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# **Analysis of the Association between Fast Food on Oral Health and Hygiene - A Survey**

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## **Abstract**

Health is a state of complete physical, mental and social well being of an individual and not merely the absence of disease or immunity status of an individual. An unhealthy diet is proven to implicate many risk factors for the incidence of oral diseases. Thus, there are various health education programs to educate people on the importance of a proper healthy diet, thereby reducing the incidence of oral diseases prevailing because of an unhealthy diet. Thus, this survey was done to evaluate the awareness of people towards maintaining a proper healthy diet. This study was done to check the awareness of people towards the risk factors and impacts of fast food on the oral health status of a person. This is a questionnaire based survey. An online questionnaire was shared among 100 dental students in Chennai. Based on the answers from the survey, the data was compiled and analyzed and based on the results of the survey, the responses were analysed through statistical analysis software SPSS version 20.0. The results of the study showed that 90% of the individuals who took part in the survey consumed fast food, out of which 78% of them were non-vegetarians. 91% of them were aware of the complications of having an unhealthy diet and what risk factors it possessed to the oral health of an individual. 40% of the individuals consume fast food at least once a week. 77% knew the causative reasons for the incidence of dental caries in an individual. Within the limits of the study, the study results showed that most individuals who took part in the survey consume food from fast food and they weren't aware of the impacts of unhealthy nutrition and bad hygiene measures. This survey had created an impact on the individuals by educating them on the benefits of having a healthy diet and proper hygiene.

**Keywords:** *Fast food; balanced diet; health; non-vegetarians; oral hygiene; dental caries.*

## **Introduction**

Health has been falsely perceived by many people in the society.<sup>1</sup> Health has been merely understood as “ a state of complete physical, mental and social well-

being of an individual and not merely the absence of diseases and having a good immunity status”<sup>1</sup> There are many causes for the prevalence for diseases in man, but fast food consumptions is one of the major risk factors are increasing the prevalence of diseases associated with oral cavity and systemic diseases in man<sup>2</sup>. There are various programs for spreading the awareness on the prevention of oral diseases like for the maintaining a healthy diet and preventive measure like fluoride prophylaxis, periodic dental checkups, group camps and other sessions for creating the awareness for oral hygiene and secondary prevention programs<sup>3</sup>

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The prevention for the prevalence of oral diseases involves proper education on oral hygiene awareness and spread of its awareness to the schooling population<sup>4,5</sup>. The term 'bio nutrition' means important interaction between diet, nutrient status, genetic and general development of an individual<sup>6</sup>. Bionutrition emphasizes the role of maintaining proper health status and preventing pathologic condition by reducing the prevalence by preventive measure implementation in a society<sup>7</sup>. There is always a unique relationship that exists between a healthy balanced diet and health status of an individual<sup>8</sup>.

Fast food consumption is one of the major sources for the spread or aggravation factor for diseases and malnutrition among people. High fat diet which is the most prevalent food served in fast food joints is one of the major factors for the incidence of systemic diseases and coronary heart diseases in an individual<sup>10</sup>.

Improper intake of various nutrients can lead to many disorders involving many systems in the body. It is one of the major causes for the incidence of caries in the oral cavity. Lesser protein intake causes atrophy of lingual papillae, and degeneration of tissues<sup>9</sup>. Insufficient supply of lipids can lead to swelling to tissues and glands eg: parotid. Lesser carbohydrate is the major cause of the incidence of plaque, periodontal diseases and caries in the oral cavity<sup>10,11</sup>. Decreased vitamin and mineral intake is one of the causes for cases of enamel hypoplasia, tooth erosion. swelling of the tongue, papillary atrophy, and surface ulceration are possible in case of micronutrient deficiencies<sup>12</sup>. Thus, it is important to maintain healthy and a balanced diet.

The association between diet and oral cancer is very high<sup>13</sup>. Having a bad diet habit and increased consumption of canned and food with increased preservative content is one of the major causes for the incidence of potentially malignant lesions and malignant lesions in the oral cavity<sup>14</sup>. The National Cancer Institute and the American Cancer Society have established some prudential dietary recommendations for the choice of food,

- Maintain a Desirable Body Weight,
- Eat a Varied Diet,

- Include a New Variety of Fruits and Vegetables in the Daily Diet,
- Consume a Greater Quantity of Foods Rich in Fibre,
- Decrease the Total Intake of Fats (30% Less Than the Total Calories),
- Limit the Consumption of Alcohol,
- Limit the Consumption of Salted Food or Food Preserved With Nitrate<sup>(15)</sup>

Thus, this survey was done to create an awareness to the society and the dental students on the impacts fast food has on the health of an individual. Thus, this study has been done to describe the relationship between healthy eating habits and the oral health status of an individual.

## Materials and Methods

This study was an online survey based study. An online questionnaire based survey was done and circulated among 100 people in chennai. The study was conducted for a period of one month and no animal testing was required for the study. The questionnaire consisted of 10 questions which were based on the awareness of the importance of the impact of fast food on oral health. The responses of the survey were tabulated with the use of excel sheets. The analysis of the responses was done with the help of a statistical software SPSS version 20.0. The dependent variables of the study were age, sex, occupation and the independent variables were stature and height. The analysis of data was done with Pearson correlation from the answers based on the questionnaire. the answers compiled were entered and the results based on the answers were evaluated.

## Results and Discussion

The observations of the study showed that 90% people consume fast food of various types in which 78% of the population was non-vegetarian. 40% people consumed fast food at least once a week (Figure 1). Most of them (91% ) were aware of the impacts of fast food on the health of an individual (Figure 2). 84% of the people who took part in the survey are also aware of the complication of having an unhealthy diet. 77% of the people who took part in the survey were aware

of the causative factors of the incidence of dental caries (Figure 3).

The association between age and the frequency of fast food consumption was analyzed. Age group between 20-30 years consume comparatively more fast foods than the other age group people. Chi square test was found to be statistically significant as  $p=0.031$  ( $p<0.05$ ). Hence, proving that individuals who consumed fast food once a week, daily and more than once a week were more prevalent among 20-30 year age groups than the other age groups (Figure 4).

The association between gender and the frequency of fast food consumption was made and was observed that there was no relation between them. Among both the genders, male participants consume fast food more frequently such as daily, more than once in a week, once in a week than females. Chi square test was done and was found to be statistically not significant. Pearson Chi square test,  $p=0.072$  ( $p>0.05$ ) hence statistically not significant, indicating male participants showed more frequency of increased fast food consumption than females (Figure 5).

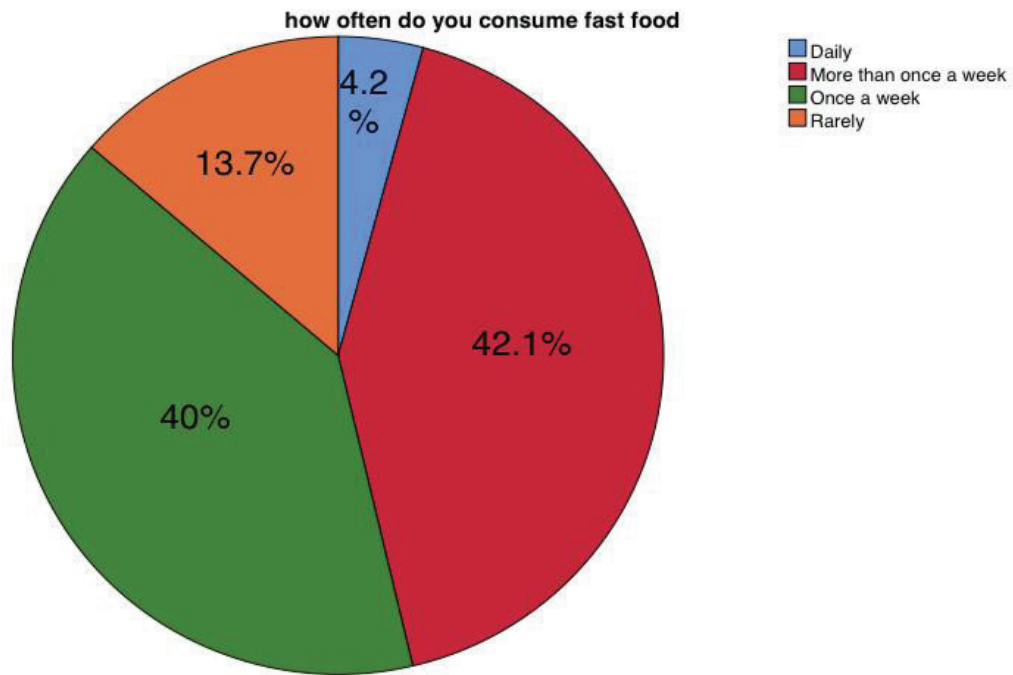
The association between age and the awareness of the causes of dental caries was analyzed. Among the various causes of dental caries and related dental problems, the 20-30 years age group are more aware of the causes of dental caries than other age categories. Pearson Chi square test,  $p=0.01$  ( $p<0.05$ ) hence statistically significant association indicating people between the age group of 20-30 are more aware of the causes of dental caries than the young and aged groups (Figure 6).

Diet is important for maintaining the oral health of an individual. Fast food is one of the major sources for unhealthy food and lack of hygiene in certain food joints that can lead to impacts on the oral health of a person<sup>16,17</sup>. The survey showed that most of the people consumed food from fast food joints and this alerts the people on the risk factors and the importance for the maintenance of body health.<sup>18,19</sup> Most of the population who took part in the survey were non-vegetarians and they had exhibited lesser frequency of increased body mass index (BMI), total cholesterol levels, etc<sup>20,21</sup>. This shows that a vegetarian diet has lesser impacts to the body health.<sup>20</sup>

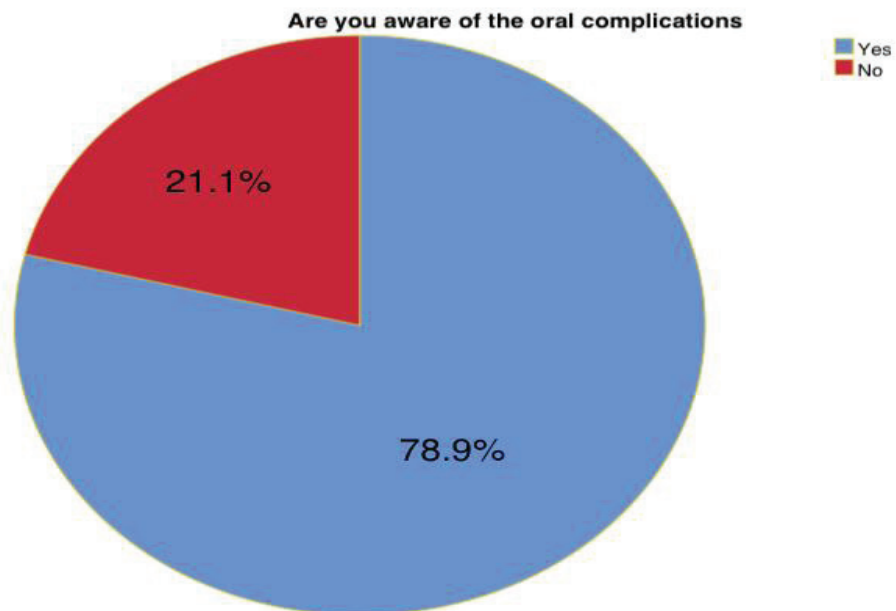
Nutrition should be given the most priority when food is consumed by a person. It has also been proven that most fast food joints don't give the utmost attention to the nutrition required for the body and have higher concentration of fat in the food<sup>14</sup>. This study shows that people give more importance to taste when compared to the nutritive status of the food consumed<sup>13,23</sup>. This corrective thought has to be implicated in the minds of the people consuming an unhealthy diet. From this study, it has been proved that higher frequency of people consume fast food for the taste it possess<sup>24,25</sup>. They showed an increased incidence of caries in multiple teeth in the oral cavity, where as there was a lesser frequency of caries in the population with proper maintenance of health and hygiene<sup>26,27</sup>. This study has shown that 40% of the population that had taken part in the survey consume fast food and 56% consumed fast food with a frequency of at least once a week.

The presence of malnutrition is seen in unhealthy nutrition cases in a person<sup>28</sup>. Increased sugar and salt content in an individual diet causes an increase in the incidence of caries in the oral cavity<sup>29</sup>. But the incidence isn't mainly because of malnutrition but also due to a sedentary lifestyle and incidence of personal habit like smoking, alcoholism and unhealthy diet which contribute to the maintenance of body health status<sup>30</sup>.

This study was a unicentered study where the unclear data were excluded and a different set of data was included. Thus, there are increased studies and summits conducted to spread the importance and the spread of knowledge for the importance of maintenance of oral health and its education to the respective population. This leads to a spread of awareness among people on maintaining good oral health and reducing the incidence of dental caries and other disorders in the oral cavity due to lack of proper nutrition and proper hygiene.



**Figure 1: Pie chart showing percentage distribution of frequency of fast food consumption. 4.2% of the population consume fast food daily (blue colour), 42.1% consume more than once a week (red colour), 40% consume at least once a week (green colour) and 13.7% consume fast food rarely (orange colour).**



**Figure 2: Pie chart showing percentage distribution of awareness on the impacts of fast food consumption. 78.9% of the individuals who took part in the survey were aware (blue colour) of the oral complications and 21.1% were not aware (red colour).**

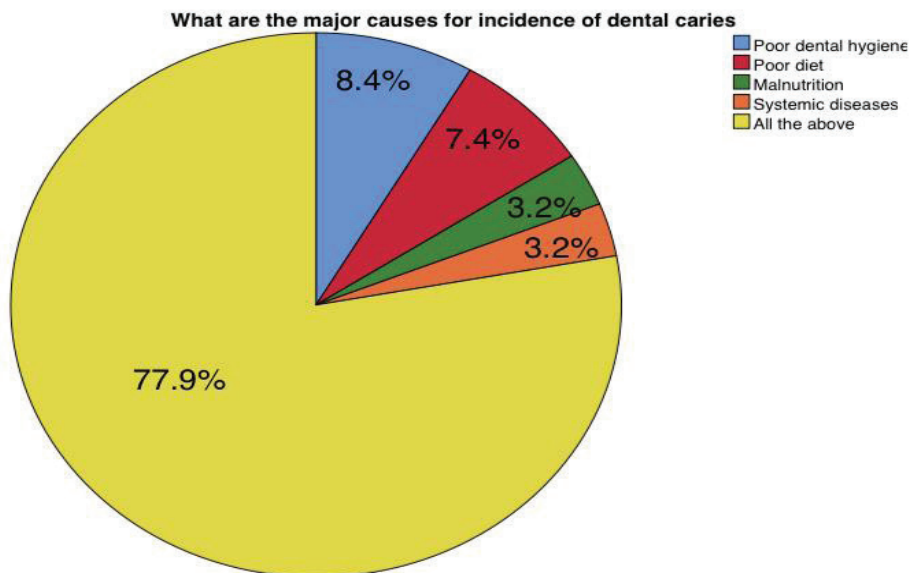


Figure 3: Pie chart showing percentage distribution of the major causes of dental caries in an individual. 8.4% thought poor dental hygiene was the cause (blue colour), 7.4% thought poor diet was the cause (red colour), 3.2% thought malnutrition was the cause (green colour), 3.2% thought the incidence of systemic disease was the major cause (orange colour), 77.9% thought all the reasons (yellow colour) described caused dental caries.

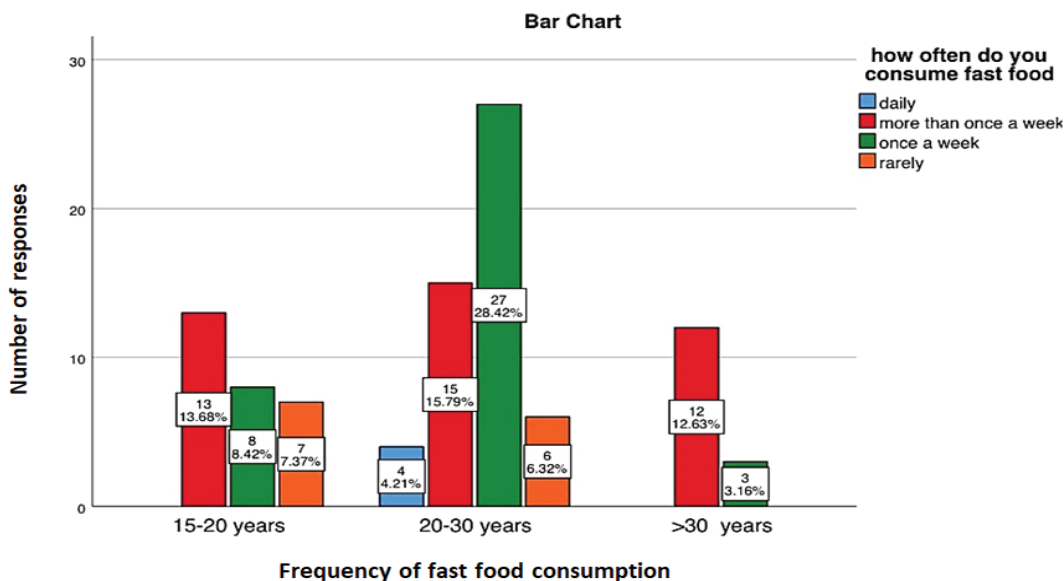
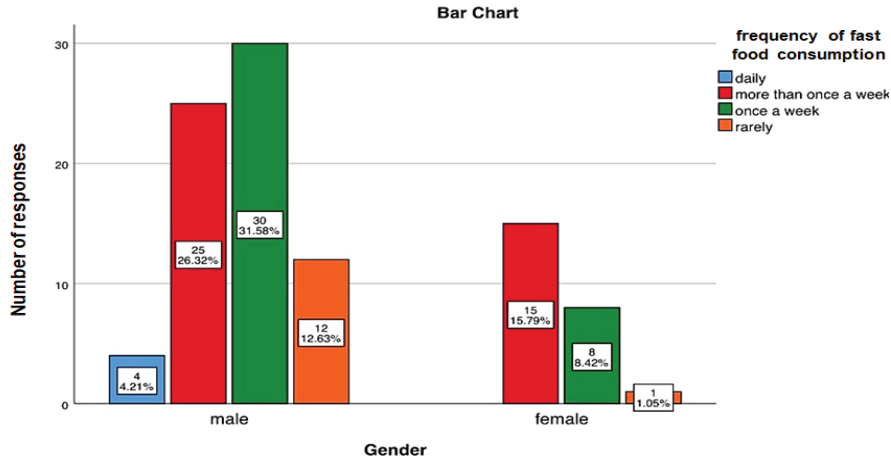
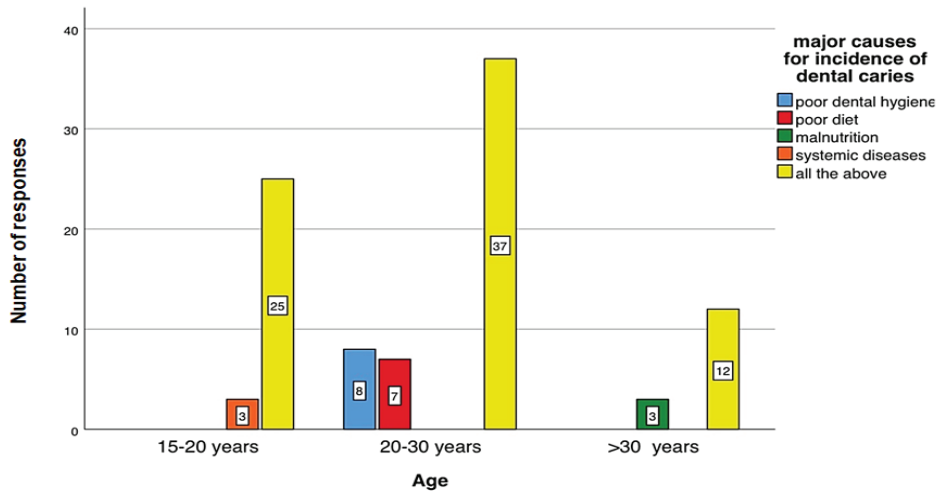


Figure 4: Bar chart shows the association between age and the frequency of fast food consumption. The X axis represents the frequency of fast food consumption among different age groups and Y axis represents the number of responses. Age group 20-30 years consume comparatively more fast foods than the other age group people. Chi square test was found to be statistically significant,  $p=0.031$  ( $p<0.05$ ). Hence, proving that individuals who consumed fast food once a week (green), daily (blue) and more than once a week (red) were more prevalent among 20-30 year age groups than the other age groups.



**Figure 5:** Bar chart shows the association between gender and the frequency of fast food consumption. X axis represents gender and Y axis represents the number of responses. Among both the gender male participants consume fast food more frequently such as daily (blue), more than once in a week (red), once in a week (green) than females. Chi square test was done and was found to be statistically not significant. Pearson Chi square test,  $p=0.072$  ( $p>0.05$ ) hence statistically not significant, indicating male participants showed more frequency of increased fast food consumption than females.



**Figure 6:** Bar chart shows the association between age and the awareness of the causes of dental caries. X axis represents age and Y axis represents the number of responses. Among the various causes of dental caries and related dental problems the 20-30 years age group are more aware of the causes of dental caries than other age categories. Chi square test was done and was found to be statistically significant. Pearson Chi square test,  $p=0.01$  ( $p<0.05$ ) hence statistically significant indicating people between the age group of 20-30 are more aware of the causes of dental caries than the young and aged groups.

### Conclusion

Within the limitations of the study, most people consume food from fast food joints and they are not much

aware of the impacts of unhealthy nutrition and oral hygiene practices. This survey has added knowledge and created an awareness of the importance of oral health and nutrition upon consumption of fast foods. Hence to have

a better oral health and to maintain good oral hygiene it is not enough if we brush or floss adequately. Instead it is necessary to avoid frequent consumption of fast foods to prevent the damaging dental reactions caused by them and its consumption should be kept under control as complications arise only if it is consumed often. Thus we conclude that there is a strong association between frequent fast food consumption and oral health and hygiene among the population.

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**Ethical Clearance:** It is taken from “Saveetha Institute Human Ethical Committee” (Ethical Approval Number- SDC/SIHEC/2020/DIASDATA/0619-0320)

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