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# Dental students knowledge and practice towards surgical mouth mask usage - A Cross Sectional Survey

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**ABSTRACT**
Introduction: Surgical mouth mask plays an important role in each and every procedure in dental practise. It acts as a barrier and prevents transmission and spreading of pathogens through water aerosols and many microorganisms which are produced in the dental setup. In order to prevent and minimize the risk of infections, the dental practitioners and the auxiliary staff present in the clinic must wear precautious fluid resistant masks. Therefore the aim of the study is to create awareness of surgical mouth mask usage among dental students.
Materials and methods: A questionnaire based survey was conducted using google forms. This standard questionnaire consisted of 12 questions and it was circulated among the students in saveetha dental college and responses were collected and statistically analysed using SPSS software. Descriptive statistics were expressed by means of number, frequency, and percentage. Chi-square test was used to find the association between year of study and Number of responses provided by the participants.
Result: The age of participants ranges from 17 to 30 years. The study population was asked about awareness of wearing a mouth mask 97.25% were aware. When asked if they wear a mouth mask in public places 88.99% said yes.
Conclusion: Based on the results of the present study, it was found that the awareness about the usage of surgical masks is high for the 3rd year dental students compared to the 1st, 2nd, 4th year dental students, but more awareness has to be spread in order to improve the usage of surgical masks.

**Keywords:** Infection control, Mouth mask, Dental students, Survey, Innovative analysis

## INTRODUCTION

In the field of dentistry there is a constant exposure to various respiratory, blood borne pathogens through blood, saliva and various other body fluids. There are high chances of spreading of microorganisms in closed spaces like dental clinics, as here every procedure is always performed in the oral cavity of a patient and what happens is it not only contaminates instruments used in the treatment it also contaminates the hands of the dentist and the surfaces and objects of the dental unit/clinic.
The most important or the main route for the cause of infection is by the aerosols and splatter production, produced by use of air water syringes, ultrasonic scalers, micromotor handpieces and rotors. It can be transmitted through other means also, either through the usage of contaminated needle stick injury or the improper handling and contact with the proper sterilisation of instruments.
Blood borne pathogen exposure from patients suffering from HIV (Human Immunodeficiency Virus), hepatitis c, hepatitis B, HSV (Herpes Simplex Virus), SARS (Severe acute respiratory syndrome), Staphylococcus and other infectious agents (1)
All the guidelines which are related to infection control measures in the dental clinic have been updated regularly and it was made available by (CDC) centres of Disease control in the year 2016 in the month of march. According to these guidelines of CDC, which is mandatory to wear face masks, wear gloves, use adequate high speed suction while using high and low speed rotatory instruments.(2)
So in order to reduce and minimise the risk, dental operating personnel are strictly required to follow accepted infection control practices. Routine use of face masks is one of the infection control measures. So, Clinical

auxiliary staff and dental practitioners must wear a suitable fluid resistant mask that blocks particles of 3 µm or less in size.

Most of the masks feature folds/pleats, commonly there are 3 pleats in the mask for the user to expand the mask so it covers from nose to chin (3). However there is evidence which shows that the DHCP's have an inadequate knowledge and negative attitude with poor practice recording infection control methods(3). Our team has extensive knowledge and research experience that has translate into high quality publications(4–12),(13),(14),(15,16),(17),(18),(19–23). The purpose of this study was to investigate knowledge about mouth mask students (Ist-IVth year).

## MATERIALS AND METHODS

### Study Design and Study setting

A descriptive cross sectional study was conducted in the Saveetha Dental College and Hospital (Saveetha University).

### Sample size estimation

Sample size was estimated using the manual calculation formula ($N=Z\alpha^2Pq/L^2$ ) based on the study done by (24)and the total sample size arrived was 109

### Study Population

The study population consists of dental students in saveetha dental college.

### Ethical Approval

Ethical approval was obtained from the Institutional Review Board in Saveetha University.

### Data collection

A questionnaire-based survey was done and those uploaded in Google forms. The standard questionnaire consisted of 12 questions and it was circulated among the students of Saveetha dental College and responses were collected.First part consisted of demographic questions or details. The second part consists of the questions which were asked to assess the knowledge and usage and awareness of surgical mask usage.

### Statistical Analysis

Data was collected and statistically analysed using SPSS. Descriptive statistics were expressed by means of number, frequency, and percentage. Chi-square test was used to find the association between year of study and Number of responses provided by the participants.

## RESULTS

Different age groups of people were involved in the survey, they came under age groups of 17-20 (66.06%), 21-24 (20.18%), 25-28 (8.26%), above 28 (5.50%) (Figure 1). In this survey 58.7% males and 41.28% females participated in this survey (Figure 2). The dental students who participated in the survey were 1st years (28.43%), 2nd years (31.37%), 3rd years (25.49%), and 4th years (6.86%) (Figure 3). Among which 26.61% were 1st year, 29.36% 2nd year, 30.28% 3rd year and 13.76% 4th year BDS students. 29.36% of the 3rd year students were aware of wearing a mouth mask (Figure 4). When asked which type of mouth mask do you prefer 21.10% of the 3rd year students preferred masks which are disposable with long ties (Figure 5). When asked if they wear a mouth mask in public places 26.61% of the 3rd year students said yes (Figure 6). When asked if they would prefer changing a mouth mask after treating a patient 27.52% of the 2nd and 3rd year students said yes (Figure 7). When asked to which extent do they wear the mask 24.77% of the 3rd year students said by covering the full nose (Figure 8).

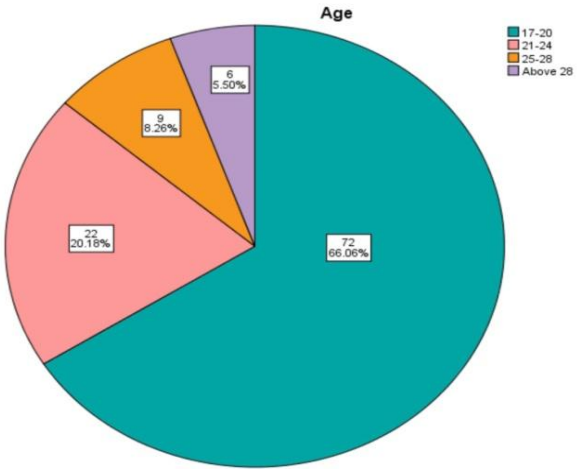


**Figure 1 : Pie chart representing the percentage distribution of age. Light green colour represents age group from 17-20 years, pink colour represents age group from 21-24 years, orange colour represents age group from 25-28 years ,purple represents age group above 28 years respectively.**

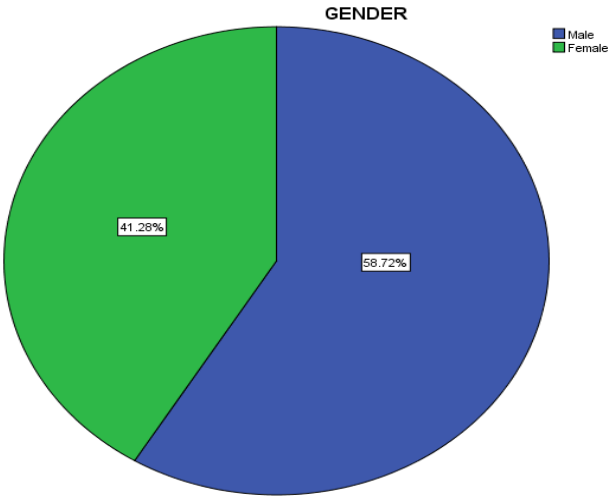


**Figure 2 : Pie chart representing the percentage distribution of gender. Blue represents Males (58.72%) and green represents Females (41.28%) respectively.**

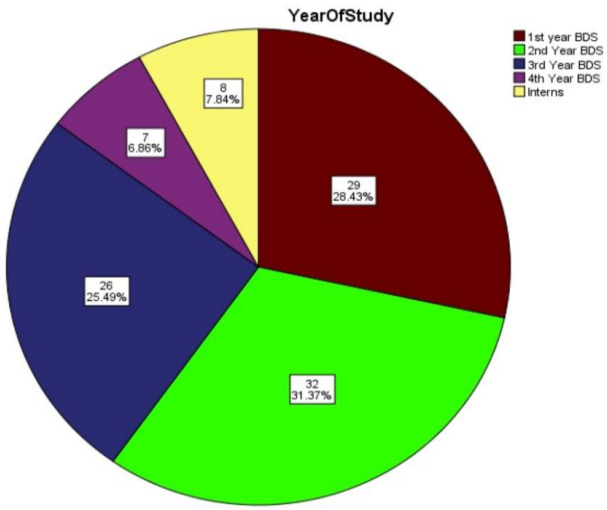


**Figure 3 : Pie chart representing the percentage distribution of dental students. Brown colour represents 1st years, green colour represents 2nd years, dark blue colour represents 3rd years, violet colour represents 4th years respectively.**

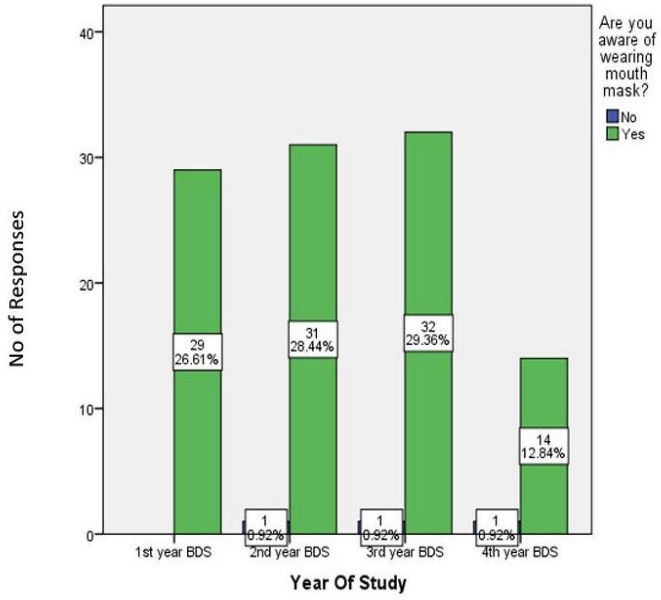


**Figure 4 : Bar graph showing association between year of study and awareness of wearing mouth masks among the dental students. X axis represents gender and Y axis represents the number of responses. Green colour represents Yes, blue colour represents No. The 3rd years were more aware than the other year students. Pearson's chi square test was performed and was found to be statistically not significant [P value-0.63 (p> 0.05)]**

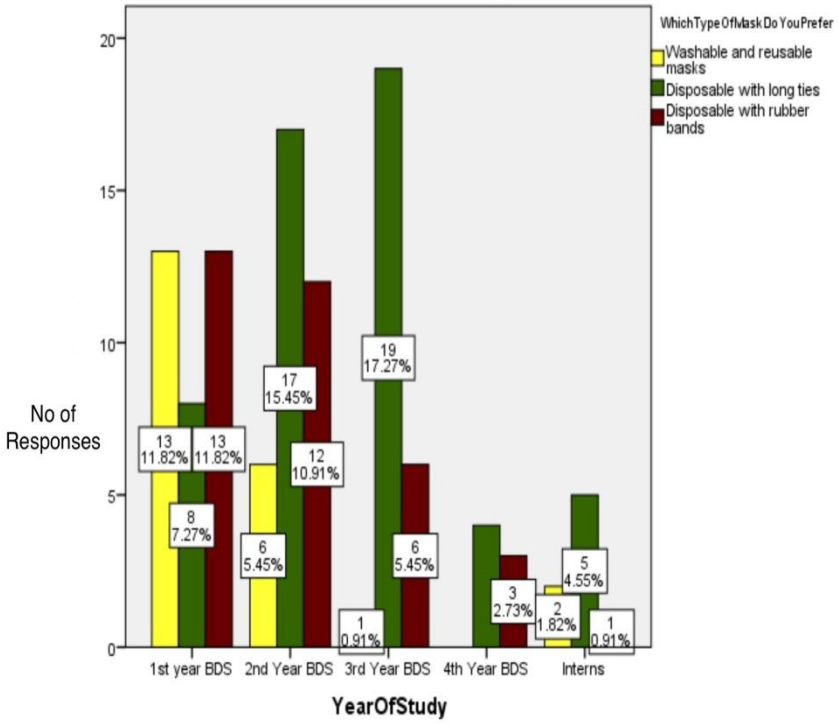


**Figure 5 : Bar graph showing association between year of study and the type of mouth they prefer among the dental students. X axis represents gender and Y axis represents the number of responses. Green colour represents disposable with long tie, dark red colour represents disposable with rubber bands, yellow colour represents washable and reusable mask. The 3rd years were more aware than the other years of students. Pearson's chi square test was performed and was found to be statistically significant [P value-0.00 (p< 0.05)]**

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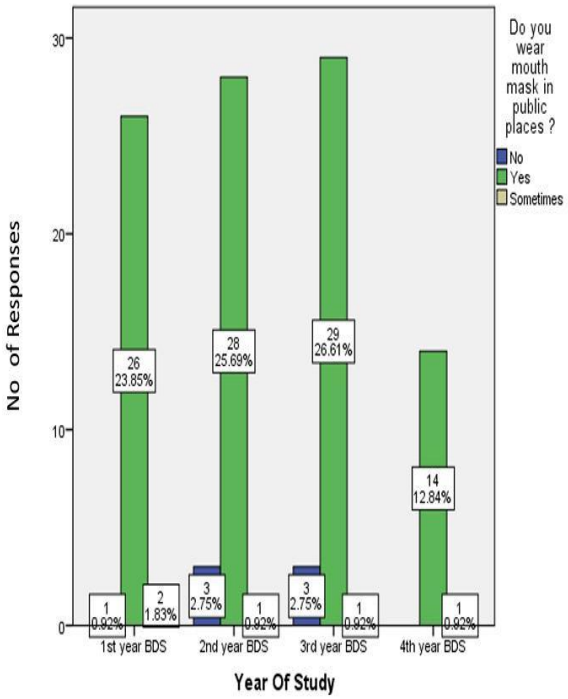


**Figure 6 : Bar graph showing association between year of study and awareness of wearing mouth masks in public places among the dental students. X axis represents gender and Y axis represents the number of responses. Green colour represents Yes, blue colour represents No. The 3rd graders were more aware than the other year students. Pearson's chi square test was performed and was found to be statistically not significant [P value-0.80 (p> 0.05)]**

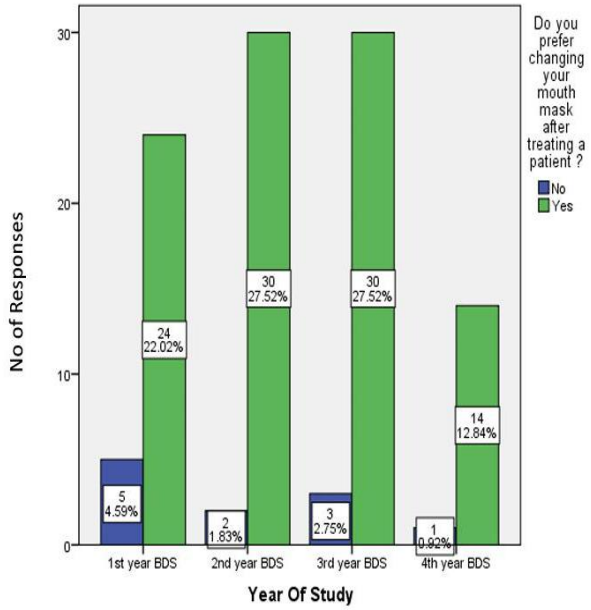


**Figure 7 : Bar graph showing association between year of study and do they prefer changing mouth masks after treating a patient among the dental students. X axis represents gender and Y axis represents the number of responses. Green colour represents Yes, blue colour represents No. The 2nd years and the 3rd years had similarity. Pearson's chi square test was performed and was found to be statistically not significant[P value-0.49 (p> 0.05)]**

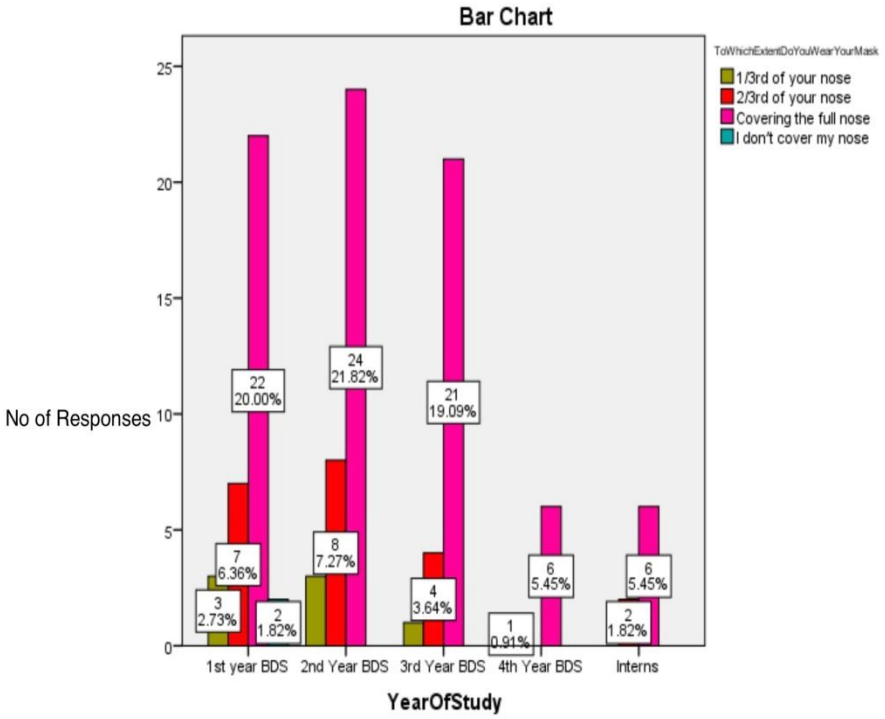


**Figure 8 : Bar graph showing association between years of study and to which extent do they wear their mouth mask among the dental students. X axis represents gender and Y axis represents the number of responses. pink colour represents covering the full nose, red colour represents 2/3rd of the nose, dark green colour represents 1/3rd of the nose. The 3rd years were more aware than the other year students. Pearson's chi square test was performed and was found to be statistically significant [P value-0.369 (p> 0.05)]**

## DISCUSSION

When asked which layer acts as a filter media barrier in Dr Vinita Mary A's 2020 article 64.3% said middle layer, in my study the people of age group 17 to 20, 43 people that is 39.45% said middle layer(24). Changing your mouth mask after treating a patient? We ask such a question and in Masomeh Rostamzadeh 2018 54.7% said yes and in my study 52.29% male said yes(25) . When asked about breathing difficulties wearing a mask, in Ravi Chandran Ravi's 2020 article post graduates 33.8% had difficulties six and in my study 31.19% under graduates had difficulties(26).

Awareness of contact dermatitis caused by surgical masks in the study by Faisal M AL Badri in the year 2000 59.6% were aware and compared to that study in my study 42.20% males are aware of it, and 24.77 females are aware of it (26,27). When asked which level of mask you should wear during hand instrumentation in Dr Vinita mary 48.4% said level 2 mask and compared to their study in our study 29.36% males said level 3 and 16.51% males to level 2, 14.68% females to level two and 18.35% to level 3 (24).

When asked which layer of the mask acts as a filter media barrier in Ravichandra ravi 44.3% said middle layer and in our study 39.45% said middle layer (26). Changing your mouth mask after treating a patient? We ask such a question and in angel N 54.7% said yes and in my study 52.29% male said yes (28). When asked how do you cover your face with the mask Desai AN they told you it covers from nose to chin and in our study it was found that the whole mouth is covered (29). In our study we assessed the knowledge of mouth mask usage and found that dental students are aware but in D.F Johnson the latter did not assess the use of mouth mask (30). When asked about the type of mask they prefer in our study, we got high responses for disposable in long ties, when we compared our study to C Raina Macintyre they prefer the use of N95 masks (31).

## CONCLUSION

Based on the results of the present study, it was found that the awareness about the usage of surgical masks is high for the 3rd year dental students compared to the 1st, 2nd, 4th year dental students,but more awareness has to be spread in order to improve the usage of surgical masks.

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