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## The Spread of Coronavirus Can Be Stopped by Dentists or Not - A Survey

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**Abstract:** The COVID-19 is a pandemic disease that is transmitted by contamination through the droplets spewed from the infected patient to the common people. Research and Examination on coronavirus are required to provide knowledge on Covid-19 among Dentists and to educate dental practitioners on the importance of spread on COVID -19 transmission. This study raises awareness among the dentist and dental students to prevent the spread of COVID -19 disease to common people. A survey-based self-structured questionnaire was prepared with 15 questions using a random sampling method and was circulated among 100 dental students and dentists through an online portal link. The results were collected and then analysed through SPSS software. Descriptive statistical analysis was carried out and chi square test was used and p value was calculated. The results prove that 53.7% of the dentists want the dental treatments to be carried out, with 94% of the dentists agreeing to use facemask and 94.4 % agreeing to use sanitisers while carrying out procedures. However, 61% of the dentists have expressed their concerns in communicating with the patients soon after the reopening of the clinics. From this study, it was concluded that since the p value was more than 0.05 with respect to anxiety levels in dentists, use of sanitisers for protection, preventive measures taken by dentists and choice of dental treatments carried out, there is no significant statistical difference that has been analysed. Thus the dentist's role in COVID-19 spread is represented and awareness is created among dentists and dental students and the steps followed by the dentists to prevent the spread of COVID-19 was observed.

**Keywords:** Coronavirus, dentist, spread, transmission.

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### INTRODUCTION

In humans, the Coronavirus (COVID -19) causes infections in the respiratory tract which causes a result from mild to lethal (Fauquet *et al.*, 2005). Coronavirus is a sort of infection which causes ailment. They originated from animals and flying creatures. In people, the Coronavirus (COVID - 19) causes diseases in the respiratory tract which makes an outcome from mild to lethal. The Scientific structure that has been identified is a club-shaped virus that has spike peplomers covered over the bulbous surface as projections. The family of Coronavirus was found to be Coronaviridae and the sub-family is Ortho Corona - Viridae. The transmission of this disease is through the respiratory droplets which are packed with the virus particles, spewed from the infected patients to other common people who are unaffected through coughs or sneezes of the infected patient (Hannah *et al.*, 2019)(Gawda and Czubak, 2017) which leads to the "mode of transmission"(Harsha and Brundha, 2017). The Coronavirus is thus associated with both the upper and lower respiratory tract (Kahn and McIntosh, 2005). There are no specific antibiotics described for this virus. The affected patients need to get supportive care to breathe. Also, there is no specific vaccine updated for this disease. Thus, naturopathy, colloidal silver, and snake oil which are traditional Chinese medicine are now advised as a treatment for COVID-19. (Kalaiselvi and Brundha, 2016; Shreya and Brundha, 2017). The Corona Virology is the Science which has progressed essentially for as far back as barely any years.(Brundha, Pathmashri and Sundari, 2019; Timothy, Samyuktha and Brundha, 2019). The worldwide conveyance of the Coronavirus of group 2 has been recognized at present. The SARS epidemic is an animal Coronavirus which was now spotlighted. The CDC provides the utilization of guidelines that include contact through airborne and gives the precautionary measures as anticipation from hospitalized patients (Balaji, Brundha and Path, 2016; Shenoy and Brundha, 2016). Thus it creates awareness by campaigns, police security, social distancing, and social advertising (Müller *et al.*, 2012;

World Health Organization, 2015). Hence the role of the dentist to stop the spread of coronavirus is by creating social awareness to the patients on the preventive measures (Ananya, Rani and Brundha, 2020)(Mp, Brundha and Nallaswamy, 2019)(Prashaanthi and Brundha, 2018). And also by locking down the clinics and advising the patient to stay indoors until emergency treatment is required (Kumar, Ashok Kumar and Brundha, 2016; Preethikaa and Brundha, 2018).

Kharna in his study stated that more than half of the dental students who were interviewed on MERS-CoV had good knowledge about it. He also added that a few more information is still to be provided by the MOH and Colleges to the medical and dental students (Kharna *et al.*, 2015). Meng in his study emphasizes the urgent need for infection control protocol and the protective measures for the dental clinics that are affected with COVID -19. He also proposes the management protocol for the dentists and dental students in those affected areas.(Ferdioz and Brundha, 2016)(Meng, Hua and Bian, 2020). Another previous study also states that infection spread and the control measures from person to person especially during the dental practice is controlled through lockdown (Peng *et al.*, 2020).

The lacunae include the limited sample size of 50 people and also the survey was restricted up to the dental students and the dentist, whereas the medical and other professionals could have also been included. Moreover, the age restriction was also not provided. The challenge faced includes access to the dentist during the lockdown and the virulent transmission of this disease (The Lancet, 2020)(Guo and Xiao, no date).

Thus the research was required to provide knowledge on COVID - 19 among the dentist and to educate the dental practitioners to know the importance of the spread of COVID-19 transmission. Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Deogade, Gupta and Ariga, 2018; Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Jeevanandan and Govindaraju, 2018; J *et al.*, 2018; Menon *et al.*, 2018; Prabakar *et al.*, 2018; Rajeshkumar *et al.*, 2018, 2019; Vishnu Prasad *et al.*, 2018; Wahab *et al.*, 2018; Dua *et al.*, 2019; Duraisamy *et al.*, 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshbabu *et al.*, 2019; Mehta *et al.*, 2019; Panchal, Jeevanandan and Subramanian, 2019; Rajendran *et al.*, 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma *et al.*, 2019; Varghese, Ramesh and Veeraiyan, 2019; Gomathi *et al.*, 2020; Samuel, Acharya and Rao, 2020)

Thus, this study aims to raise awareness among the dentist and dental students to prevent the spread of COVID -19 disease to common people.

## **MATERIALS AND METHODS**

In this study, the survey questionnaire was based on a non-probability convenient random sampling method. To minimize the bias certain measures were taken that include, to avoid leading questions, use of simple language to frame questions and avoidance of difficult concepts among the student population. A self-structured questionnaire (mentioned below) containing 15 Questions were framed. The questions inquired about how the dentist controlled the spread and what kind of preventive measures were taken, etc. Thus, these questions were then introduced in the Google forms and were circulated as an online survey among 50 dentists and dental students of both UG and PG. The data was collected from google form responses. The results were collected and then analysed through SPSS software. Descriptive statistical analysis was carried out and chi square test was used and p value was calculated. The results thus obtained in the form of pie charts and graphs. These graphs are then discussed.

Questionnaire

1. Age .....
2. Gender **a)male b)female**
3. Occupation **a) dental students UG b)dental students PG c)dentist**
4. Are You Aware of the Mode of Transmission of COVID-19? **a)yes. b)no**
5. Are You Anxious When Providing Treatment to a Patient who is Coughing or Suspected of being Infected with COVID-19? **a)yes. b)no**
6. Do You want to Close Your Dental Practice until the Number of COVID-19 Cases Starts Declining? **a)yes. b)no**
7. Do You have Fear that You Could Carry the Infection from Your Dental Practice back to Your Family? **a) yes b)no**
8. As a dentist what kind of steps will you take to stop the spread of coronavirus ? **a) lock down of clinics b) counselling to the patients about dos and don'ts. c)advising them to stay at home unless an emergency condition d)all of above e)none of above**
9. Do you prefer doing dental procedures during the lockdown period ? **a) yes b)no**
10. Does sanitizer and face mask provides a protection against the spread of coronavirus **a) yes b)no. c) maybe**
11. Which type of face mask is used by the health care workers against corona virus ? **a) surgical mask b) N95 respirator c) homemade mask d) none of the above.**
12. Do You Think Surgical Masks are Enough to Prevent Cross-Infection of COVID 19? **a)yes b)no**
13. Are u aware that hand sanitizers provide better protection against COVID-19 virus ? **a) yes b)no c)don't know. d)may be**
14. What kind of food habits do you prefer for the patients to prevent this disease ? **a) food rich with carbohydrates. b) food rich in fibre c) food rich in vitamin c d) don't know.**
15. Was this survey useful ? **a) yes. b)no**

**RESULTS AND DISCUSSION:**

In response to the question regarding age (Figure 1), shows that there were different age groups participating in the survey. (Figure 2) shows the pie chart depicting participants with different gender. In response to the question of occupation (Figure 3), shows the occupation of respondents participating in the survey were practising dentists, undergraduate and postgraduate dental students. In response to the question regarding the awareness of COVID-19 (Figure 4), it is considered as an emerging respiratory disease which is faced as a global challenge worldwide (Chakraborty and Maity, 2020). The most common route of transmission includes the droplets from infected patients and aerosol, thus making it pandemic (Umer, Haji and Zafar, 2020). Due to lack of awareness, and the rising challenges against the novel virus, people also find it difficult to find the exact cause for this pandemic (Khajji *et al.*, 2020). (Figure 5) shows the anxiety levels of the dentists over coughing patients. The study previously included the failure of proceeding treatment due to the fear of social stigma with the recently discovered history of respiratory illness (Mansour *et al.*, 2020). The disease containing the spread of transmission harms some people's mental health causing fear of contamination and result of excessive hand washing (Kumar and Somani, 2020).

The fear of contamination is less among the dentists who are dedicated and compromised to work, according to the previous study. (Figure 6) Bar chart represents the correlation between dental students UG, PG and dentists about the anxiety level of dentists over the coughing patients showing an insignificant statistical difference of  $p=0.142$  ( $>0.05$ ). (Figure 7), depicts the running dental clinics during lockdown. Due to the lack of proper personal protective equipment, the physicians face difficulty in treating patients (Ing *et al.*, 2020). The dental team should be vigilant and implement all the precautions of lockdown for the welfare of patients and dentists according to the guidelines (Baghizadeh Fini, 2020). (Figure 8), Bar chart represents the correlation between dental students UG, PG and dentists about the shutdown of dental clinics showing an insignificant statistical difference of  $p=0.514$  ( $>0.05$ ).

(Figure 9) represents the steps taken by dentists to control the spread of COVID-19. The lockdown of clinics is suggested by 63% of dentists. The outbreak of COVID-19 had suggested that dentists should be careful enough to take care of the patient's visiting the clinics with respect to contamination through various contact surfaces (Brundha, 2015) (Hua *et al.*, 2020). The standard infection control technique and preventive steps put forth helps the patients to stay safe and stay away from COVID -19 disease (Sahu, Mishra and Lal, 2020). (Figure 10), Bar chart represents the correlation between dental students UG, PG and dentists about the steps taken by dentists to stop the COVID-19 spread showing an insignificant statistical difference of  $p=0.540 (>0.05)$ .

(Figure 11) portrays the choice of dentists performing dental procedures during the lockdown period. The infection control measures and further steps are to be taken by the government regarding lockdown to control the amount of spread among people (Varshini, Rani and Brundha, 2020) (Ashok *et al.*, 2016).

The cross-infection of the diseases during treatment is more prevalent among the dental clinics and the epidemic process for treatment is discussed. (Hua *et al.*, 2020). (Figure 12), Bar chart comparison between dental students UG, PG and dentists about the choice dental treatments carried out showing insignificant statistical difference of  $p=0.297 (>0.05)$ . (Figure 13) provides information on safety provided by sanitiser and facemask over COVID-19. As the virus is contagious by the respiratory route the spread of transmission can be decreased by the facemask and sanitizer efficiently (Beiu *et al.*, 2020). The study researchers prove that alcohol-based sanitizers kill the COVID-19 effectively whereas the other sanitizer and face mask respirators show inappropriate results (Jairoun, Al-Hemyari and Shahwan, 2020). (Figure 14), Bar chart comparison between occupation of dental students UG, PG and dentists about the personal protective equipment like facemask, showing insignificant statistical difference of  $p=0.360 (>0.05)$ .

(Figure 15) indicates the information about the facemask preferred to health care workers. The facemask of health care workers to develop air filters as a respirator, which act against COVID - 19 (Leung and Sun, 2020). The health care workers (Ravichandran and Brundha, 2016) who are working tirelessly have to be provided with protective measures such as PPE (Deepika, Preejitha and Brundha, 2020) including N95 Respirator that is double layered (World Health Organization, 2017). (Figure 16) depicts the opinion of the dentists on the usage of sanitiser for protection. The alcohol based hand sanitizer provides better protection and prevention against infectious diseases (Chadwick *et al.*, 2017). The products such as sanitizing wipes are more effective to kill the COVID and provide utmost protection (Kilgore, MPH and FACP, 2020). (Figure 17), Bar chart comparison between dental students UG, PG and dentists about the use of sanitisers for better protection showing insignificant statistical difference of  $p=0.663 (>0.05)$ . (Figure 18) shows the responses of preferable food habits for the prevention from the COVID-19. The high prevalence of the immune rich food provides greater immunity to prepare against the COVID - 19 (Muscogiuri *et al.*, 2020). The foods rich in fiber boost immune function with saturated fat (Butler and Barrientos, 2020).

In this survey, the results observed from the pie charts show that the dentists and dental students are more aware of the coronavirus spread and prevention. The dentist's views on their role to stop the spread of COVID-19 is to lockdown the clinics and advise the patients to stay at home unless an emergency procedure is required. And thus, the steps followed to control the disease spread by the dental population is observed through.

**Guidelines Taken By The Centers For Disease Control And Prevention (Cdc) As Per Date June 01,2020**  
(Prevention and Chinese Center for Disease Control and Prevention, 2020)

Steps health care facilities can take are : 1)remain educated about the local COVID-19 circumstance. Realize where to turn for dependable, up -to -date facts in your local network. 2)Create, or audit, your facility emergency plan. 3) A COVID-19 outbreak in your locality could prompt staff non-appearance. An alternative staffing plan is to be enhanced as much as possible to ensure that many facility staff is available. 4) Relationships have to be maintained among the key health care and public health partners in your locality. Ensure that you know about the healthcare and public health emergency planning and response activities in your locale. Find out about designs to oversee patients, acknowledge moves, and offer supplies. Audit any memoranda of Understanding (MOUs) with associates, your health care coalition, and different accomplices to offer help or help during crises. 5)Make an emergency contact list. Create and constantly update emergency contact records for key accomplices and make sure that the lists are open in key areas in your office.

**Communication that has to be enhanced with staff and patients**

1)Impart about COVID-19 with your staff. Offer data about the present information on COVID-19, the potential for surge, and your preparedness plans. 2)Impart about COVID-19 with your patients.

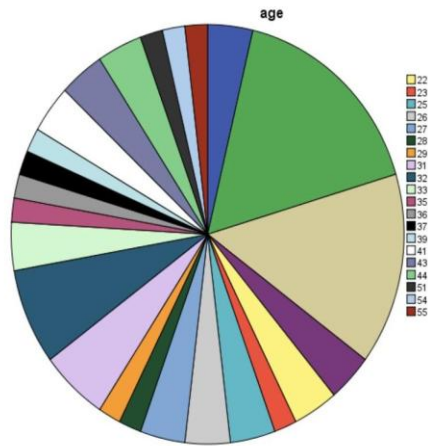
**Protection of the workforce**

1)The patients and visitors need to be screened for fever, respiratory indications, or different side effects before entering your health care facility. Stay up with the latest suggestions for preventing the spread of COVID-19. 2)Make sure the appropriate utilization of Personal Protection Equipment (PPE). Medicinal services workforce

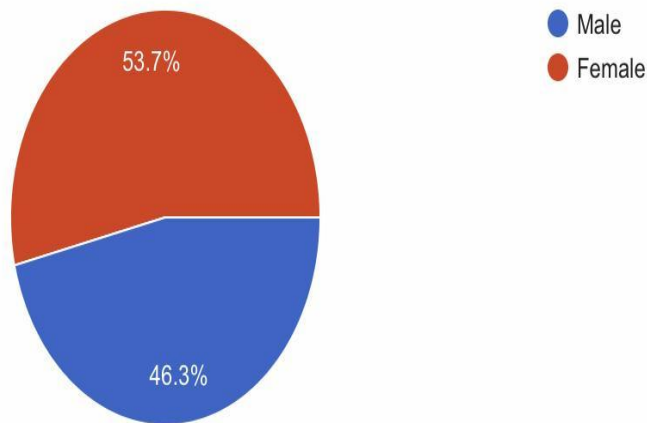
who come in close contact with affirmed or potential patients with COVID-19 should wear suitable PPE. 3)Lead a stock of accessible PPE. Consider directing a stock of accessible PPE supplies. Investigate methodologies to streamline PPE supplies. 4)Urge debilitated workers to remain at home.

**Protection to patients**

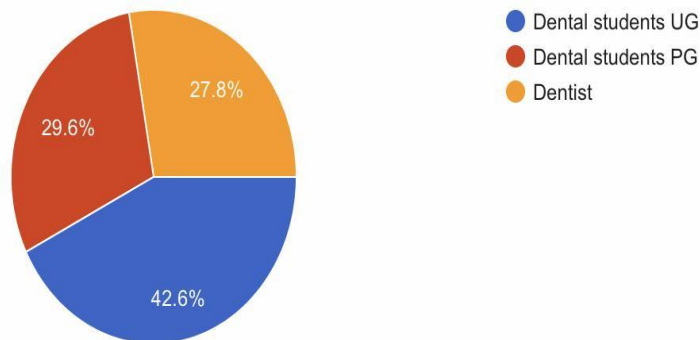
1)Keep up-to-date on the most ideal approaches to oversee patients with COVID-19. 2)Separate patients with fever, respiratory side effects, or different manifestations so they are not holding up among different patients looking for care. Recognize a different, all around ventilated space that permits holding up patients and guests to be isolated. 3)Consider the techniques to prevent patients who can be thought about at home from going to your office possibly uncovering themselves or others to germs



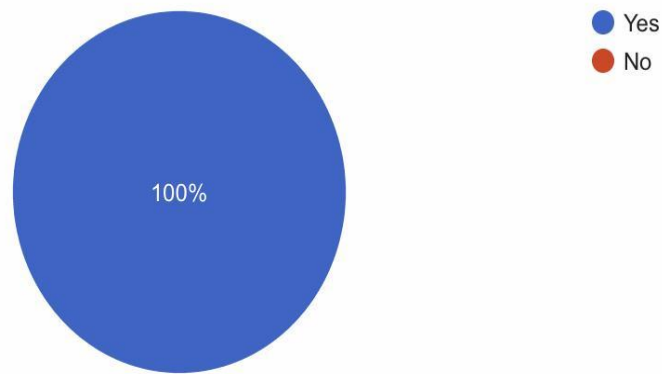
**Fig.1: shows the age groups of dentists, participated in this survey.**



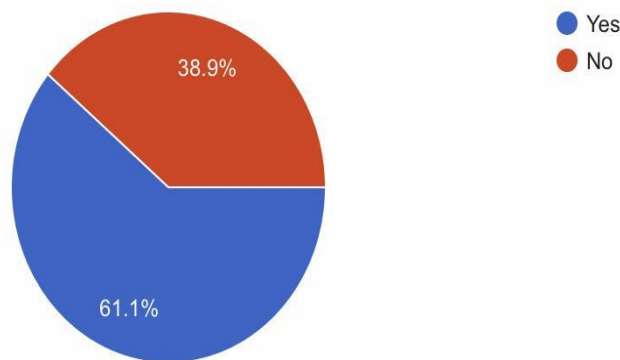
**Fig.2: shows male as 46.3% and females of 53.7% participants**



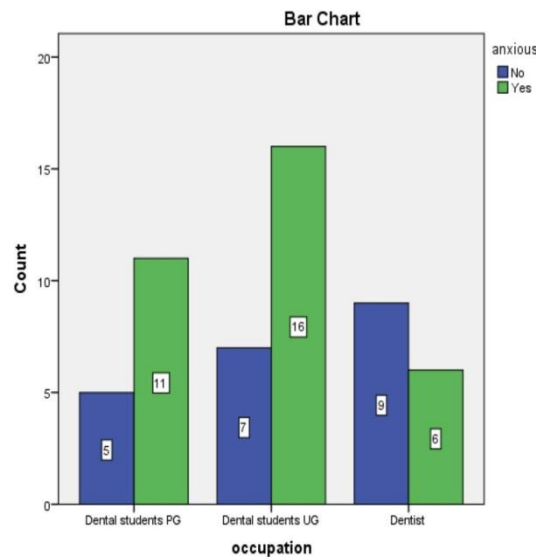
**Fig.3: shows that dental students UG -42.6% ; PG -29.6% ; Dentists -27.8%.**



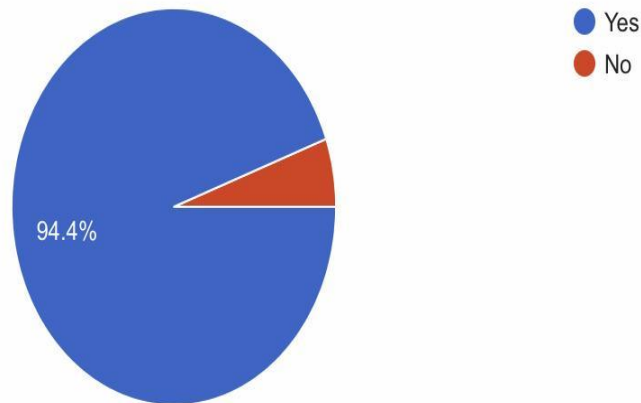
**Fig.4:** depicts the frequency distribution on awareness level in the mode of Transmission of COVID-19 which shows 100% of the respondents are aware of the current situation.



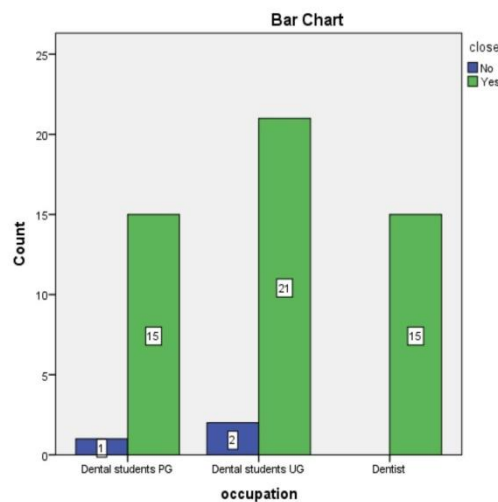
**Fig.5:** depicts the frequency distribution of anxious participants wherein 61.1% were anxious participants and 38.9% did not have any anxiety levels.



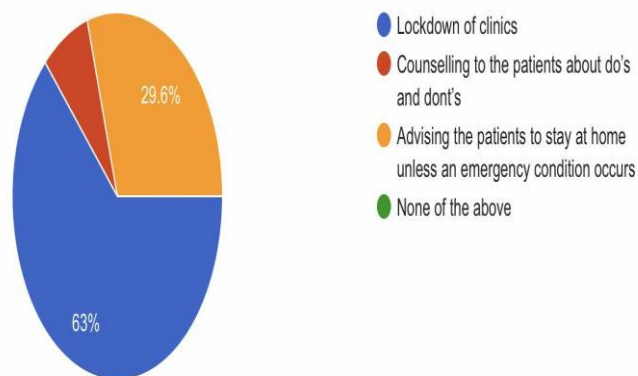
**Fig.6:** Bar chart represents the association between occupation and the anxiety level of dentists over the coughing patients where blue colour denotes no and green colour denotes yes. X axis represents the occupation ; Y axis: represents the count of individuals. Chi square test was done and association was found to be statistically insignificant  $p=0.142$  ( $p>0.05$ ). Hence it is statistically not significant.



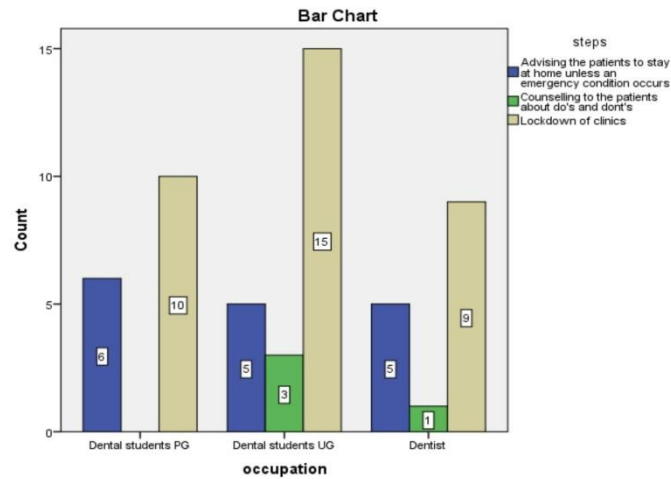
**Fig.7:** portrays the frequency distribution of running dental clinics during the lockdown which shows 94.4% agree to shutdown the dental clinics whereas 6.3% disagreed to shutdown the dental clinics.



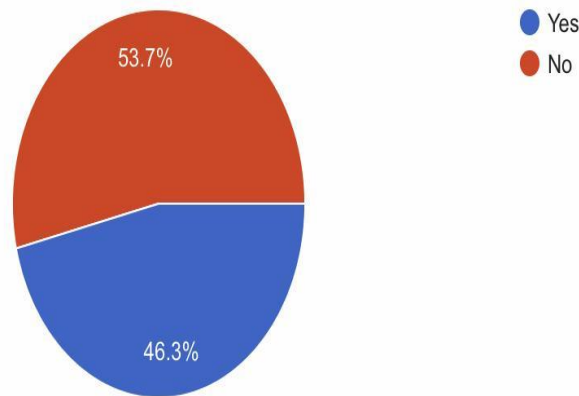
**Fig.8:** Bar chart represents the association between occupation and shutdown of dental clinics where blue colour denotes no and green colour denotes yes. X-axis represents the occupation and Y-axis represents the count of individuals. Chi square test was done and association was found to be statistically insignificant  $p=0.514$  ( $>0.05$ ). Hence it is statistically not significant.



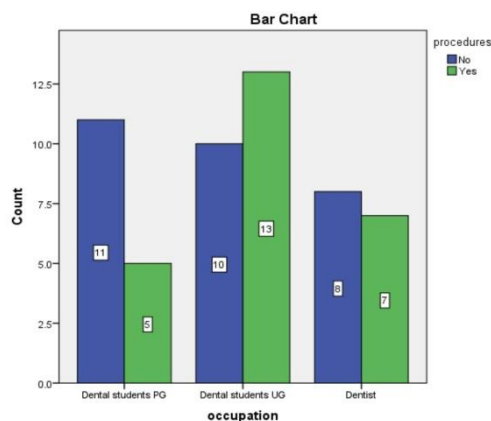
**Fig.9:** represents the frequency distribution of the steps taken by dentists to control the spread of COVID-19, where 63% of participants suggested lockdown was essential followed by 29.6% of participants advised the patients to stay at home unless an emergency condition occurs



**Fig.10:** Bar chart represents the association between occupation and the steps taken by dentists to stop the COVID-19 spread where blue colour denotes advising the patients to stay at home unless an emergency condition occurs, green colour denotes counselling to the patients about do's and don't's and yellow colour denotes the lockdown of clinics. X-axis represents the occupation and Y-axis represents the count of individuals. Chi square test was done and association was found to be statistically insignificant  $p=0.540 (>0.05)$ . Hence it is statistically not significant.



**Fig.11:** depicts the frequency of choice of the dentist performing dental procedures during the lockdown which shows 53.7% of the respondents did not want to carry out any dental procedures whereas 46.3% of the respondents wanted at least emergency procedures to be carried out.



**Fig.12:** Bar chart represents the association between occupation and the choice of dental treatments carried out where blue colour denotes no and green colour denotes yes. X-axis represents the occupation and Y-axis represents the count of individuals. Chi square test was done and



association was found to be statistically insignificant  $p=0.297 (>0.05)$ . Hence it is statistically not significant.

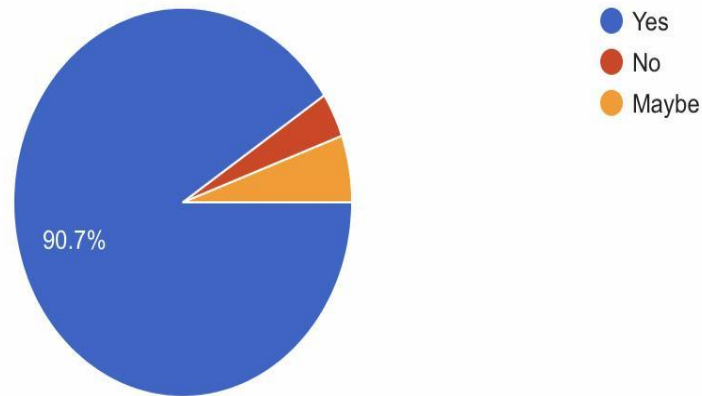


Fig.13: represents the frequency distribution on safety provided by sanitizer and facemask over COVID-19 in which 90.7% of the participants agreed that it provides protection whereas 4.5% disagreed with it.

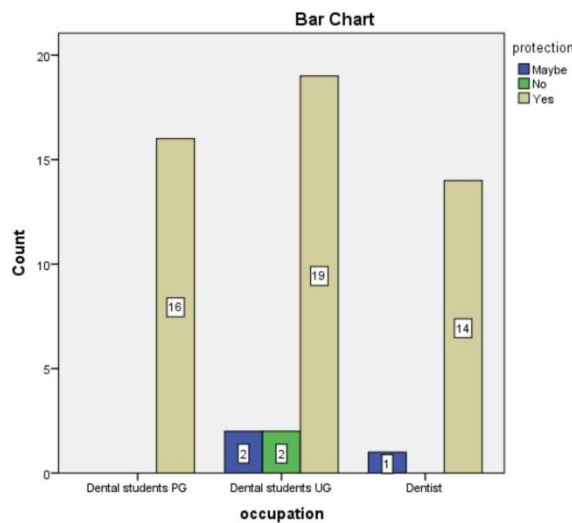


Fig.14: Bar chart represents the association between occupation and the personal protective equipment like facemask where blue colour denotes maybe, green colour denotes no and yellow colour denotes yes. X-axis represents the occupation and Y-axis represents the count of individuals. Chi square test was done and association was found to be statistically insignificant  $p=0.360 (>0.05)$ . Hence it is statistically not significant.

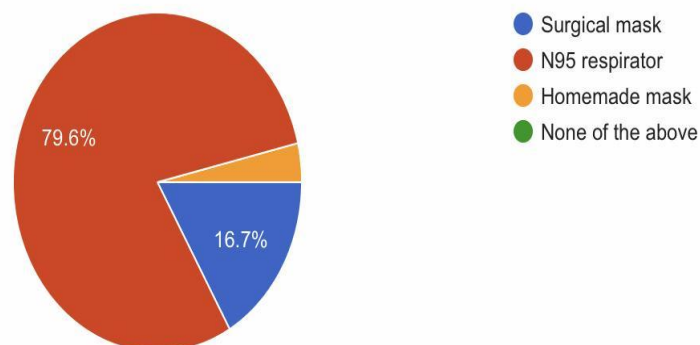
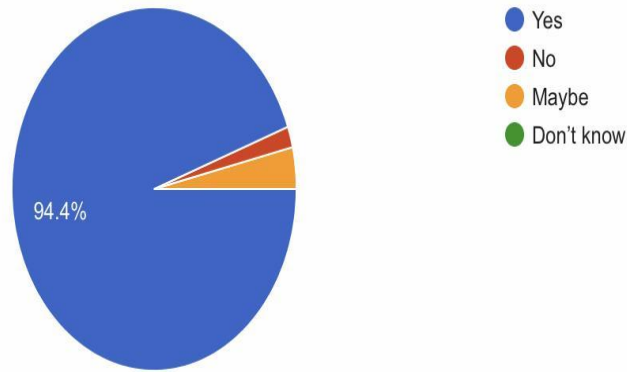
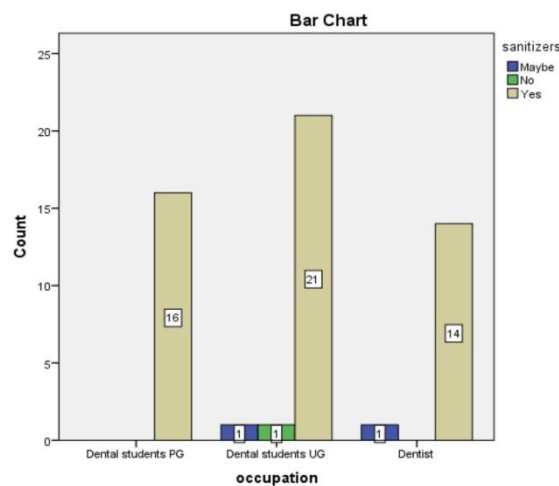


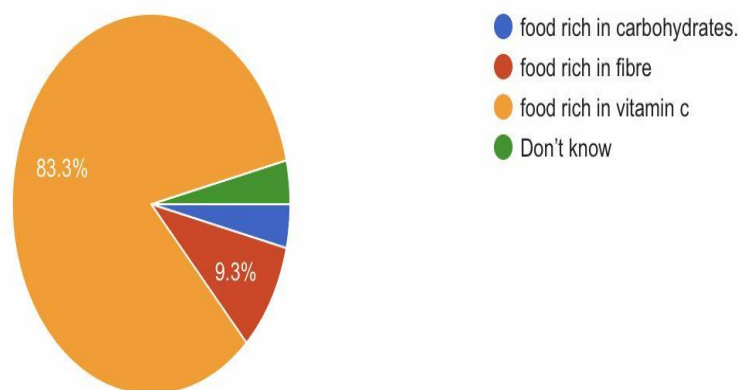
Fig.15: indicates that 79.6% of participants preferred N-95 masks over surgical masks which was shown to be 16.7%.



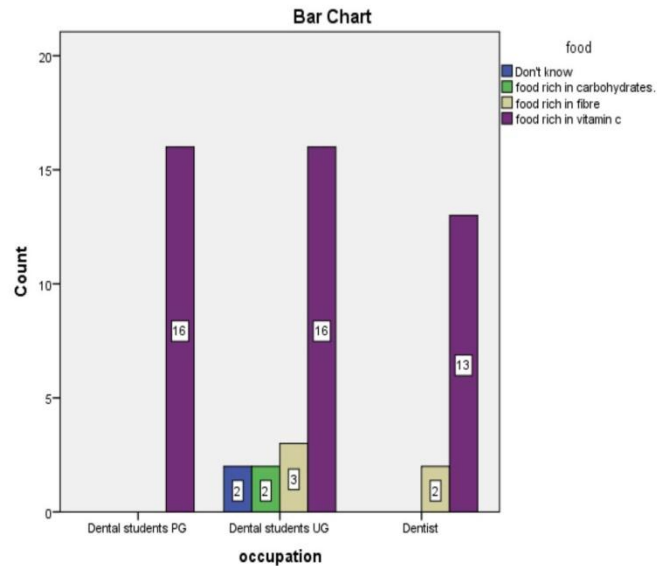
**Fig.16: depicts the percentage of dentists' opinion on the usage of sanitizer for protection for which 94.4% of the participants suggested sanitizer provide protection whereas 4% of participants disagreed with the statement.**



**Fig.17: Bar chart represents the association between occupation and the use of sanitisers for better protection where blue colour denotes maybe, green colour denotes no and yellow colour denotes yes. X-axis represents the occupation and Y-axis represents the count of individuals. Chi square test was done and association was found to be statistically insignificant  $p=0.663 (>0.05)$ . Hence it is statistically not significant.**



**Fig.18: depicts the frequency distribution of preferable food habits for the prevention from COVID-19 in which vitamin C foods are mostly preferred with a percentage of 83.3% followed by fibre rich food suggested by 9.3% of dentists .**



**Fig.19: Bar chart represents the association between the occupation and the prevention procured through food habits where blue colour denotes don't know, green colour denotes food rich in carbohydrates, yellow colour denotes food rich in fibre and purple colour denotes food rich in vitamin c. X-axis represents the occupation and Y-axis represents the count of individuals. Chi square test was done and association was found to be statistically insignificant  $p=0.199 (>0.05)$ . Hence it is statistically not significant.**

Our institution is passionate about high quality evidence based research and has excelled in various fields ( (Pc, Marimuthu and Devadoss, 2018; Ramesh *et al.*, 2018; Vijayashree Priyadharsini, Smiline Girija and Paramasivam, 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai *et al.*, 2019; Sridharan *et al.*, 2019; Vijayashree Priyadharsini, 2019; Chandrasekar *et al.*, 2020; Mathew *et al.*, 2020; R *et al.*, 2020; Samuel, 2021)

## CONCLUSION

The results obtained from this survey depicts that the dental students and the dentists are much aware of the route of transmission of COVID-19. And most of them follow the prevention protocol and safety measures while practicing. However, more information about the disease can still be conducted through public camps and committees to create a better awareness among the public and the medical professionals. Thus from this survey, an awareness has been created among the dentist and dental students, and the steps followed by the dentists to stop the spread of COVID-19 are clearly depicted.

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