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# A Survey on Chennai Population on Awareness and Practice on Importance of Oral Hygiene in Present Covid-19 Situation

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## ABSTRACT

**Introduction:** Oral hygiene is the practice of keeping one's oral cavity neat, clean in order to avoid any disease initiation, progression. Oral health approaches should be customized to the lifestyles of children, and adults in order to enable them to improve personal oral hygiene and oral health.

**Aim:** The purpose of the study was to know about the awareness and practice of oral hygiene among the general population and maintenance of oral health among the adult population in the present COVID situation. It has been difficult in obtaining dental treatment in the current COVID situation as the pandemic peaks high every day. At home, hygiene awareness is important.

**Methodology:** A total of nearly 200 participants were requested to participate in the study. The questionnaire had 20 items which were designed in such a way to evaluate the awareness and attitude of oral hygiene in the current COVID situation. A small population of Chennai of 174 was aware of oral hygiene, especially during the current COVID-19 situations.

**Results:** Results showed that [50.8%] of this particular age group felt that oral hygiene was as important as general measures, [81%] of the study population felt dental treatment is more important when compared to other medical treatments. Pearson Chi-square test value 9.372; p-value = 0.154 (>0.05) which is statistically not significant. Nowadays even though we have advanced in awareness of oral health care, it's not yet reached the entire population.

**Conclusion:** Most of the people these days are aware of the basic oral hygiene techniques and show a responsible attitude towards these procedures. But there exists a circle of the population who are not aware of various oral hygiene methods. This may lead to poor oral health care.

**Key Words:** Oral health, Dental treatment, Oral hygiene, Dental awareness, COVID-19, Brushing techniques.

## INTRODUCTION

Oral hygiene is the basic practice of keeping the mouth clean and healthy by brushing and flossing to prevent oral diseases. The main purpose of oral hygiene is to prevent the formation of plaque, the sticky film of bacteria that forms on the teeth. Dental problems are one of the biggest problems in both developing and developed countries today. As we know, brushing and flossing remove plaque from teeth and antiseptic mouthwashes kill some of the bacteria that form plaque. Oral health knowledge is considered to be an essential measure for health-related behaviour<sup>1-8</sup>. One of the most important factors that decide the dental health of a population is the

outlook of its people toward their dentition<sup>3,9-12</sup>. Even parents should be advised to follow up to maintain proper oral health among infants and children<sup>13-20</sup>. As the study maintains 70% of the children have poor brushing habits in which may lead to tooth decay and gum diseases<sup>21-24</sup>.

As oral health is a vital component and an intrinsic part of general health, certain interventions are needed to educate people regarding the maintenance of their oral health<sup>25,26</sup>. Community oral hygiene promotion must attempt to maximize opportunities for oral health for all and reduce inequalities by removing financial barriers. Oral health strategies should be adapted to childrens' and adults' lifestyles and

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abilities so as to allow them to make age decisions to improve personal oral hygiene and oral health<sup>27-30</sup>. Oral care comprises a wide range of spectrum of activities ranging from care, prevention, and diagnosis. Oral care practices have been proved to be an effective preventive measure for an individual to maintain good oral health<sup>5,31,1</sup>. People living in developing countries especially people with lower economic status have lacunae in oral health awareness<sup>32-34</sup>. Several studies suggest that countless numbers of dental health information programs have been conducted in schools and other settings. However, it suggests that these efforts will not succeed in influencing the behavior until the people are not aware of the importance of oral health<sup>35,36</sup>. And halitosis is an oral health disease characterized by a strong odorous smell, caused by inadequate oral hygiene, insufficient dental brushing, decreased salivary flow rate, tobacco use, and other systemic disorders. This is one of the major problems in today's majority of the population<sup>37-42</sup>. Early detection of these diseases and diagnosing proper treatment will reduce the risk of these dental issues. Even children these days have different perceptions and assumptions about dental oral hygiene through which they developed an attitude towards Maintenance of oral hygiene and its benefits<sup>43-46</sup> Several studies have done by our team both clinical trial<sup>47-51</sup> and Surveys<sup>52,53</sup>, Reviews based on endodontic procedures<sup>47,50,54-60</sup> over the past 5 years. Now we are focusing on epidemiological surveys. The idea had stemmed from the current interest in the community. The Aim of this present survey was on the Chennai population on awareness and practice on the importance of oral hygiene in the present COVID-19 situation.

## MATERIALS AND METHODS

### Study Design

A cross-sectional study was conducted among 174 dental students from April - May 2020.

### Ethical Approval

Ethical permission and approval (SRB/SDC/BDS/001) for the project was obtained from the institutional review board of Saveetha Institute of Medical And Technical Sciences, Chennai, India on date 25/04/2020 .

### Eligibility Criteria

Adult Population of Chennai who was willing to participate.

### Data Collection

The questionnaire was shared online via Google forms and responses were obtained from 174 participants. The data for 20 questions were compiled and represented in pie charts obtained from the google forms. ([https://docs.google.com/forms/d/e/1FAIpQLSd8QD\\_LHuH4g52I-1o5w7daU-0nYKcMlFgrCFxfx-kMTUJh8vA/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSd8QD_LHuH4g52I-1o5w7daU-0nYKcMlFgrCFxfx-kMTUJh8vA/viewform?usp=sf_link))

### Sample Size

This study was done on the population of Chennai. The subjects were taken from the rural, urban areas of Chennai. A total of nearly 174 participants were requested to participate in the study. Out of which 21 participants did not take up the survey and 5 were incomplete forms that were excluded from the study. Hence, the total number of participants was 174.

### Study Subjects

The subjects' age limits were given importance to participate in the survey. The questionnaire had 20 items in it which was designed in such a way to evaluate the awareness and attitude of oral hygiene in the present COVID 19 situation. Assessment of subjects' awareness and attitude towards oral hygiene included the questions relating the knowledge of basic techniques of oral hygiene, attitude about dental case and body case, about awareness of modern dental treatments, attitude towards a regular visit to the dentist. The subjects were requested to respond to each item in the specific format given at the end of each item. All the participants were allowed to choose one of the given three to four choices for each item in the questionnaire.

### Study Methods

Self-administered questionnaire of 12 close-ended questions were prepared and it was distributed among the Chennai population through online survey forms "GOOGLE FORMS". Demographic details were also included in the questionnaire.

### Data Quality Assurance

The collected data were checked regularly for clarity, competence, consistency, accuracy, and validity. The necessary correction was made on questionnaires that need correction accordingly and invalid questionnaires were removed before the actual data collection.

### Statistical Analysis

Data were analyzed with SPSS version (22.0). Descriptive statistics as number and percent were calculated to summaries qualitative data. Chi-square test was used to analyze and compare the education level of students and their knowledge of oral hygiene in the present COVID situation. The confidence level was 95% and of statistical significance  $P < 0.05$ . Finally, the result was presented by using bar charts and frequency tables.

## RESULTS AND DISCUSSION

In this survey, among the questions that are asked, the majority of them told age, gender, year of study, and awareness about oral hygiene. The results of the survey are presented in the following charts.

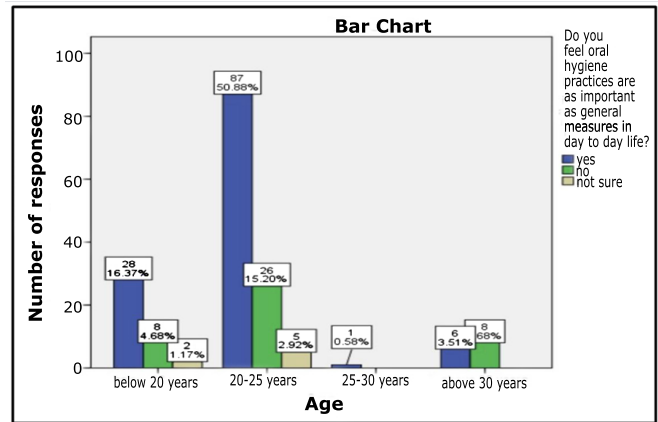
**Table 1: The distribution of cases that were included for the study based on Gender and age. The maximum number of respondents was between the age group 20-25 years.**

Demographic variables	Categories	No. of respondents	Percentage %
Gender	Female	41	22.8%
	Male	142	77.2%
Age (years)	Below 20 years	38	22.2%
	20-25 years	118	69.0%
	25-30 years	1	0.6%
	Above 30 years	14	8.2%

Out of 174 cases, 22.8% were female and 77.2 % were male.

**Table 2: The distribution of responses of participants on what kind of oral hygiene measure can be followed, showing statistically no significant difference between the variables. (p>0.05)**

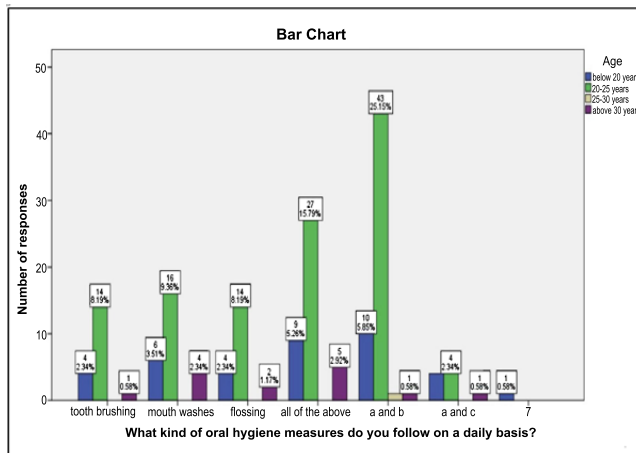
Age Parameter	In your opinion, Do you feel oral hygiene practices are as important as general measures in day to day life?			P value
	Yes	No	Not sure	
Below 20 years	28	8	2	0.154
20-25 years	87	26	5	
25-30 years	1	0	0	
Above 30 years	6	8	0	
Total	122	42	7	



**Figure 1: Bar chart showing the association between different age groups of participants and responses for, do you feel oral hygiene practices are as important as general measures. The X-axis represents the different age groups of participants and Y-axis represents the number of responses obtained; The majority of respondents belonging to the age group 20-25 years responded 'Yes'(50.88%). The association was analyzed using Chi-square test (9.372) and was found to be statistically no significant difference (p>0.05)**

**Table 3: The distribution of responses of participants on what kind of oral hygiene measures to be followed on a daily basis, showing statistically no significant difference between the variables.(p>0.05)**

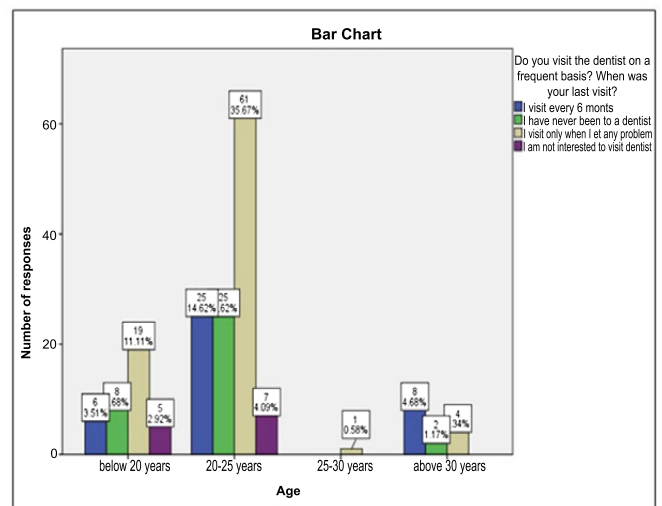
Age parameter	In your opinion, What kind of oral hygiene measures do you follow on a daily basis?							P value
	Tooth brushing	Mouth washes	flossing	All of the above	A and B	A and C	All 7 options	
Below 20 years	4	6	4	9	10	4	1	0.634
20- 25 years	14	16	14	27	43	4	0	
25-30 years	0	0	0	0	1	0	0	
Above 30 years	1	4	2	5	1	1	1	
Total	19	26	20	41	55	9	2	



**Figure 2:** Bar chart showing the association between different age groups of the study population and the responses for Oral hygiene measures followed on a daily basis. The X-axis represents the number of responses and Y-axis represents the different age groups. The majority of respondents belonging to the age group 20-25 years responded they would follow both brushing and flossing (25.15%). The association was analyzed using Chi-square test (15.411) and was found to be statistically no significant difference ( $p > 0.05$ )

**Table 4:** Shows the distribution of responses of participants on, In your opinion, Do you visit the dentist on a frequent basis? When was your last visit?, showing statistically no significant difference between the variables ( $p > 0.05$ ).

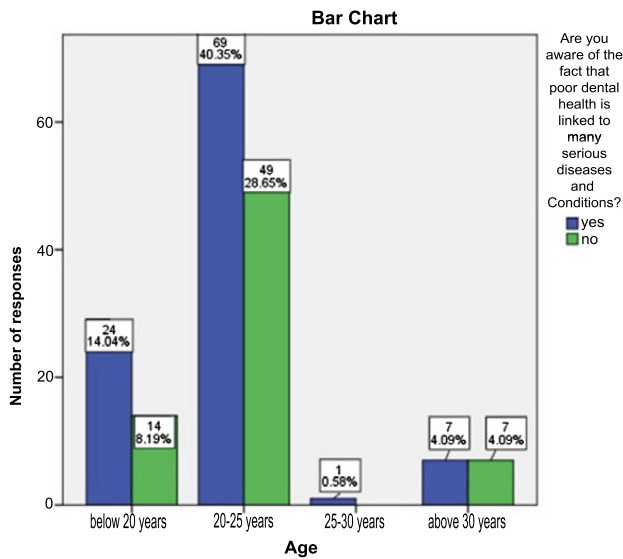
Age Parameter	In your opinion, Do you visit the dentist on a frequent basis? When was your last visit?				P value
	I visit every 6 months	I have never been to a dentist	I visit only when I visit a dentist	I Am not interested to visit dentist	
Below 20 years	6	8	19	5	0.120
20 - 25 years	25	25	61	7	
25-30 years	0	0	1	0	
Above 30 years	8	2	4	0	
Total	39	35	85	12	



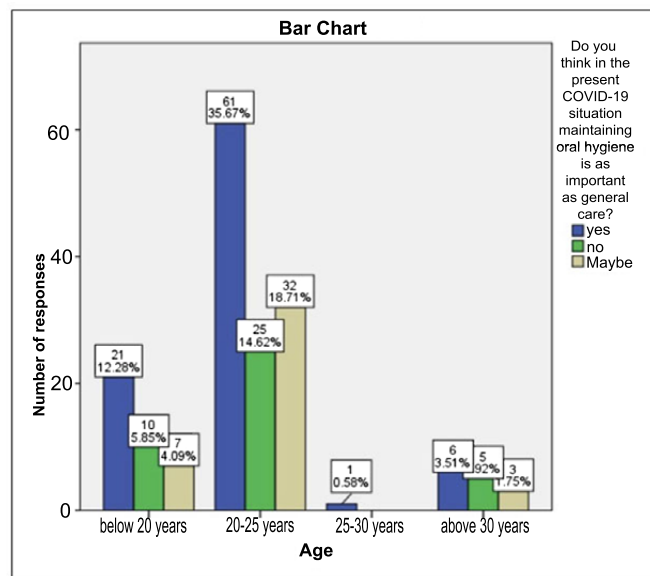
**Figure 3:** Bar chart showing the association between the different age groups of participants and responses for estimation of regular clinical visits. The X-axis represents the different age groups of study population and Y-axis represents the number of responses obtained. The majority of respondents belonging to the age category 20-25 years responded that they visit a dentist only if they face any problem (35.67%). The association was analyzed using Chi-square test (14.077) and was found to be statistically no significant difference ( $p > 0.05$ ).

**Table 5:** The distribution of responses of participants on, In your opinion, Are you aware of the fact that poor dental health is linked to many serious diseases and conditions? showing statistically no significant difference between the variables ( $p > 0.05$ ).

Age Parameter	In your opinion, Are you aware of the fact that poor dental health is linked to many serious diseases and conditions?		P value
	Yes	No	
Below 20 years	24	14	0.694
20-25 years	69	49	
25-30 years	1	0	
Above 30 years	7	7	
Total	101	70	



**Figure 4:** Bar chart showing the association between different age groups of participants and the responses for awareness of poor health and associated diseases. The X-axis represents different age groups of participants and the Y-axis represents the number of responses obtained. The majority of respondents belonging to the age group 20-25 years responded 'Yes' (40.35%). The association was analyzed using Chi-square test (1.449) and was found to be statistically no significant difference ( $p>0.05$ ).



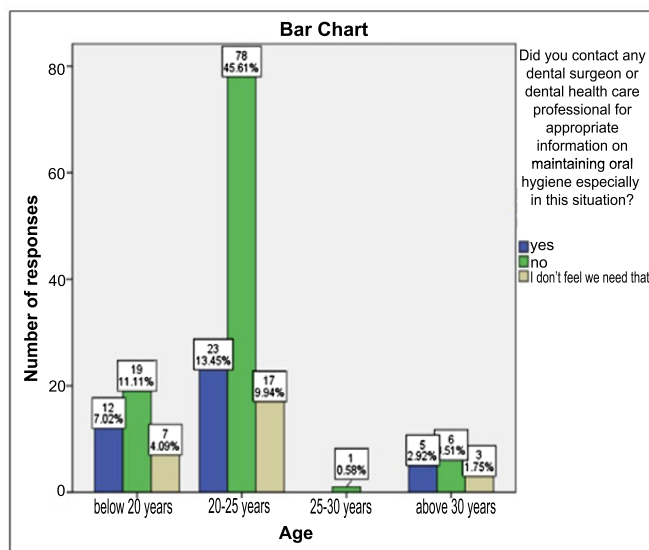
**Figure 5:** Bar chart showing the association between different age groups and maintenance of General hygiene and Oral health care in COVID-19 situation. X axis represents the different age groups of participants and Y axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded 'Yes' (35.67%). The association was analyzed using chi-square test (3.473) and was found to be statistically no significant difference ( $p>0.05$ ).

**Table 6:** The distribution of responses of participants on, in your opinion, Do you think in the present COVID-19 situation maintaining oral hygiene is as important as oral hygiene? showing statistically no significant differences between the variables ( $p>0.05$ ).

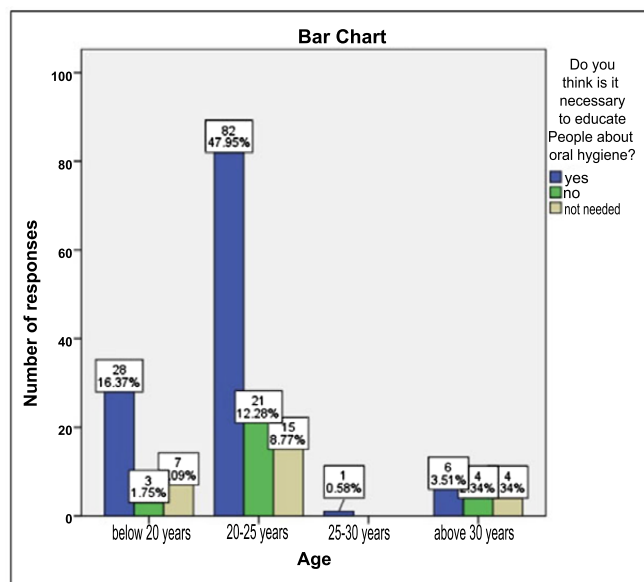
Age Parameter	In your opinion, Do you think in the present COVID-19 situation maintaining oral hygiene is as important as oral hygiene?			P value
	Yes	No	May be	
Below 20 years	21	10	7	0.748
20-25 years	61	25	32	
25-30 years	1	0	0	
Above 30 years	6	5	3	
Total	89	40	42	

**Table 7:** The distribution of responses of participants on, In your opinion, Did you contact any dental surgeon or dental health care professional for appropriate information on maintaining oral hygiene especially in this situation? showing statistically no significant differences between the variables ( $p>0.05$ ).

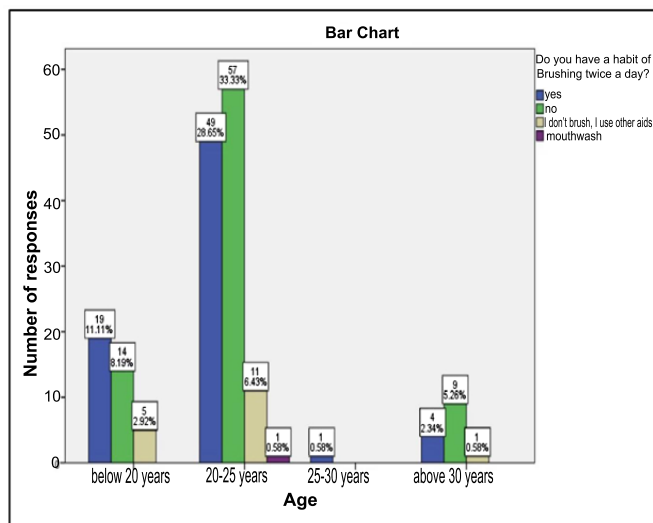
Age Parameter	In your opinion, Did you contact any dental surgeon or dental health care professional for appropriate information on maintaining oral hygiene especially in this situation?			P value
	Yes	No	I don't feel we need that	
Below 20 years	12	19	7	0.421
20-25 years	23	78	17	
25-30 years	0	1	0	
Above 30 years	5	6	3	
Total	40	104	27	



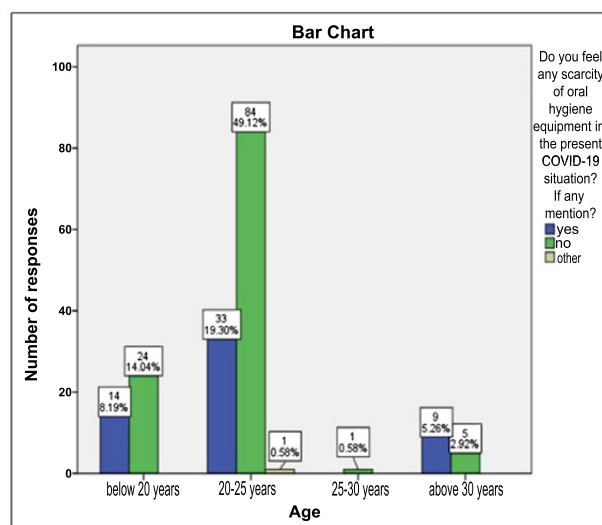
**Figure 6:** Bar chart showing the association between different age groups of participants and responses for the importance of having concern on Maintenance of Oral health and hygiene with dentists. X-axis represents the different age groups of participants and Y-axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded 'No' (45.61%) The association was analyzed using chi-square test value (6.016) and was found to be statistically no significant difference ( $p > 0.05$ ).



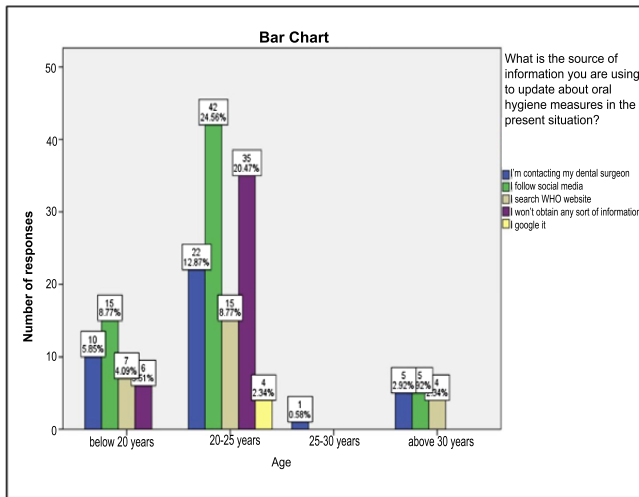
**Figure 8:** Bar chart showing the association between the different age groups of participants and the responses for necessity of education about oral hygiene. X-axis represents the different age groups of study population and Y-axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded 'Yes' (47.95%). The association was analyzed using chi square test (7.445) and was found to be statistically no significant difference ( $p > 0.05$ ).



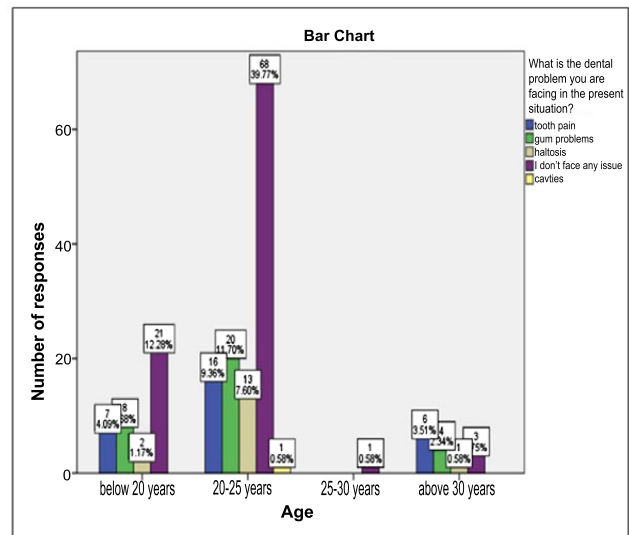
**Figure 7:** Bar chart showing the association between the different age groups of participants and the responses for frequency of brushing a day. X-axis represents the different age groups of participants and Y-axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded 'No' (33.33%) The association was analyzed using chi-square test (5.282) and was found to be statistically no significant difference ( $p > 0.05$ ).



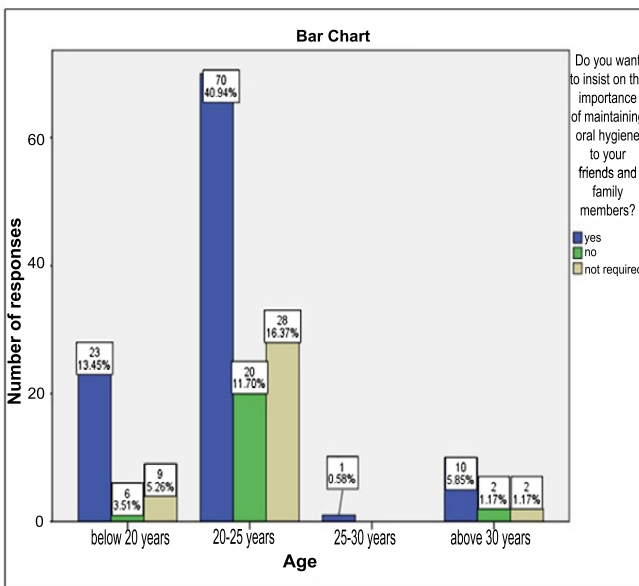
**Figure 9:** Bar chart showing the association between different age groups of participants and the responses for scarcity of oral hygiene equipment in the present COVID-19 situation. X-axis represents the different age groups of participants and the Y-axis represents the number of responses. Majority of respondents belonging to the age group 20-25 years responded 'No' (49.12%). The association was analyzed using chi-square test (8.657) and was found to be statistically no significant difference ( $p > 0.05$ ).



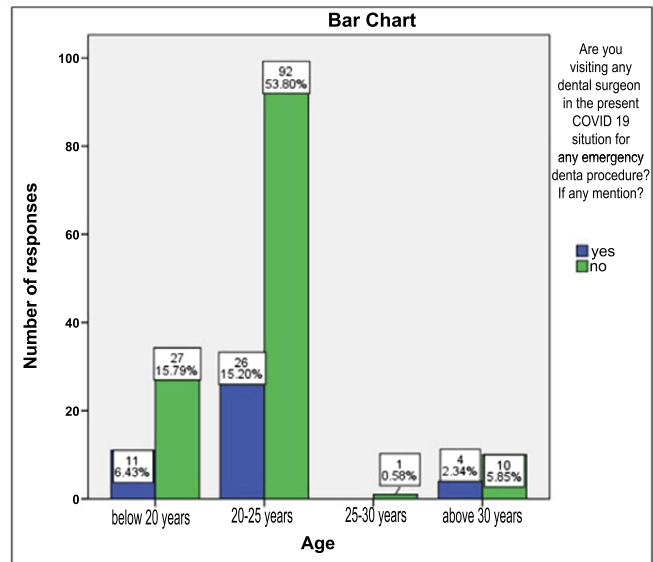
**Figure 10:** Bar chart showing the association between different age groups of participants and the responses for an update on a source of information about Oral hygiene measures in COVID-19 situation. X-axis represents the different age groups of participants and Y-axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded that they follow social media (24.56%) The association was analyzed using chi-square test (15.906) and was found to be statistically no significant difference ( $p>0.05$ ).



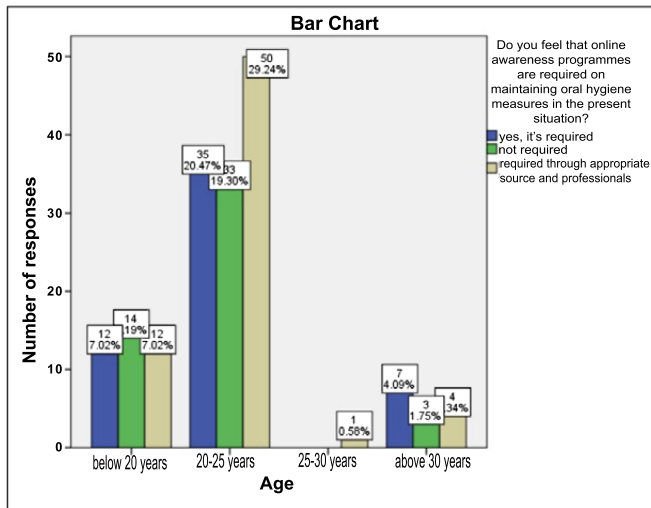
**Figure 12:** Bar chart showing the association between the different age groups and the dental problem faced in the present situation. X-axis represents the different age groups of participants and Y-axis represents the number of responses obtained. The majority of respondents belonging to the age group 20-25 years responded that they don't face any issues (39.77%). The association was analyzed using chi square test (12.836) and was found to be statistically no significant difference ( $p>0.05$ ).



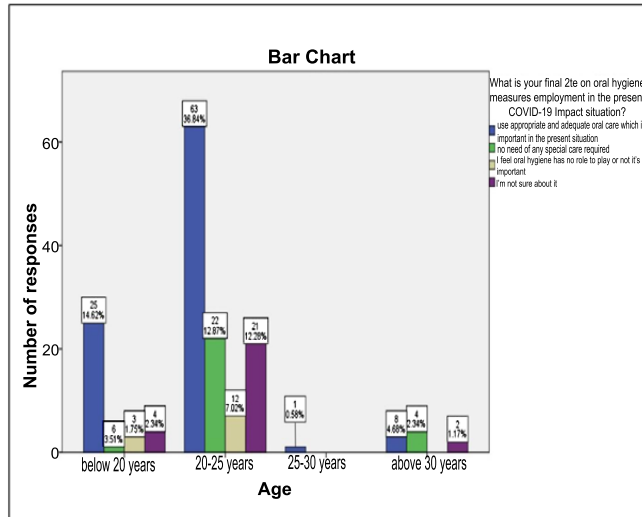
**Figure 11:** Bar chart showing the association between the different age groups of study population and the responses for the people to insist on the importance of maintaining oral hygiene. X-axis represents the different age groups and Y-axis represents the number of responses obtained. The majority of respondents belonging to the age group 20-25 years responded 'Yes' (40.94%) The association was analyzed using chi-square test (1.519) and was found to be statistically no significant difference ( $p>0.05$ ).



**Figure 13:** Bar chart showing the association between the different age groups of participants and responses for the people visiting dental surgeons in the present COVID-19 situation for any emergency dental procedures. X-axis represents the different age groups of study population and Y-axis represents the number of responses obtained. The majority of respondents belonging to the age group 20-25 years responded 'No' (53.80%). The association was analyzed using chi-square test (1.237) and was found to be statistically no significant difference ( $p>0.05$ ).



**Figure 14:** Bar chart showing the association between the participants of different age groups and the responses for requirement of awareness programmes maintaining oral hygiene measures in the present situation. X-axis represents the participants of different age groups and Y-axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded that they require an appropriate source to know about oral hygiene (29.24%). The association was analyzed using chi-square test (5.572) and was found to be statistically no significant difference ( $p > 0.05$ ).



**Figure 15:** Bar chart showing the association between participants of different age groups and the final note on oral hygiene measures employment in the present COVID-19 impact situation. X axis represents the different age groups of participants and the Y axis represents the number of responses obtained. Majority of respondents belonging to the age group 20-25 years responded that they would require appropriate and adequate knowledge about oral care during this pandemic (36.84%). The association was analyzed using chi square test (4.958) and was found to be statistically no significant difference ( $p > 0.05$ ).

This study represented a broad overview about the awareness and attitude of dental treatments and maintenance of oral hygiene among the Chennai population. Among 174 participants participated in the study as mentioned in Tables 1-7. Nowadays, because of the changing lifestyle trends in the modern world, there have been changing ideas and perceptions about dental procedures and there is an evolving attitude towards the oral hygiene measures. Awareness about oral hygiene and its significance is very much essential in order to prevent the adverse effects of dental problems. So awareness of these oral hygiene practices might help in preserving oral cavity from dental problems. Surveys conducted among the age group of 20-25 years were having knowledge about oral hygiene. In the present study, certain age groups belonging to 20-25 years showed accuracy in responding 50.8% of this age group population felt that oral hygiene is as important as general measures. Pearson chi square test showed that p value of 0.154 ( $> 0.05$ ) which is statistically insignificant [Figure 1]. 81% of the study population felt dental checkup is more important when compared to other medical treatments<sup>61</sup>. No opposing finding has been found. To assess the oral health awareness and oral hygiene practices and provide insight into educational programs will be the better situation. In the present study, Age group 20-25 years 25.1% suggests that both brushing and usage of mouthwash will be the better hygiene measure. Pearson chi square test shows that p value of 0.634 ( $> 0.05$ ) which is statistically insignificant [Figure 2]. 73.6% of the study population give importance to toothpaste when compared to other substances<sup>61</sup>. This is the similar study conducted by (Dileep et al) No opposing finding has been noticed. Limited knowledge and awareness of oral hygiene practices leads to poor oral health. In the present study Age group 20-25 years supported the regular visit of a dentist every 6 months 14.6% of this age group population follow the regular visit of dentist in the interval of every 6 months. Pearson chi square test shows that p value of 0.120 ( $> 0.05$ ) which is statistically insignificant [Figure 3]. 43.1% of the pre urban children had visited a dentist before. This shows that even children have the habit of taking care of their oral health. No opposing study was found<sup>62</sup>. In the present study Age group 20-25 years are aware of that poor dental health is linked to many serious dental problems. 40.3% of this age group accepts that poor oral health may lead to other periodontal problems. Pearson chi Square test showed a p-value of 0.694 ( $> 0.05$ ) which is statistically insignificant [Figure 4]. 48.14% of the children have reported that they had suffered from various dental problems in the past few years. Even children were aware of their dental health<sup>63</sup>. Lag of oral hygiene may lead to plaque formation and gingivitis. In the present study, Age group 20-25 years study population believe that maintaining oral health is very important even in COVID 19 situations. 35.6% of this age group population felt that oral health is very important as compared to medical general care. Pearson Chi-square test shows that p value of



0.748 ( $>0.05$ ) which is statistically not significant [Figure 5]. No similar and opposing articles have been found. Oral diseases should have major public health concerns with high prevalence to create an impact on quality of life. In the present study a certain age group population of 20-25 years 13.4% do have consultation with dental surgeons about oral hygiene measures even in the current COVID 19 situation. Pearson Chi-square test shows that P value of 0.421 ( $>0.05$ ) which is statistically not significant [Figure 6]. No similar finding has been found. Motivating people towards better oral health practices and suggestions should be acquired from respected health professionals. The association between the different age groups of participants and the responses for frequency of brushing a day. Majority of respondents belonging to the age group 20-25 years had a habit of brushing once a day. Pearson chi square test shows that p value of 0.809 ( $>0.05$ ) which is statistically not significant [Figure 7]. In the present study 28.65% of the population belonging to the age group 20-25 years has a habit of brushing twice a day. This shows a similar finding of my study<sup>64</sup>. In the present study Age group 20-25 years i.e., 47.95% of the respondents think it is very much essential to educate people about oral hygiene. Pearson chi square test shows that P value of 0.282 ( $>0.05$ ) which is statistically not significant [Figure 8]. In the present study 49.12% of the population belonging to the age group 20-25 years felt there is a scarcity of oral hygiene Equipments in the present COVID 19 situation. Pearson chi square test shows that p value of 0.194 ( $>0.05$ ) which is statistically not significant [Figure 9]. In the present study 24.56% of the respondents felt Social media would be the better idea to obtain the source of information about oral hygiene. Pearson chi square test shows that p value of 0.196 ( $>0.05$ ) which is statistically not significant [Figure 10]. No similar and opposing findings have been found yet. As the results show the relative answer for my finding. In the present study Age group 20-25 years of 40.9% insist on the importance of maintaining oral hygiene to friends and family members. Pearson chi square test shows that P value of 0.958 ( $>0.05$ ) which is statistically not significant [Figure 11]. 78% of the population similar to this study supports oral hygiene<sup>65</sup>. Majority of the study population belong to the age group 20-25 years i.e., 39.77% of them felt they don't face any issues in the current Pandemic situation. Pearson Chi-square test shows a p-value of 0.381 ( $>0.05$ ) which is statistically not significant [Figure 12]. In the present study, 53.80% of the respondents belonging to the age group 20-25 years responded that they don't consult any dental practitioner in the current COVID situation. Pearson Chi-square test shows that the p-value of 0.744 ( $>0.05$ ) is statistically not significant [Figure 13]. 29.24% of the respondents belonging to the age group 20-25 years felt they would need an appropriate source to maintain oral hygiene. Pearson Chi-square test shows that a p-value of 0.473 ( $>0.05$ ) which is statistically not significant [Figure 14]. 36.84% of the respondents belonging to the age group

20-25 years responded that they would require appropriate and adequate knowledge about oral care during this pandemic. Pearson Chi-square test shows that the p-value of 0.838 ( $>0.05$ ) is statistically not significant [Figure 15].

## CONCLUSION

In the present study, it was evident that most of the respondents were aware of oral hygiene practices in the present COVID-19 situation. The majority of the study population belonging to the age group 20-25 years was aware of oral hygiene practices. To obtain dental care during this pandemic seems to be very difficult as the situation is becoming worse every day. Hence, awareness and thorough knowledge about oral hygiene practices and care at home should be made aware to all to ensure better oral health.

## Limitations and Future Scope

The study consists of small sample sizes. The questionnaire was general and it is not specific. It is not distributed widely. It is only distributed to a selected population. To improve the awareness of maintenance of oral hygiene, measures should be taken and the study should be expanded to more number of participants to create better knowledge of oral health and oral hygiene.

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## Financial Support and Sponsorship

Nil

## Conflicts of Interest

Conflict of interest declared as none.

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