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Analysis of awareness of infection control in dental practice during the COVID-19 outbreak among dental practitioners in Tamil Nadu

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ABSTRACT

Given the existence of a standardized tool and infection control recommendations for COVID-19, many dental professionals lack the minimum infection control requirements. As the disease outbreak continues to evolve and health centres respond to unique situations in their communities, the Department of Health recognizes that dental settings may also be necessary to provide non-emergency dental care. The dental environment will balance the need to include the resources available whilst reducing the harm to patients and dental health staff. The aim of the study is to assess the awareness of infection control in dental practice in the COVID-19 outbreak among dental practitioners. A Self-administered questionnaire was designed based on awareness of infection control for a dental practice in the COVID-19 outbreak. The questionnaire was distributed through an online google form link. The study population included dental professionals in Tamil Nadu. The data was collected and statistically analysed. 81% use PPE (personal protective equipment) during the procedure, 82.7% of patients are made to rinse their mouth with an antimicrobial mouth rinse before the dental procedure. Based on the findings, awareness level and infection control in dental practice can be improved.

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INTRODUCTION

COVID-19 has been reported a worldwide pandemic by the WHO and has infected millions of patients worldwide (Cannon, 2020; Shekhar *et al.*, 2020). Coronavirus is in the order of nidovirales and belongs to the genus Coronaviridae. Corona contains crown-like spikes on the virus outer surface. Thus, it has been called coronavirus (Nabi and Khan, 2020). The transmission route of novel coronavirus includes direct transmission, sneeze and droplet virus can be transmitted (Li *et al.*, 2020). Typical clinical symptoms in patients with novel viral pneumonia involved nausea, cough and weakness with irregular chest computed tomography (Renuka and Sethu, 2015). Dental practitioners are more prone to COVID-19 infection. The supportive community of viruses suggests that saliva includes live viruses that can permit transmission (Shruthi and Preetha, 2018; Choudhari and Jothipriya, 2016). Aerosols may be released through cough and respiratory

droplets of virus can also be identified through regular breathing (Xu *et al.*, 2020; Ilankizhai and Devi, 2016). Some precautions for dental practitioners are mouth rinse before dental procedures, rubber dam isolation, anti-retraction handpiece, disinfections of the clinical settings, management of medical waste (Fathima and Preetha, 2016). The awareness of infection control for dental practices should be promoted among dental practitioners. This is the pioneer study to assess the awareness of infection control among dental practitioners in the COVID-19 outbreak in Tamil Nadu. A multidisciplinary study has the potential to provide a systematic and comprehensive framework for examining and identifying multiple dimensions of factors that have a scalar impact on human health and the environment (Cannon, 2020; Samuel and Devi, 2015). The aim of the study is to assess the awareness of infection control in dental practice in the COVID-19 outbreak among dental practitioners in Tamil Nadu.

MATERIALS AND METHODS

A Self-administered questionnaire was designed based on awareness and practice of infection control in dental practice among the dental practitioners during COVID-19 outbreak (Table 1). The questionnaire was distributed through an online google form link. The study population included dental professionals in Tamil Nadu. The data was collected and statistically analysed using SPSS software. Descriptive statistics were done. The correlation was done by the Chi-square test.

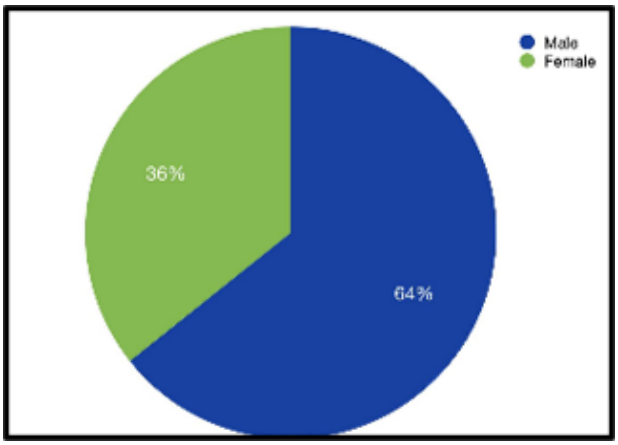

Figure 1: The percentage distribution of gender of study participants

RESULTS AND DISCUSSION

The questionnaire was attended by 100 participants out of which 64.3% were males, 35.7% were females as shown in (Figure 1). 64% of the participants

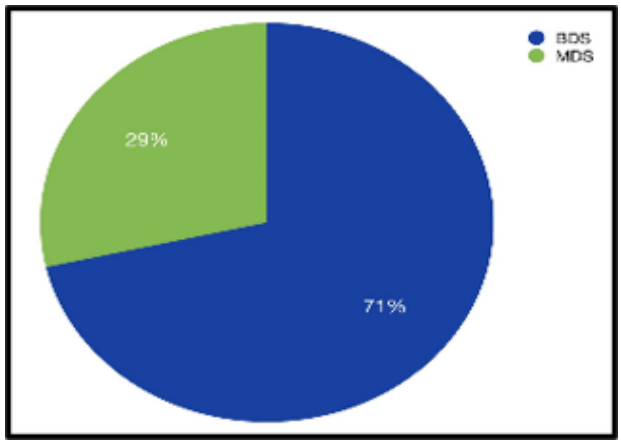

Figure 2: The percentage distribution of the study participants- Undergraduates and Postgraduate dentists

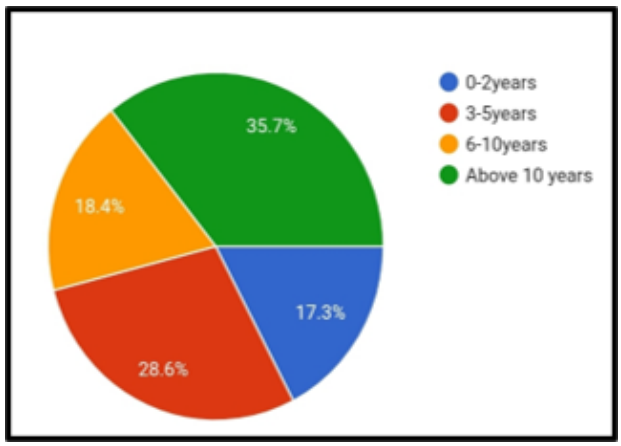

Figure 3: The percentage distribution of experience of clinical practice of the participants

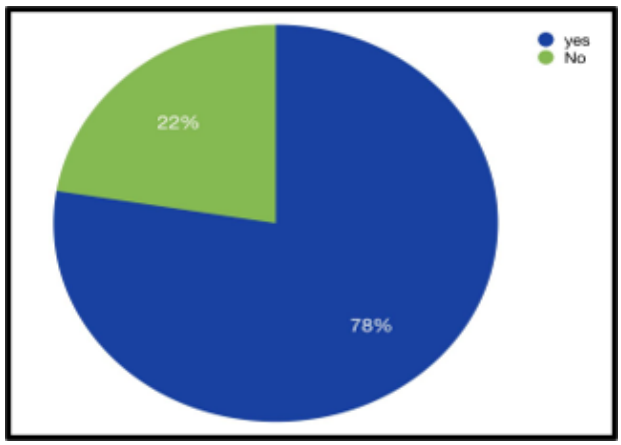

Figure 4: The percentage distribution of the study participants who own private dental clinics

Table 1: Questionnaire distributed to the study participants

	Questions	Options	Responses
1	Do you own a private dental clinic?	Yes	77.6%
		No	22.4%
2	What is the incubation period of covid 19 ?	1-14days	49%
		1-20 days	45.9%
		1-6 days	5.1%
3	Do you use PPE (personal protective equipment) during procedures?	Yes	81.6%
		No	18.4%
4	Do you make your patients rinse their mouth with antimicrobial mouth rinse before dental procedure ?	Yes	82.7%
		No	17.3%
5	Do you use rubber dams to minimize the spread of contaminated aerosol?	Yes	63.3%
		No	36.7%
6	Do you use an anti-retraction handpiece to prevent aerosol spread ?	Yes	60.2%
		No	39.8%
7	Do you clean and disinfect clinic settings and public areas frequently?	Yes	85.7%
		No	14.3%

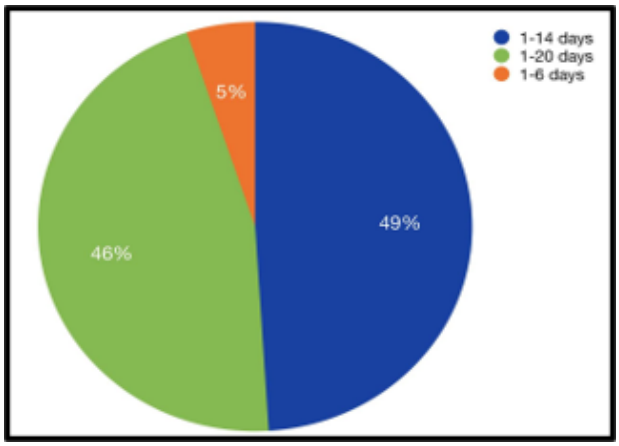

Figure 5: The percentage distribution of the awareness of incubation period of COVID-19

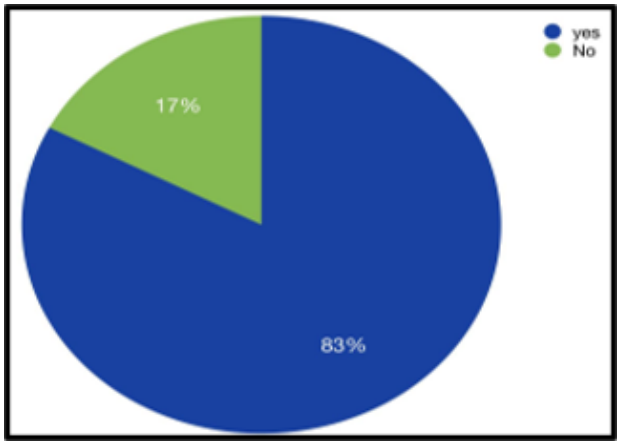

Figure 7: The responses to the question, "Do you make your patients rinse their mouth with antimicrobial mouth rinse before dental procedure?"

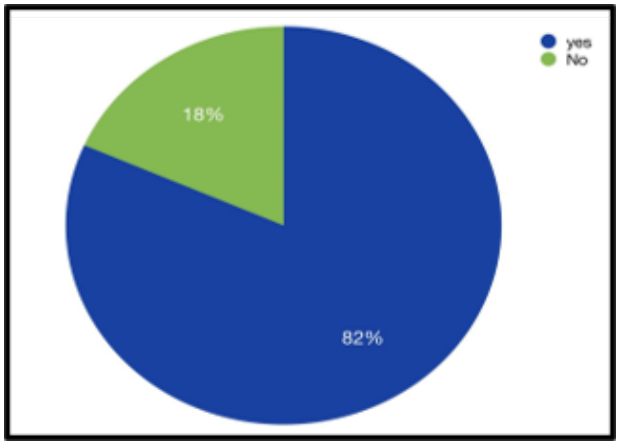

Figure 6: The responses to the question, "Do you use PPE during procedure?"

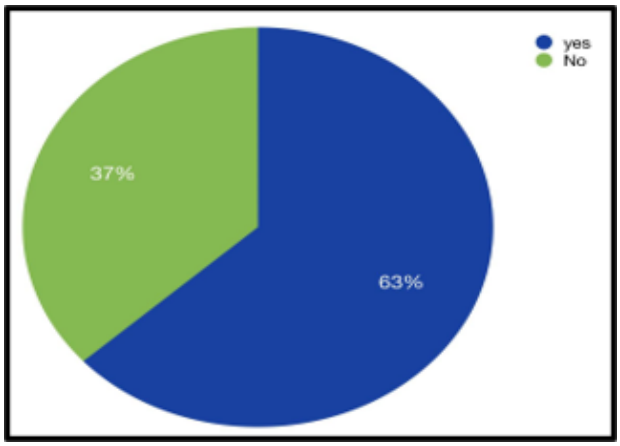

Figure 8: The responses to the question, "Do You use rubber dams to minimize the spread of contaminated aerosol?"

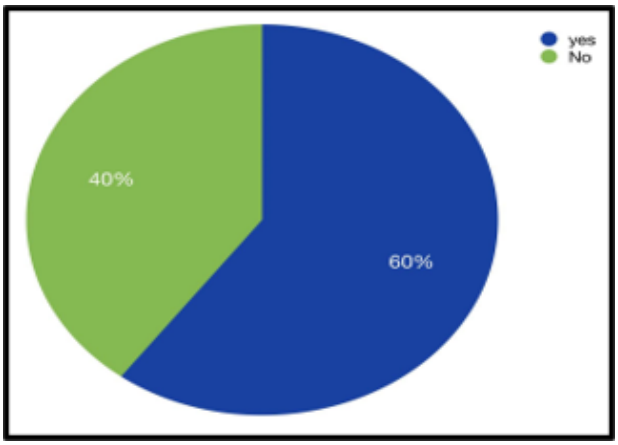

Figure 9: The responses to the question, "Do you use anti-retraction hand piece to prevent aerosol spread?"

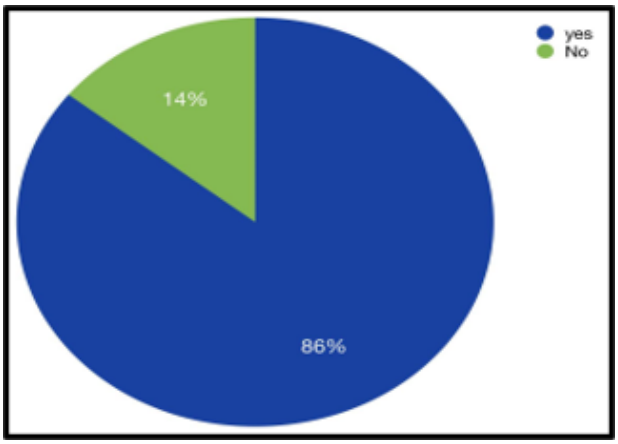

Figure 10: The response to the question, "Do you clean and disinfect clinic settings and public areas frequently"

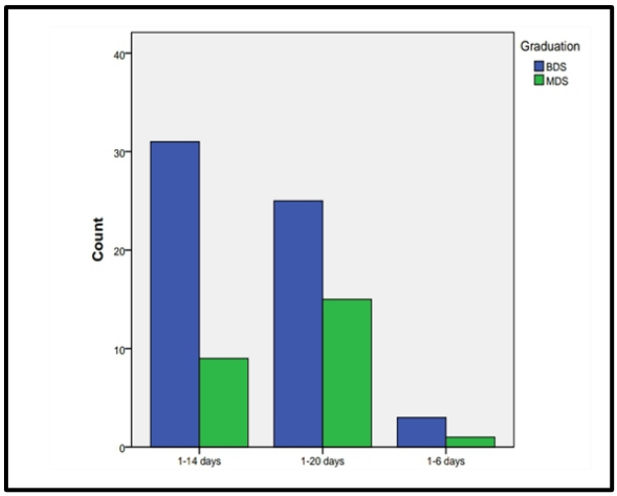

Figure 11: The association between qualification of the dentist and the awareness of incubation period of COVID-19

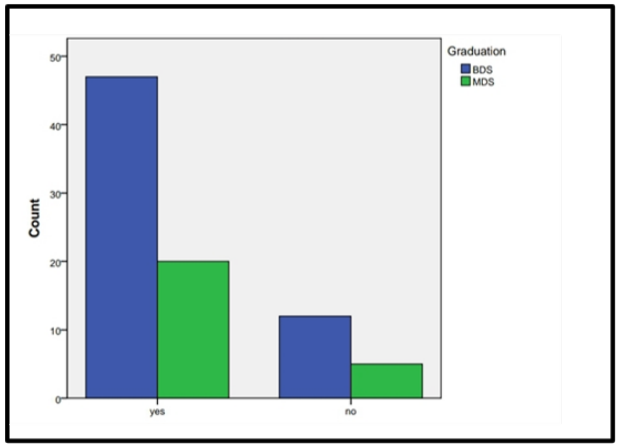

Figure 12: The association between qualification of the dentist and usage of PPE

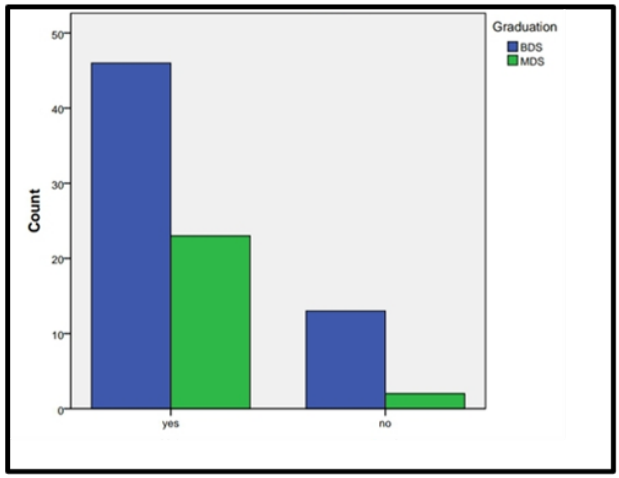

Figure 13: The association between qualification of the dentist and usage of antimicrobial rinse to patients before procedure

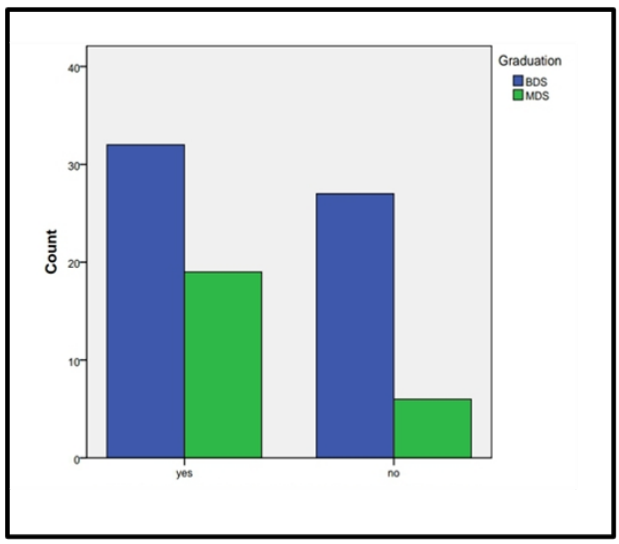

Figure 14: The association between qualification of the dentist and the usage of anti-retraction hand piece

were males (Blue) and 36% were females (Green). 71.4% were undergraduates and 28.6% were postgraduate dentists (Figure 2). 71% of participants were undergraduates and 29% were postgraduate dentists. 17.3% had an experience of clinical practice for 0-2 years, 28.6% had 3-5years of experience, 18.4% had 6-10 years of experience, 35.7% had an experience of above 10 years (Figure 3). 77.6% of subjects own private dental clinic and 22.4% do not own their private dental clinic (Figure 4). Figure 5 represents the response of the participants about the awareness of the incubation period of coronavirus, 5.1% of subjects answered as 1-6 days, 45.9% of subjects thought 1-20 days and 49% answered as 1-14 days. 81.6% of subjects use PPE (personal preventive equipment) and 18.4% do not use PPE (Figure 6). 82.7% of subjects make their patients rinse their mouth with an antimicrobial mouth rinse before the dental procedure (Figure 7). 17.3% of subjects do not make their patients rinse their mouth with an antimicrobial mouth rinse before the dental procedure. 63.3% of subjects use rubber dam isolation (Figure 8), but 36.7% of subjects do not use a rubber dam. 60.2% of subjects use anti-retraction handpiece, but 39.8% of subjects do not use anti-retraction handpiece (Figure 9). 85.7% of subjects disinfect clinic settings (Figure 10), but 14.3% does not disinfect clinic settings frequently. The present study revealed that undergraduates were more aware of the incubation period of 1-14 days for COVID-19 than postgraduates. However, the difference is not statistically significant (Pearson Chi-square value-2.198, p-value-0.333 (>0.05)- not statistically significant) (Figure 11).

Association between the qualification of dentist and usage of PPE revealed that there is no significant difference in the proportion of PPE users and non-users between the two groups (Pearson Chi-square value-0.01, p-value-0.972 (>0.05)- not statistically significant). Since more undergraduates had responded to this questionnaire, their count is higher than the postgraduate dentists (Figure 12). Similar results have been obtained for the usage of antimicrobial rinse to patients before the procedure (Pearson Chi-square value-2.358, p-value-0.125(>0.05)- not statistically significant) and the usage of anti-retraction handpiece (Pearson Chi-square value-2.358, p-value-0.125 (>0.05)- not statistically significant) (Figure 13 and Figure 14).

A similar study was conducted by Khader *et al.* (2020) where 36.1% responded to the incubation period as 1-14 days and also reported that 43.8% refer the patient to the hospital without treating them when a patient sneezes or coughs. In the same study, 74.7% of the participants believed it was necessary for patients to maintain social distance by wearing masks and sanitizing their hands.

A similar study by Ahmed *et al.* (2020) revealed that 97% of the dental professionals were aware of the mode of transition of COVID-19 and also 24% ask their patients to rinse his\her mouth with an antibacterial mouthwash before treatment whereas74% do not ask to rinse. Further, the study showed that 76% use high volume suction during the procedure. The nasal areas are the fundamental pathway for controlling ventilation and altering ventilated air (Allaouchiche, 2020; Devi and Sethu, 2018). Evidence shows that patients with comorbidities, such as diabetes and hypertension, are particularly susceptible to respiratory contaminations (Emami *et al.*, 2020).

Most of the dental practitioners may suffer from lower back pain due to imbalance in sitting posture which can aggravate due to diligent practice of infection control protocols (Swathy and Sethu, 2015; Abigail *et al.*, 2019). Physical activities and yoga keep up a solid life which yields resistance to battle against Coronavirus (Iyer *et al.*, 2019). In a lockdown, the greater part of the individuals is inclined toward increased food intake (Harsha *et al.*, 2015; David *et al.*, 2019). Weight gain may occur rapidly as they were not engaged in any physical exercises. Overweight women have an incredible rate of menstrual disturbances (Dave and Preetha, 2016). They have a high hazard for contraceptive wellbeing, thyroid problems and sleep disturbances (Baheerati and Devi, 2018). There were geographical limitations in the present study and included a small sample size. Future studies are encouraged to be studied in diverse regions involving large populations which could limelight the awareness and practice of infection control measures taken up in dental practice.

CONCLUSION

This study showed that there is a strong need to implement periodic educational interventions and training programs on infection control practices for COVID-19 across all healthcare professions. Conducting periodic webinars for educational intervention for all healthcare students and professionals, including non-clinical and administrative staff, paramedical and nursing sub-groups could be a useful and safe tool to create more awareness.

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The authors declare that they have no funding support for this study.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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