

## Awareness Of Marfan Syndrome Among Dental Students

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### Abstract

#### **Background:**

Marfan syndrome is an inherited connective tissue disorder that affects normal body growth. Connective tissue provides support for your skeletal structure and all the organs of your body.

**Aims:** The aim of the study was to assess the awareness of Marfan syndrome among dental students

**Materials and Methods:** A cross sectional questionnaire study was conducted to 100 dental students to evaluate their awareness about Marfan syndrome. A questionnaire about Marfan syndrome was uploaded to the survey conducting website and distributed to the dental students through social networking sites. The Exclusion criteria involved those who are not dental students. The final sample size 100. The age , gender , year of studying and questionnaire were collected and the data was analyzed using SPSS (Statistical Package for the Social Sciences, Chicago,USA) . Descriptive statistics and Chi-square-test were used to compare the results. P value set to 0.05 as level of significance.

**Results:** A total of 100 dental students who participated in the survey, 71% were female and 29% were male . From the result we observed that most of the people were unaware of the Marfan syndrome. Though some people guessed the syndrome (67%) , most of them were unaware of its cause , clinical manifestation and treatment provided to them to prevent its occurrence.

**Conclusions:** The study concluded that the dental students are very less aware of the Marfan syndrome and required more knowledge to diagnose a patient with the Marfan syndrome.

**Keywords :** Awareness, connective tissue disorder , dental students , Marfan syndrome.

## INTRODUCTION :

Marfan syndrome (MFS) is an autosomal-dominant disorder that affects the connective tissue whose cardinal features affect the cardiovascular system, eyes and skeleton(1). It is usually associated with mutation in fibrillin, and occasionally with mutation in TGFBR1 or 2 (2). The prevalence of Marfan syndrome is estimated to be one to two affected individuals per 10,000 live births (3). Normally affected patients present normal intelligence and cognitive development(4). The diagnosis is commonly considered in a person with the condition to be tall and thin, with long arms, legs, arachnodactyly, pectus deformities(5). The diagnosis is purely clinical with the classical triad of Marfan syndrome is Ocular, Cardiovascular and musculoskeletal disorders(6). They also typically have overly-flexible joints and scoliosis (7). Other clinical findings such as skin striae distensae, recurrent hernia or recurrent pneumothorax may increase suspicion(8). The most serious complications involve the heart and aorta, with an increased risk of mitral valve prolapse and aortic aneurysm(9). The lungs, eyes, bones, and the covering of the spinal cord are also commonly affected(10). In dentistry point of view there are certain orofacial manifestations are high arched palate with dental crowding, dolichocephaly, malar hypoplasia, long and narrow face, frontal bossing, prominent supraorbital ridges, maxillary and mandibular retrognathia, skeletal malocclusion, hypermobility of the temporomandibular joint(11). About teeth, could be highlighted, long narrow teeth, large positive overjet, posterior cross- bites, general malocclusion and periodontal disease(12). These orofacial manifestations could guide the dentists in a quicker diagnosis, even before performing instrumental diagnostic tests(13). Early diagnosis in syndromic patients is very important to immediately set up pharmacological therapy or other types of therapy(14). Marfan syndrome can be especially hard to diagnose in children, because the symptoms may vary greatly from one child to another child, even among children in the same family(15). The skeletal anomalies are the easiest signs to find but oral manifestations, such as dental caries and periodontal diseases, although they are common in the general

population, also have an increased incidence in patients with the Marfan Syndrome(16). Accordingly, the aim of the present study was to assess awareness of Marfan syndrome among dental students. Our team has extensive knowledge and research experience that has translate into high quality publications(17–25),(26–31),(32–38)

## MATERIALS AND METHODS :

The cross sectional questionnaire study was conducted among the dental students from March 2021 to May 2021. The survey focused on dental students' awareness on the facts about Marfan syndrome . A Self structured questionnaire was prepared and has been typed in google forms and distributed to 100 dental students. The 20 questions are based on facts of Marfan syndrome . The Collected data were verified and imported to SPSS (Statistical Package for the Social Sciences, Chicago,USA) .

In SPSS , the individual frequency distributions of each category were assessed and bar charts were obtained. Descriptive statistics and Chi-square-test were used to compare the results.

## RESULTS :

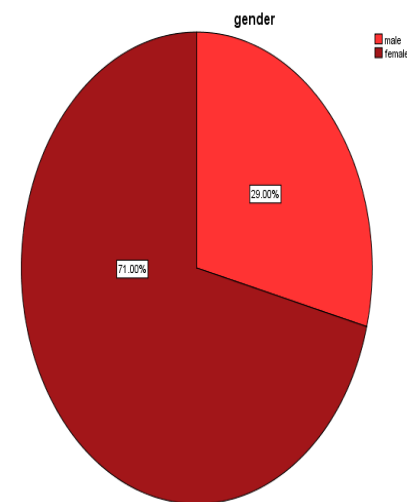


Figure 1: The pie graph depicted the frequency distribution of gender of participants. According to the chart 71% of the participants were female(brown) and 29% of the participants were male(red).

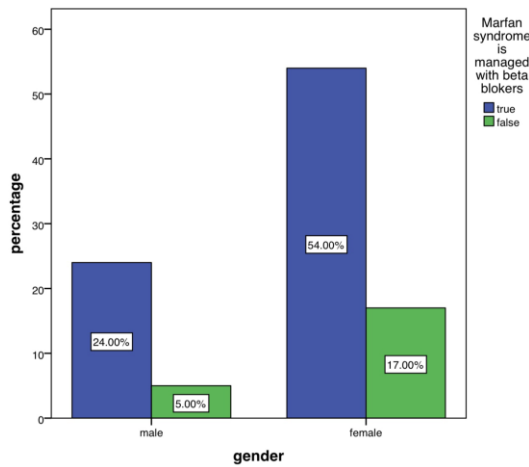


Figure 2: The bar graph depicted the association between the gender and awareness about beta blockers management for Marfan syndrome . X axis- distribution of gender, Y axis- awareness about beta blockers management for Marfan syndrome . Blue denotes the true and green denotes false. Majority of males (24%) and females (54%) answered that the management of beta blockers for Marfan syndrome is true. This association between the gender and awareness about beta blockers management for Marfan syndrome was not statistically significant Chi square test, p-value is 0.463 ,  $p > 0.05$ , not statistically significant.

axis- type of malocclusion commonly seen in Marfan syndrome . Black denotes the class 1 occlusion, orange denotes the class 2 occlusion and sandal denotes class 3 occlusion. Majority of males (16%) and females (36%) answered class 2 occlusion followed by male(9%) and female(23%) answered class 1 occlusion . This association between the gender and type of malocclusion commonly seen in Marfan syndrome was statistically significant Chi square test, p-value is 0.898,  $p > 0.05$ , statistically significant.

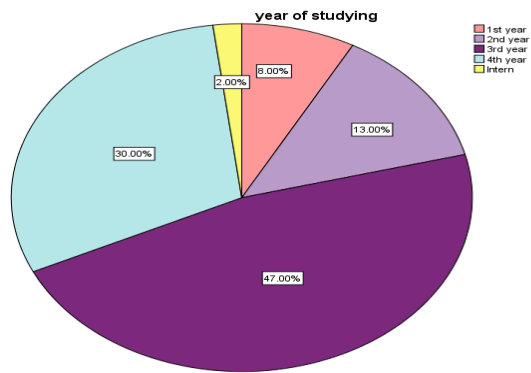


Figure 4: The pie chart depicts the frequency distribution of the year of studying . According to the chart, 8% of the participants were 1st year(pink) , 13% of the participants were 2nd year(lavender), 47% of the participants were 3rd year(violet),30% of the participants were 4th year(sky blue) and 2% of the participants were intern(yellow).

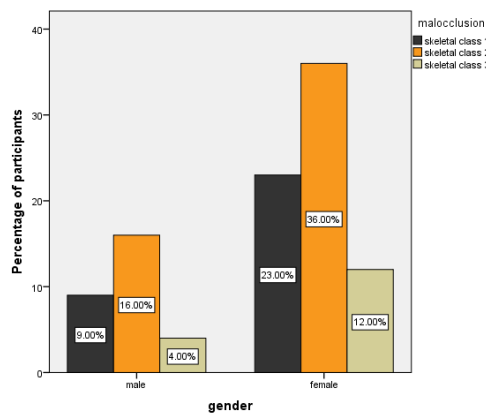


Figure 3: The bar graph depicted the association between the gender and type of malocclusion commonly seen in Marfan syndrome . X axis- distribution of gender, Y

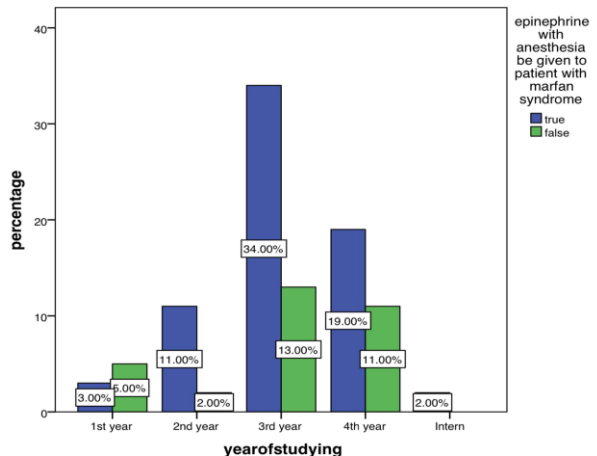


Figure 5: The bar graph depicts the association between the year of studying and awareness about epinephrine with anaesthesia given to patients with Marfan syndrome. X axis- distribution of year of studying, Y axis- awareness about epinephrine with anaesthesia given to patients with Marfan syndrome. Blue denotes the true and green denotes false. 3% of 1st year, majority of 2nd year (11%), 3rd year (34%), 4th year (19%) and all the interns (2%) selected true. This association between the gender and awareness about epinephrine with anaesthesia given to patients with Marfan syndrome was statistically significant Chi square test, p-value is 0.148,  $p > 0.05$ , statistically significant.

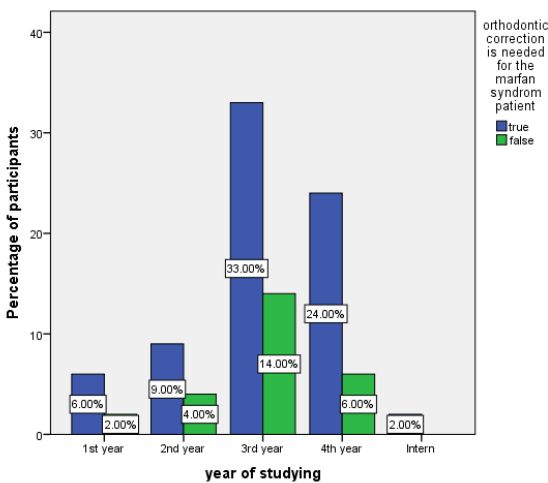


Figure 6: The bar graph depicts the association between the year of studying and awareness about orthodontic correction needed for Marfan syndrome patients. X axis- distribution of year of studying, Y axis- awareness about orthodontic correction needed for Marfan syndrome patients. Blue denotes the true and green denotes false. Majority of 1st year (6%), 2nd year (9%), 3rd year (33%), 4th year (24%) and all the interns (2%)

selected were true. This association between the gender and awareness about orthodontic corrections needed for the patients with Marfan syndrome was statistically significant Chi square test, p-value is 0.778,  $p > 0.05$ , statistically significant.

There was more of the female population than males in this study (figure 1). A positive correlation was found between the study population having a better knowledge on Marfan syndrome management (figure 2) and malocclusion present in Marfan syndrome (figure 3). There were more 3rd year students participating than other year students in this study (figure 4). A negative correlation was obtained on the knowledge of the local anaesthesia with epinephrine is given for the patients with Marfan syndrome (figure 5). A negative correlation was obtained on the knowledge of the requirement of orthodontic treatment for the patients with Marfan syndrome (figure 6).

## DISCUSSION:

A total of 100 dental students who participated in the survey, 71% were female and 29% were male (figure 1). From the result we observed that most of the people were unaware of the Marfan syndrome. Though some people guessed the syndrome (67%), most of them were unaware of its cause, clinical manifestation and treatment provided to them to prevent its occurrence.

The requirements for profiling the awareness of Marfan syndrome among dental students is to know the dental students knowledge about identifying patients with Marfan syndrome by the oral manifestation and General manifestations at the early stage of life and to provide various dental treatments at the right time. In Previous studies assessed the oral health status of patients with Marfan syndrome like caries experience, mucodermal abnormality, problems in dental hard tissue and radiographic evaluations of teeth (15,39). In another studies emphasizes the orofacial findings in MFS and highlights particularities of dental treatment when social

deficits and intellectual disabilities are also implicated(40,41) .In another study of Achint Utreja et al. discuss the observed intraoral findings and the progress of orthodontic treatment to provide a overview of challenges involved in treating patients with Marfan syndrome(42). In another study of Rajendran Ganesh et al. discussed a case report of Marfan syndrome that has been reported with oral manifestations. Here in this study the dental problems of the child were treated under general anesthesia and a one-month review showed intact stainless steel crowns' restorations and no signs of secondary caries (43). In another study treated a 7-year-old female , with a chief complaint of dental crowding in the anterior region of mandible. It was observed that the patient needed multiple treatments based on detailed clinical and radiographic examinations. She had undergone some genetic tests performed on the suspicion of Marfan syndrome. The patient was advised to visit regularly for follow up and she was referred for orthodontic evaluation(44) .

#### **CONCLUSION:**

Dental treatment in Marfan syndrome requires the use of different treatment plans which focus on the needs of the patients at the early age. The early diagnosis and medical management of the syndrome considerably increases a patient's quality of life. The study concluded that the dental students are very less aware of the Marfan syndrome and required more knowledge to diagnose a patient with the Marfan syndrome.

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#### **AUTHOR CONTRIBUTIONS:**

Gajapriya. M executed the research work, collected data and drafted the manuscript. Dr.Dhanraj Ganapathy contributed to the concept and design of the study, Dr.Vishalakshi contributed to validation of the data collection.

#### **CONFLICT OF INTEREST :**

The authors declared that there is no conflict of interest.

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