

# KAP ON UNIVERSAL PRECAUTIONS DURING DENTAL PRACTICE DURING A PANDEMIC AMONG INTERNS AND POST GRADUATES OF A PRIVATE DENTAL INSTITUTION

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## ABSTRACT:

**Background and aim:** With the increasing severity of the coronavirus disease (COVID-19) pandemic and we approaching the third wave , it is essential that dental health care professionals (DHCPs) are prepared. The aim of the study is to assess the knowledge , attitudes and practices of precautions during dental practice during a pandemic among interns and post graduates.

**Methodology:** Among the intern and post graduates a cross-sectional questionnaire study was conducted on an online survey. There were 165 participants involved in this online survey. The validity of the questionnaire was cross-verified. Frequency and percentage was used for description, Chi square test was done as inferential statistics. The collected data were subsequently analysed in SPSS with  $p < 0.05$  as statistically significant.

**Results:**According to the study 98.18%(162) participants are aware of the dental guidance issued by various dental associations pertaining to dental management during COVID - 19 pandemic.

**Conclusion:**Within the limits of the study,while students gave good responses regarding the standard measures they take to protect against transmission of COVID-19, their knowledge and attitudes about the extra measures they can take should be improved.

**Keywords:** Innovative analysis, Coronavirus, health care worker, dental health care professionals, infection.

## 1. INTRODUCTION

In the last few decades, there have been several global viral epidemics. Recently, coronavirus disease (COVID-19) has become a viral pandemic. In December 2019, people in Wuhan, in China's Hubei Province, reported many linked cases of unexplained pneumonia-like symptoms<sup>1,2</sup>. The etiological agent of this pneumonia was later discovered to be a virus, and was named 2019- nCoV<sup>3,4</sup>.This virus belongs to the same family of b-coronaviruses that caused the severe acute respiratory syndrome (SARS) outbreak in 2003 and the Middle East respiratory syndrome (MERS) outbreak in 2012<sup>5,6</sup>. The International Committee on Taxonomy of Viruses has named the latest virus SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2). The disease caused by this virus was named

COVID-19 in February 2020 by the World Health Organization (WHO). Owing to the contagious nature of COVID-19, it has spread widely across the world<sup>1</sup>. In January 2020, the National Health Commission of China categorized COVID-19 as a Group B infectious disease (along with influenza and SARS)<sup>7</sup>. As the third wave is approaching, dental health care workers should take more precaution. Despite this categorization, health care workers (HCWs) were instructed to follow the same infection control and prevention protocols as for Group A diseases such as cholera and plague<sup>8,9</sup>. The WHO later declared COVID-19 to be a public health emergency of international concern. However, the risk from asymptomatic cases cannot be ruled out<sup>10</sup>. Additionally, the highly contagious nature and rapidly mutating viral genome that characterizes COVID-19 are of great concern for society generally and for HCWs<sup>11,12</sup>. It is therefore essential that the authorities, HCWs and the public are aware of the nature of the disease and ways to prevent its spread. HCWs are the frontline workers in any pandemic<sup>11</sup>. Along with elderly people and individuals with comorbidities such as cardiovascular disease, respiratory disease, diabetes and cancer<sup>13</sup>. However, the risk from asymptomatic cases cannot be ruled out. Additionally, the highly contagious nature and rapidly mutating viral genome that characterizes COVID-19 are of great concern for society generally and for HCWs<sup>14</sup>. It is therefore essential that the authorities, HCWs and the public are aware of the nature of the disease and ways to prevent its spread. HCWs are the frontline workers in any pandemic. Along with elderly people and individuals with comorbidities such as cardiovascular disease, respiratory disease, diabetes and cancer. HCWs are at an increased risk of acquiring COVID-19. Dental health care professionals (DHCPs) are no exception. As dental treatment requires close proximity to patients, DHCPs are constantly exposed to infectious oral fluids, which can play a pivotal role in the dissemination of infection. Basically the main aim for choosing intern and dental practitioner for this study is because they are the front line workers who have been working during this pandemic and lockdown. Furthermore, DHCPs experience fear and psychological stress because of considerable work overload and low self-efficacy.

Our team has extensive knowledge and research experience that has translate into high quality publications<sup>15-23 24 25 26,27 28 29 30-34</sup>.

## **2. MATERIAL AND METHODS :**

**Study design :-** A cross sectional questionnaire survey.

**Study setting :-** Interns and post graduates in a Saveetha dental College in Chennai.

**Study size :-** 165 intern and post graduates of saveetha dental college .

**Sampling and scheduling :-** Owing to the nature of the study design and setting, a convenience sampling method was used, and the data was collected over a period of one month.

**Survey instrument :-** A pre-tested and validated questionnaire was used to measure the baseline knowledge, attitude and practice regarding the pandemic and alternative therapies for the same.

**Inclusion and Exclusion criteria :-** All those who were willing to participate were included in the study. Those who were not willing and those who had a language barrier in answering the English version of the questionnaire were excluded from the study.

**Ethical clearance :-** Prior to the start of the study, ethical clearance was obtained from the institution ethical committee of Saveetha University.

**Statistical analysis :-** The responses from the Google sheet were transferred into excel and were then imported to SPSS software, (version 25). Descriptive statistics were done using frequency and percentage. Inferential statistics were done using the Chi-square test. Interpretation was based on a p value less than 0.05, which was considered statistically significant. Comparisons were done between independent variables like age, gender, occupation and knowledge, attitude, practice responses by the participants.

## **3. RESULTS**

Recently, coronavirus disease (COVID-19) has become a viral pandemic. In December 2019, people in Wuhan, in China's Hubei Province, reported many linked cases of unexplained pneumonia-like symptoms. According to the

study 56.97% are post graduates and 43.03% are interns (Figure 1).

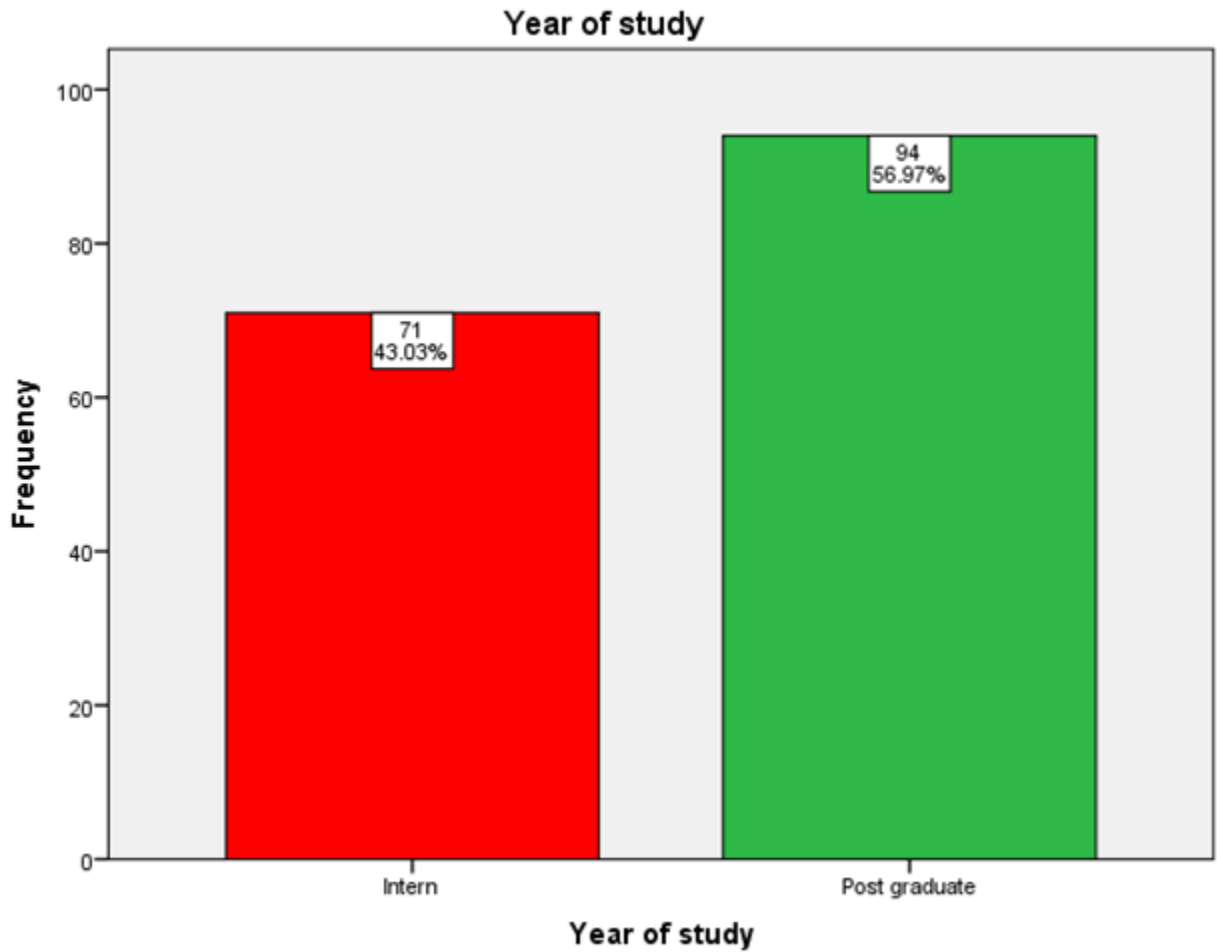


Fig 1: The bar graph shows the distribution of study subjects according to the year of study, 56.97% post graduate and 43.03% intern, where red denotes intern and green denotes post graduate. According to the study 98.18%(162) participants are aware of the dental guidance issued by various dental associations pertaining to dental management during COVID - 19 pandemic.

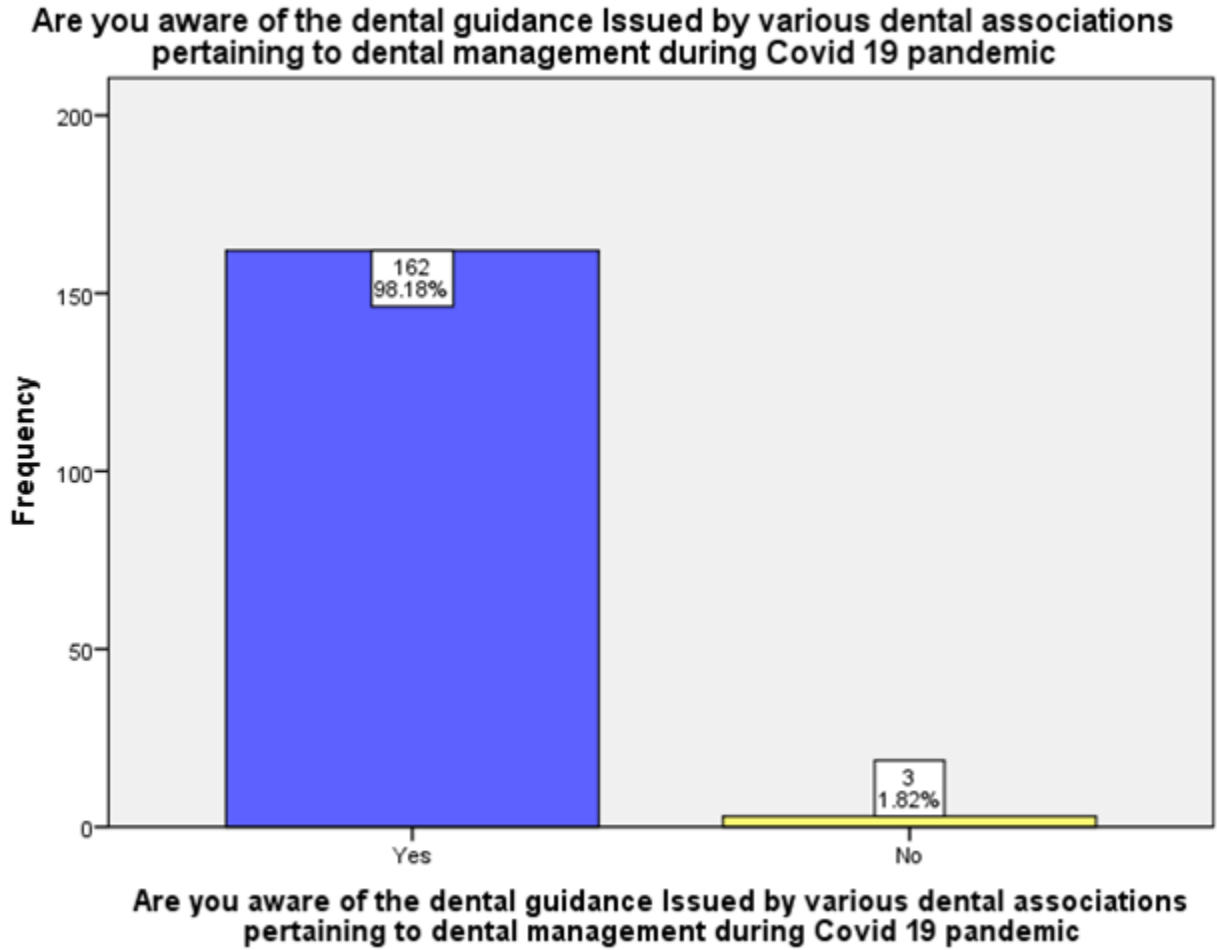


Fig 2: The bar graph shows the distribution of awareness of dental guidance issued by various dental associations pertaining to dental management during COVID 19 pandemic, where Blue denotes Yes and yellow denotes No.

According to the study the age group which is most likely to remain asymptomatic despite being Covid positive was 20-45 years - 69%, followed by 5-10 years was 20.61%.

On the basis of preventive measures, 75% of the participants believe that ART is a procedure that doesn't procedure aerosols.



Fig 3: The bar graph shows the distribution of use of procedure that does not produce aerosols, where 4.24% - Air water syringe, 75.76% - ART, 20% - Polishing cusps

According to the study 62% of the participants believe that procedures like aerosols generating, nitrous oxide sedation, ultrasonic devices require mandatory use of N95 mask, FFP2.

**Which Of the following procedure is required the mandatory use of N 95 , FFP2**

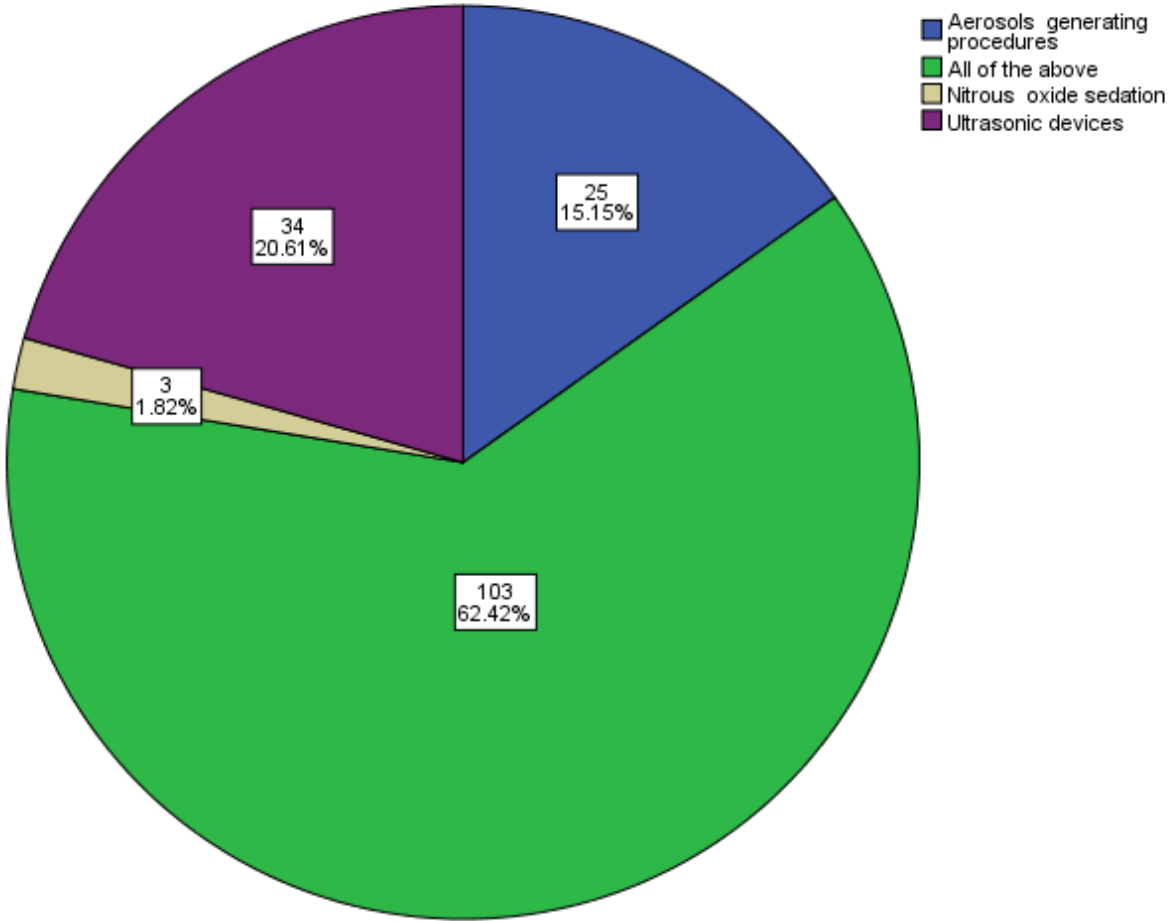


Fig 4 :The pie chart shows the distribution of procedures which requires mandatory use of N95, FFP2. 62.42% all of the above (Green), 20.61% Ultrasonic devices (Purple), 15.15% aerosols generating procedures (Blue), 1.82% Nitrous oxide sedation (Yellow).

**Which of the following age group is most likely to remain asymptomatic despite being Covid positive**

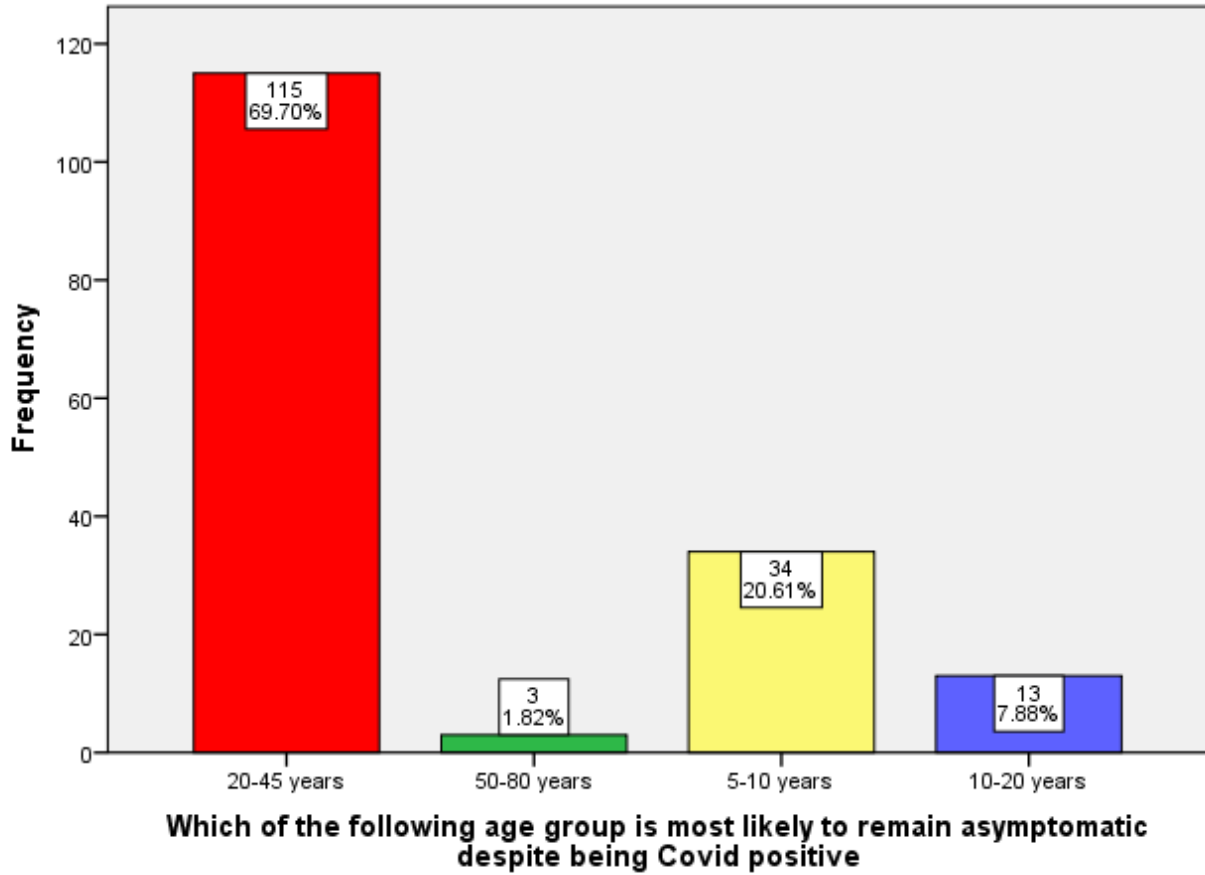


Fig 5 : The bar graph shows the perception of study participants regarding age group and possibility to remain asymptomatic. 20-45year- 69.70%(Red), 50-80 year- 1.82%(Green), 5-10 year - 20.61%( Yellow), 10-20 years - 7.88% ( Blue).

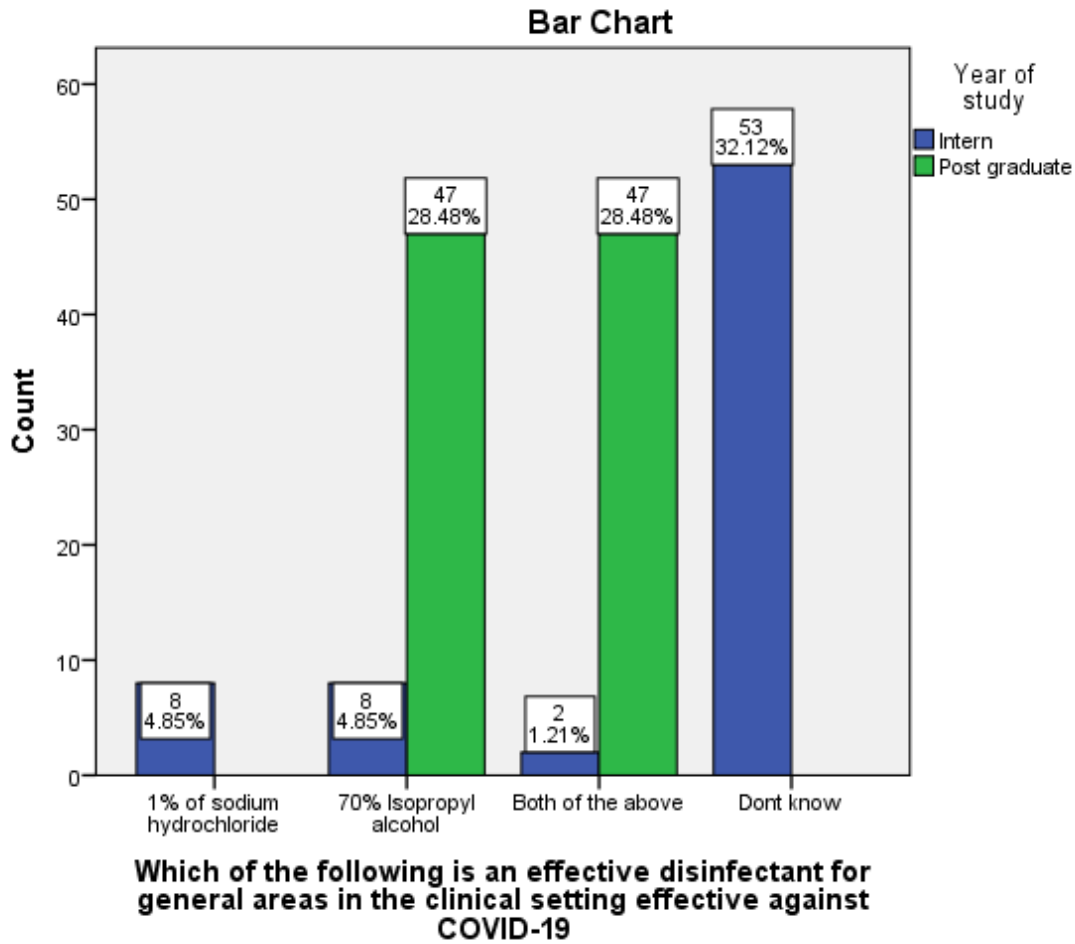


Fig 6: The graph represents the association of years of study of the participants and effective disinfectant for general areas in the clinical setting effective against COVID-19, 33.33% - 70% isopropyl alcohol, 32.12% - don't know, 29.70 - Both of the above (BLUE), 4.85% - 1% of sodium hydrochloride. X axis denotes different disinfectants and Y axis denotes count of years of study. Chi-square value = 26.106 ; P- value = 0.00 (> 0.05), hence statistically significant.

According to the study, 33.33% of the participants think 70% isopropyl alcohol is an effective disinfectant for general areas in the clinical setting effective against COVID-19 and 32.12% don't know which disinfectant is effective against COVID-19 . According to the study 58.79% of the participants are not aware of upto how many



days a patient can still remain a carrier once the symptoms clears.

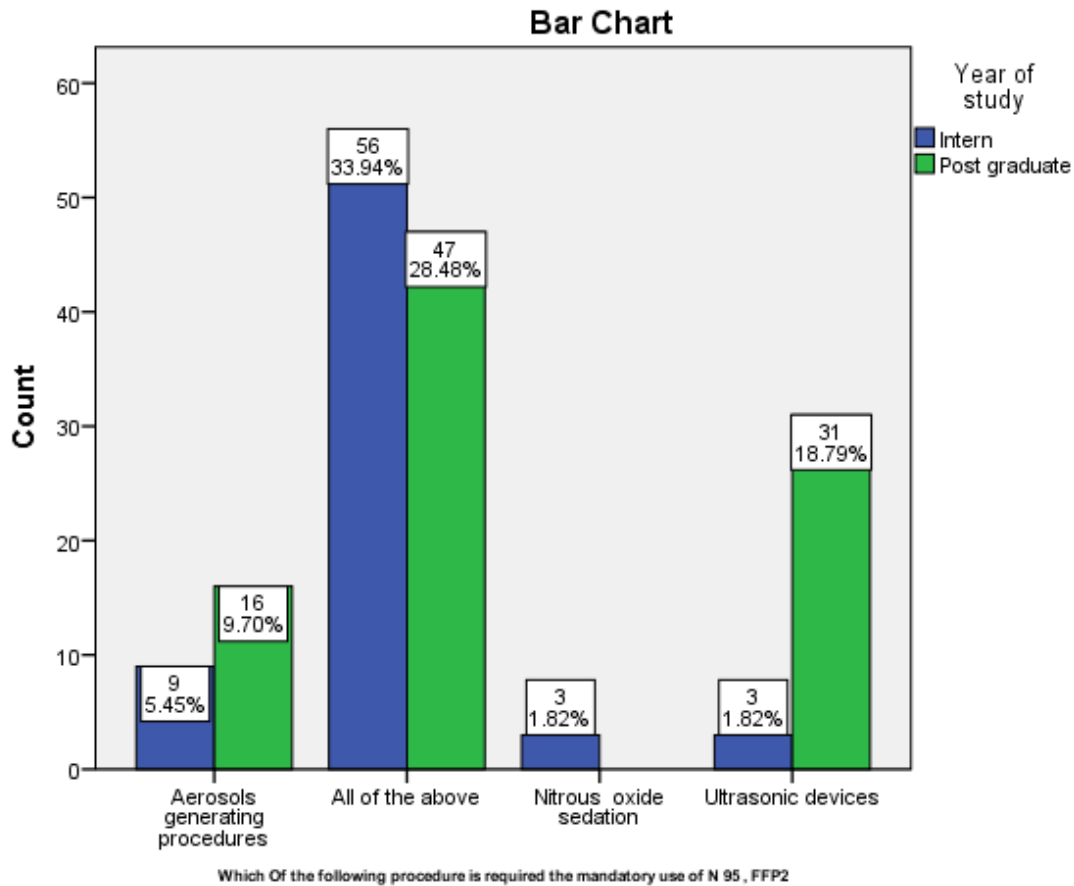


Fig 7: The graph represents the association of years of study of the participants and procedure required for mandatory use if N 95, FFP2. X axis denotes different procedures and Y axis denotes count of years of study. Chi-square value = 0.08; P- value =0.08 (> 0.05), hence statistically not significant.

According to the survey 80% of the participants are still practising during the lockdown period.

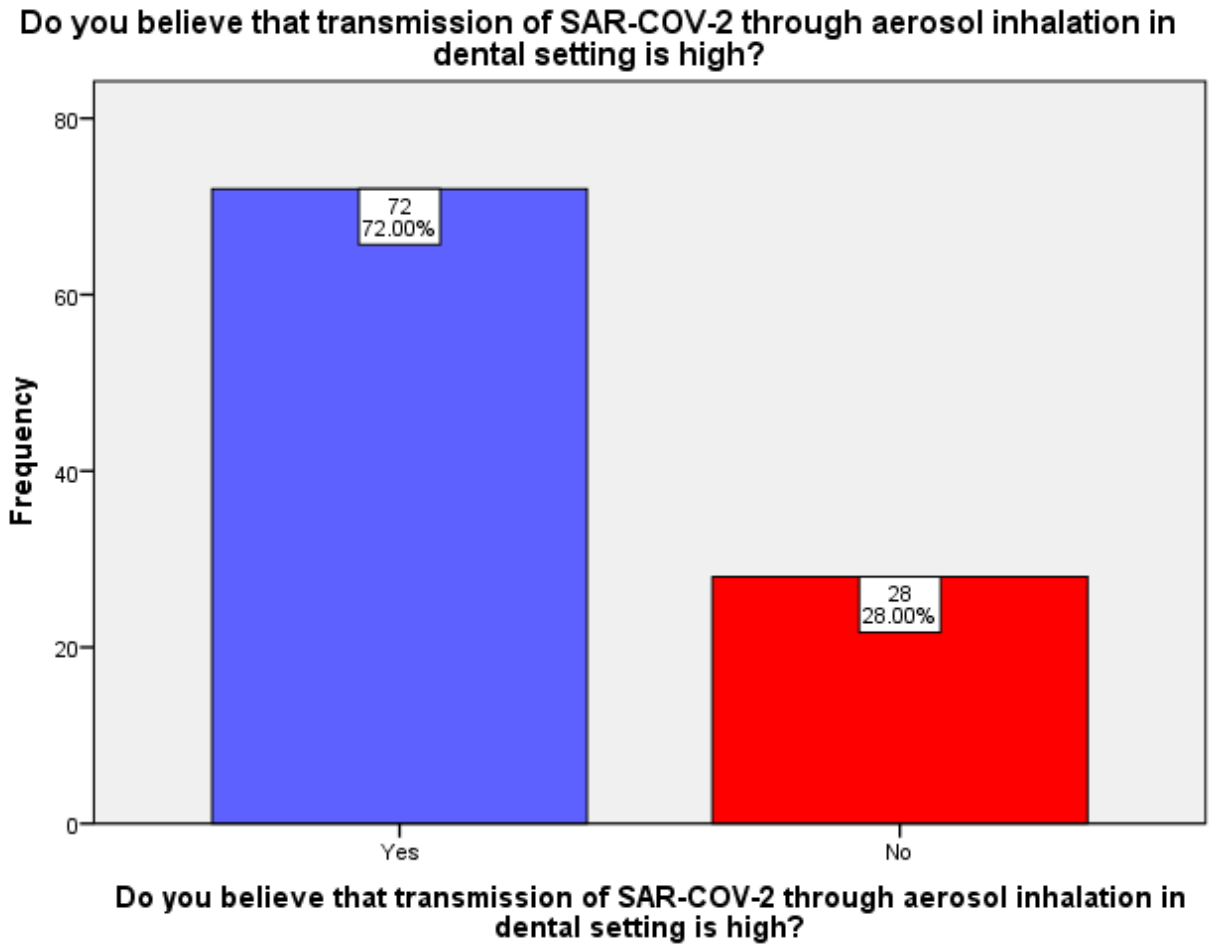


FIG 8: The bar graph shows the distribution of the attitude of the participants regarding transmission of COVID-19 through aerosol inhalation in the dental setting.

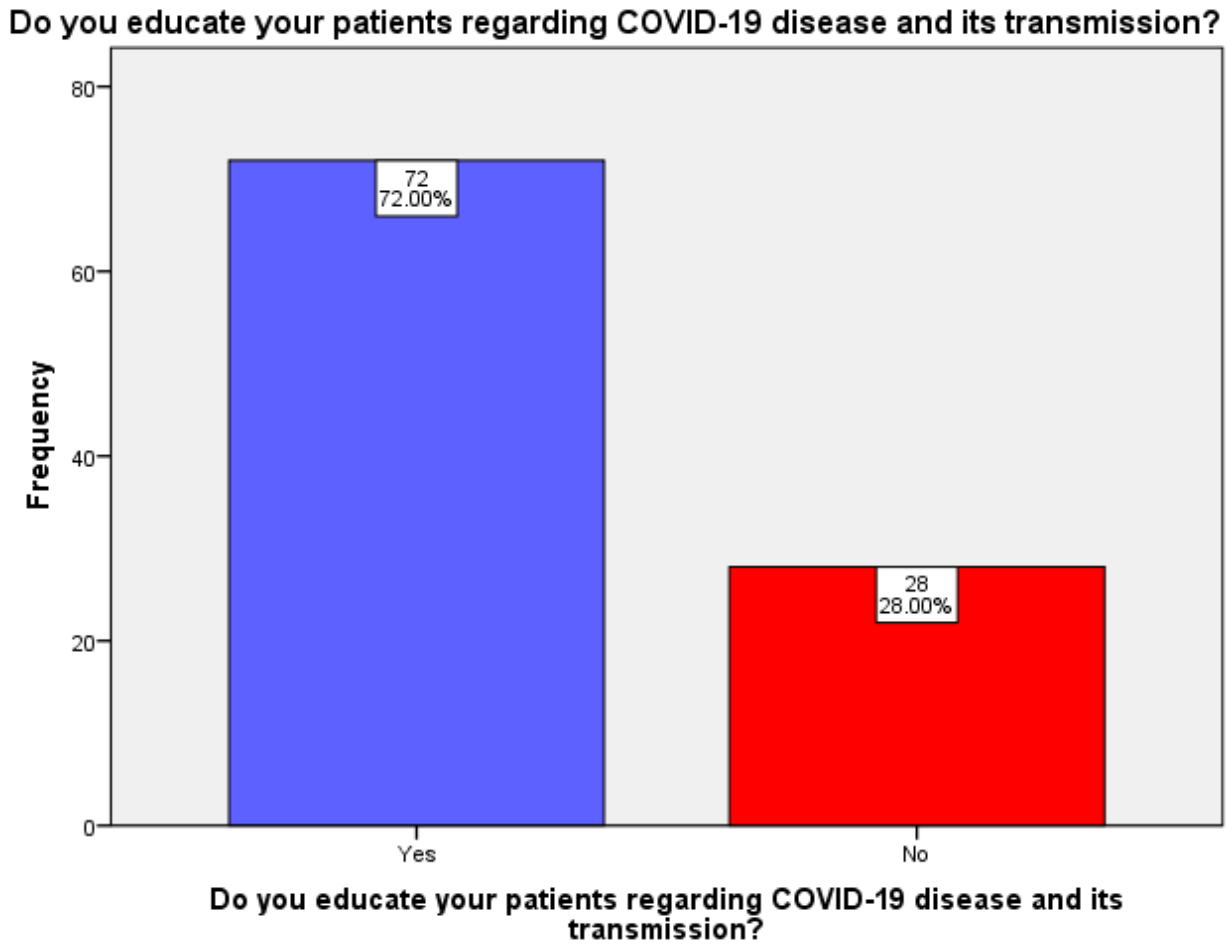


FIG 9 : The bar graph shows the distribution of practices of the participants regarding education of patients about COVID-19.

According to the study 51.51% of the participants think the dentist himself is liable to pay in case the dentist gets infected with COVID-19 while treating the patient.

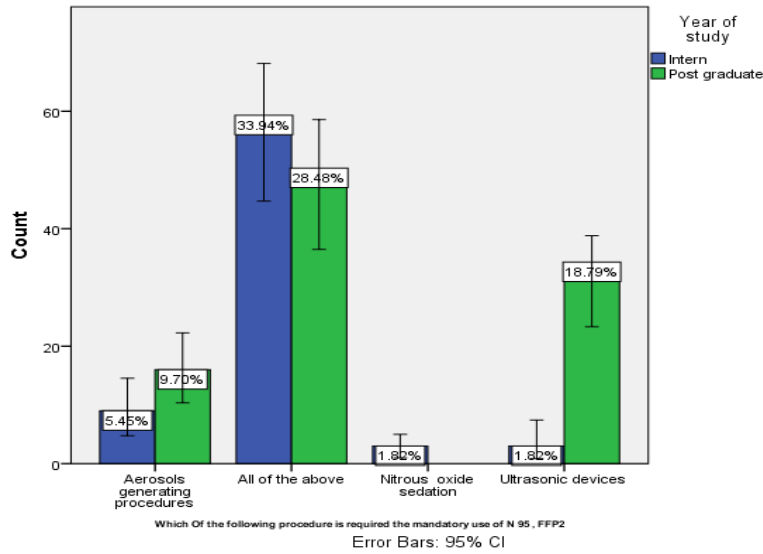


FIG 10: The graph represents the association of years of study of the participants and procedure required for mandatory use if N 95, FFP2. X axis denotes different procedures and Y axis denotes count of years of study. Chi-square value = 0.08; P- value =0.08 (> 0.05), hence statistically not significant.

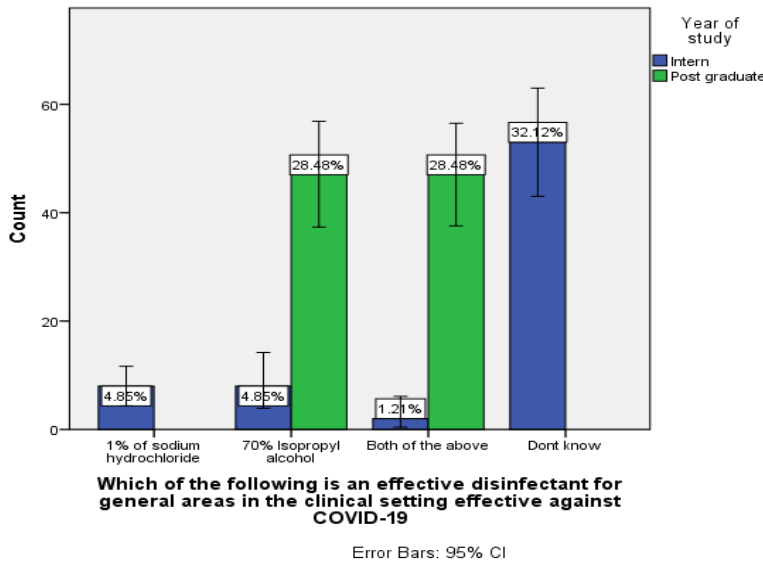


FIG 11: The graph represents the association of years of study of the participants and effective disinfectant for general areas in the clinical setting effective against COVID-19, 33.33% - 70% isopropyl alcohol, 32.12% - don't know, 29.70 - Both of the above (BLUE), 4.85% - 1% of sodium hydrochloride. X axis denotes different disinfectants and Y axis denotes count of years of study. Chi-square value = 26.106 ; P- value =0.00 (> 0.05), hence statistically significant.

**4. DISCUSSION:**

To the best of our knowledge, this is a study assessing the knowledge, attitude and practice of outpatients towards COVID-19 amid the ongoing pandemic. In the predominantly well educated and urban rising population, we could

observe from the conducted survey that participants were confident in being able to protect themselves from COVID-19. Similarly, the participants were also abiding by the practice of regular hand washing and using sanitizers and following other home remedies for their own safety. The sample comprised mainly young (20–30 years; 44.3%) male (66%) professionals. Although this was a nationwide survey, most (44.7%) of the responses were from the northern region of KSA and the fewest from the eastern region. Regarding educational background, most respondents (55.7%) had a bachelor's degree with work experience of 1 to 3 years (45%). In terms of work setting, more than half (62.6%) of the DHCPs were employed in the government sector, and 38.1% worked in academic-based institutions. The MOH website was the most popular source of information (79.2%), compared with the other available options of professional colleagues (16.4%), social media (56.9%) and specialty journals (24.2%)<sup>5,35368</sup>.

The study conducted by Dil K. Limb, a total of 103 healthcare workers participated in the study. The mean age of the participants was  $28.24 \pm 6.11$  years (range: 20–56); 60.2% were females; 61.2% were unmarried; 60.2% had a medical degree, and 39.8% were the nursing staff. The mean knowledge score was  $10.59 \pm 1.12$  (range: 7–13), and it did not vary significantly when adjusted for demographic characteristics. The attitude was positive for 53.4% of the participants with a mean knowledge score of  $10.35 \pm 1.19$  and negative for 46.6% participants with a mean knowledge score of  $10.88 \pm 0.98$  ( $p = 0.02$ ). The practice was good ( $\geq 3$  score) for 81.5% participants with a mean knowledge score of  $10.73 \pm 1.12$  and poor for 18.5% participants with a mean knowledge score of  $10.46 \pm 1.13$  ( $p = 0.24$ ). The attitude of the participants improved with increasing age ( $29.55 \pm 7.17$ ,  $p = 0.02$ ).

The study conducted by Kavita Batra, a total of 381 responses were recorded during the survey period. The average time that was taken to complete the survey was 8.4 min. The demographic profile of the respondents shows that 268 (70.3%) respondents were females, and 79 (20.7%) were males (Table 1). The average age of the sample was 22.8 years ( $SD = 2.8$  years). The majority of the participants were undergraduates (80%,  $n = 320$ ), with nearly 48% (154 out of 320) being in the third and fourth year of the undergraduate dental program (Table 1). Approximately 64.8% participants had received some form of COVID-19 related education, and 50.7% of the COVID-19 related information was received from social media (Table 1). There were significant gender differences in the mean scores of knowledge and risk perception ( $p < 0.05$ ).

According to our study the overall results showed that the respondents were inclined toward safety and good health. Although the results were positive towards KAP there are still several suggestions that could be imposed for both the government and residents of India for dental health care workers.

## **5. CONCLUSION:**

The students of Saveetha Dental College have been inclined toward safety and good health preservation during the COVID-19 crisis. Within the limits of the study, while students gave good responses regarding the standard measures they take to protect against transmission of COVID-19, their knowledge and attitudes about the extra measures they can take should be improved. For students to be least affected by fears associated with the disease, dental faculties should be ready to provide psychological services to those in need.

## **ACKNOWLEDGEMENT:**

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## **6. CONFLICT OF INTEREST:**

None declared.

## **7. SOURCE OF FUNDING:**

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- Saveetha University
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