry against swine flu. SRM J Res Dent Sci, 2013; 4(4): 161–163.