A Retrospective Study on Reasons for Seeking Treatment for Dental Caries and the Associated Factors

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ABSTRACT

Oral diseases are among the most prevalent diseases globally and have serious health and economic burdens, greatly reducing the quality of life. The most prevalent and consequential oral diseases globally are dental caries and periodontal disease. Dentistry is perceived to be a useful service only when necessary. People often delay visiting a dentist until they have an acute dental problem. However, there are several advantages of seeking oral care at early stages of oral diseases. First the treatment can be undertaken before the disease process has caused much damage to the oral structures, thus improving the success rate of the treatment. Secondly, the treatment thus rendered would be less expensive because treating early oral lesions is cheaper in terms of shorter treatment time and less material used for the treatment compared to treating advanced lesions. Thirdly, early oral lesions cause less or no pain at all. Therefore the impact of oral disease to the quality of life and to the economic activities of an individual is minimized. Dental caries is one of the most common preventable diseases which is recognized as the primary cause of oral pain and tooth loss. It is a major public health oral disease which hinders the achievement and maintenance of oral health in all age groups . The available literature revealed the scarcity of studies on dental treatment seeking behaviour of people. Hence, the present study was conducted with an objective of finding out the reason for seeking treatment for dental carious lesions and the associated factors like Age, Gender. This retrospective study was carried out at Saveetha dental college. A total of 1818 patient records were screened and data like age, gender, chief complaints were collected and tabulated in excel sheets. Chi square test was done to check the association between these factors. Out of 1818 cases, 36% cases had reported for pain, 5% reported for spots, 0.6% reported for dislodged old restoration, 11% for general dental check up. Within the limitation of the study, most of the cases reported for pain and sensitivity followed by discoloration (spots) on teeth and fractured teeth.

Keywords: Caries, Treatment, Retrospective study, Sensitivity, Preventive procedure, Curative procedure

INTRODUCTION

Oral diseases like dental caries, periodontitis are major public health problems in high income countries and the burden of oral diseases is growing in many low and middle income countries [1]. These diseases are generally not self limiting and untreated problems often negatively affect a person's well being and general quality of life [2] However, oral disease is largely preventable by regular home care and preventive dental visit [3] Such preventive dental visits help in early detection and treatment of oral diseases [2,3] The provision of dental care depends on the patient's initiative in utilising dental care [4-6] Dental care is influenced by many factors [7,8] Behavioural, Socioeconomic , culturally related predisposing and need based factors contribute to either seek professional help or leave it unattended or ignored [9-13]. Understanding factors that initiate and hinder dental lesions is necessary to develop policies that adequately address these issues [14].

In many developing countries, dental care utilization is limited, and teeth are often left untreated or extracted [15] Though dentists recommend regular dental visits, many people fail to comply with this due to several barriers that exist for the utilization of dental services. The barriers for seeking dental services have been classified by the FDI as related to the following: (a) individuals themselves (b) dental

profession and (c) society [7].

Dental caries is one of the most common preventable diseases which are recognized as the primary cause of oral pain and tooth loss. It is a major public health oral disease which hinders the achievement and maintenance of oral health in all age groups. WHO has pointed out that the global problem of oral disease still persists despite great improvements in the oral health of the population in several countries. WHO claimed that poor oral health may have a profound effect on general health as well as quality of life and several oral diseases are related to chronic diseases. Dental caries refers to the localized destruction of susceptible dental hard tissues by acidic by-products from the bacterial fermentation of dietary carbohydrates. It is a chronic disease that progresses slowly in most of the people which results from an ecological imbalance in the equilibrium between tooth minerals and oral biofilms [16] the available literature revealed the scarcity of studies on dental treatment seeking behavior of people. So the aim of this study was to determine the reasons for seeking treatment for dental caries and the factors that influence the decision among patients of different age groups and gender etc.

MATERIALS AND METHOD

Study Design

Single centered retrospective study

ETHICAL APPROVAL

Approval for the project was obtained from the Institutional Review Board of Saveetha Institute of Medical and Technical Sciences, Chennai, India on Date 18/04/2020.

ELIGIBILITY CRITERIA

Inclusion Criteria

Cases which had received dental restorations for caries lesions which includes 1) Class I caries, 2) Class II caries, 3) Class III caries, 4) Class IV caries, 5) Class V caries 6) Class VI caries

Exclusion Criteria

The cases which had been reported for reasons other than dental caries which include gingivitis, periodontitis, malocclusion and missing teeth were excluded from the study.

Data Extraction

Data extraction was done from 1818 patient's records. Data collection was accomplished using standardized electronic form designed to collect information related to the subject's demographic features, type of restoration. The final data was exported to excel and saved on a secure server for analysis. The case selection and data extraction is shown in Figure 1.
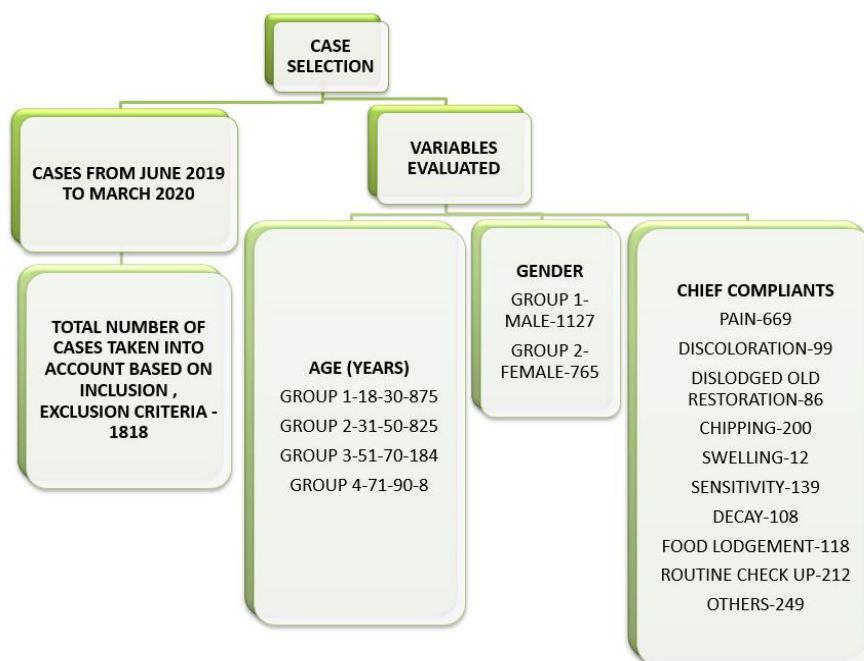

Figure 1: Shows total number of cases and cases included based on the inclusion and exclusion criteria.

SAMPLE SIZE

The sampling method was used to evaluate data. A total of 1818 patient records were selected for the study after considering the inclusion and exclusion criteria. Patient records were collected from Saveetha Dental College, Chennai from the year June 2019 to March 2020. Cases were evaluated based on different parameters age, sex and chief compliant (Table 1).

Table 1: Showing distribution of cases which were included for the study based on Age, Gender. Maximum number of cases were reported in the age group of 18-30 years. Out of 1818 cases, 59.6% were male and 40.4% were female.

Patients Characteristics	Number of Patients	Percentage
Gender		
Male	1127	59.6
Female	765	40.4
Age		
18-30	875	46.2
31-50	825	43.6
51-70	184	9.7
71-90	8	0.4

GROUPS

The total sample was broadly divided into following groups based on reasons for seeking treatment

Group A: Pain

Group B: Discoloration

Group C: Chipped teeth

Group D: Dislodged old filling

Group E: Swelling

Group F: Sensitivity

Group G: Decay

Group H: Food lodgment

Group I: General dental check up

Group J: Others

CLINICAL OUTCOME

A dental restoration or dental filling is a process in which dental restorative material (including dental amalgam, composite resin, porcelain, and gold) is used to restore the function, integrity and morphology of missing tooth structure.

CLINICAL PROTOCOL

When patient reports for the management of dental caries, accurate diagnosis should be done with the help of clinical and radiographic findings. All the factors which are going to influence the outcome of the treatment like depth of the lesion, presence of periapical lesion, age, sex etc should be assessed. Based on this assessment, the method of management is decided.

STUDY OUTCOME

In this study, the maximum number has been reported because of pain. Only a few cases have been reported for aesthetic reasons and for routine dental check up.

STATISTICAL ANALYSIS

Chi square test was done to assess these parameters. The outcome data was represented in the form of tables and graphs. The tables represent the case distribution based on the age, gender, and the reasons. The graphs represent the correlation of age and reasons, gender and reasons. After grouping of parameters, data was copied to SPSS software. The statistical analysis between all three groups was carried out in SPSS software. Chi square test was done to check the association between these factors.

RESULTS AND DISCUSSION

A total of 1818 cases were examined. Out of which 36% of cases had reported for pain, 5% cases reported for spot, 4.5% cases reported for dislodged old restoration, 11% of cases reported for fractured teeth, 0.6% of cases reported for swelling, 7.3% of cases for sensitivity, 5% for decay, 6% cases reported for food lodgment, 11.2% cases reported for general dental check up and 13% reported for other reasons. Maximum number of cases belonged to the age group of 18-30 years and least number of cases were reported in 71-90 years. Male accounted for 59.6% of cases and female accounted for 40.4% of the total cases. When the correlation between age, gender and reason was checked, it was found to be statistically significant with P Value less than 0.05 (Tables 2-5) (Figure 2 and Figure 3).

This retrospective study identified several reasons for seeking dental care as well as the factors that influence the utilization of dental services. [8-10] the findings indicated that

Table 2: Showing distribution of cases which were included for the study based on teeth type. Out of 1818 cases, 41% were molars, 23% were premolars, 10% were canine, and 23% were incisors.

Tooth Distribution	Number of Teeth	Percentage
Jaw		
Maxillary	813	44
Mandibular	1005	55
Teeth Type		
Anterior	632	34
Posterior	1186	65
Teeth Number		
Central incisor	246	13
Lateral incisor	187	10
Canine	199	10
Premolars	432	23
Molars	754	41

Table 3: Showing distribution of cases based on age, gender and chief complaints.

| Age	Frequency	Percent	Valid percent	Cumulative percent
18-30	875	46.2	46.2	46.2
31-50	825	43.6	43.6	89.9
51-70	184	9.7	9.7	99.6
71-90	8	0.4	0.4	100
Gender	Frequency	Percent	Valid percent	Cumulative percent
Male	1127	59.6	59.6	59.6
Female	765	40.4	40.4	100
Reasons	Frequency	Percent	Valid percent	Cumulative percent
Pain	669	35.4	35.4	35.4
Discoloration	99	5.2	5.2	40.6
Chipping	200	10.6	10.6	51.2
Dislodged old restoration	86	4.5	4.5	55.7
Swelling	12	0.6	0.6	56.3
Sensitivity	139	7.3	7.3	63.7
Decay	108	5.7	5.7	69.4
Food lodgement	118	6.2	6.2	75.6
Routine check up	212	11.2	11.2	86.8
Others	249	13.2	13.2	100

Table 4: Association between age and reasons. Association between age and reasons was found to be significant with a P value less than 0.05.

|	Value	df	Asymptotic significance
Pearson Chi-Square	72.074	27	0
Likelihood ratio	78.512	27	0
Linear by linear association	0.51	1	0.475

Table 5: Association between gender and reasons. Association between gender and reasons found to be significant with a P value less than 0.05.

	Value	df	Asymptotic significance
Pearson Chi-Square	21.533	9	0.01
Likelihood ratio	21.752	9	0.01
Linear by linear association	3.578	1	0.059

most of the patients seeking dental care at the academic dental centre were for curative dental care which consisted of operative dental care and procedure for relief of pain and discomfort. Such procedures include procedures that are used to restore teeth for optimal function and aesthetics [11,14]. Most of the cases were reported for pain and sensitivity followed by spots on teeth and chipped teeth. This is in accordance with the study conducted by Varenna et al. [15] was considered as a major motivating factor to visit the dental clinic. [16] Similarly, pain was the most common factor for seeking dental treatment [17-20] Dental pain adversely affects the quality of life, normal functioning and daily living of people and most dental visits are aimed at immediate relief of pain. Patients often present themselves at the later stage of the diseases. That is a problem-oriented visit rather than a prevention oriented one.
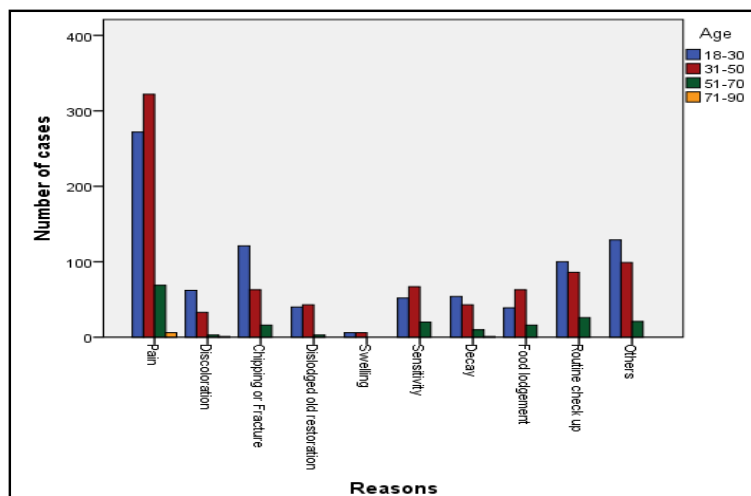
Figure 2: Bar chart showing association between age and reasons for seeking treatment, X axis represents the reasons and Y axis represents the number of cases in each age group; Majority of the cases in the 31-50 years age group reported for Pain(Red). Chi square test (72.074) was done, and association was found to be statistically significant. Pearson's Chi square P value - 0.000<0.05.
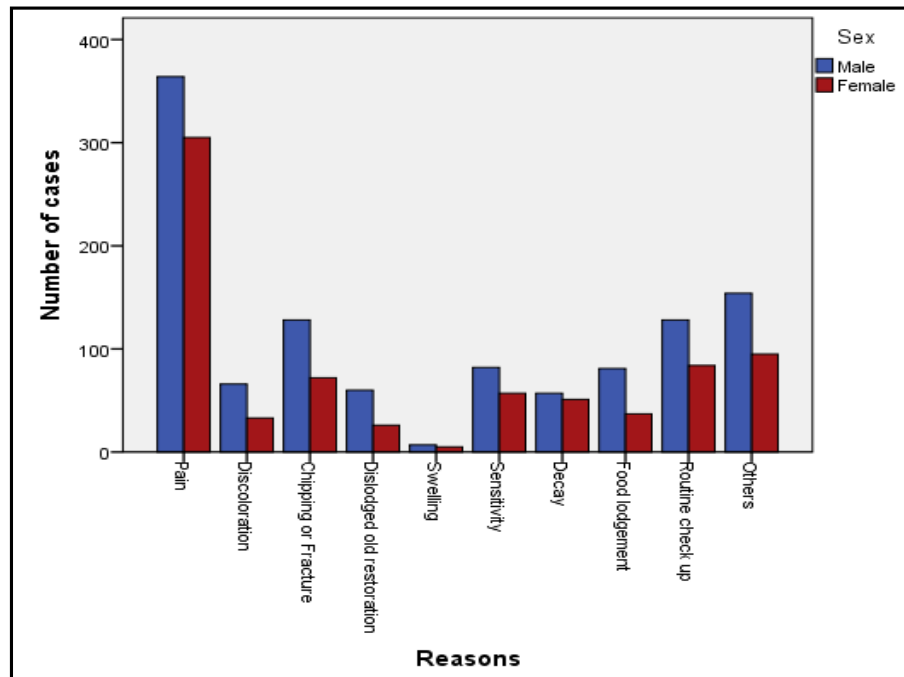
Figure 3: Bar chart showing association between gender and reasons for seeking treatment, X axis represents the reasons and Y axis represents the number of cases in each gender; Majority of the male cases reported for Pain (Red). Chi square test (21.533) was done, and association was found to be statistically significant. Pearson's Chi square value P value -0.010<0.05.

Dentistry is perceived to be a useful service only when necessary but has not been considered as a crucial part of overall health [21,22] Time since the last dental visit represents dental care that was initiated by the people clearly reflects personal motivation and decision-making toward dental treatment. Not visiting a dentist regularly, at least once in a year, means that the people have poor preventive oral health practices, and they delay visiting a dentist until they have an acute dental problem. Although two dental visits per year are recommended by dentists, only a few individuals comply with this recommendation. Pain was the primary reason for visiting a dentist for the majority of people followed by the decayed teeth similar to many other studies.

Education levels of patients also seemed to have a strong role in their dental visits. According to Rambabu et al, 2018 among the people who had previously visited a dentist, 78% had education above high school level, whereas the majority of the people who had never previously visited a dentist had education levels below the seventh grade (45%). [23] In addition to all these, other factors like situational and psychological barriers also had shown to influence the number of dental visits. Situational barriers like high cost of treatment may reduce the frequency of dental visits. Freidson et al. conducted a survey

on the reasons for not paying regular dental visits and reported that Twenty five percent of the respondents thought dental fees was too high [24] Another factor could be access to the dental clinic. However, Reppert et al. found that 78 percentage of the respondents reported no difficulty in getting dental appointments, and that 85 percent reported that the dental offices of their own dentists were conveniently located [25]

Correlation between age and reasons, gender and reasons were significant. This finding is in accordance with the study done by Murakami et al, 2014 [26] But when Loet al. did similar study and had found that young adults in the 34-44 age group visited the dentist for regular dental checkups [27] There was also a high proportion of adults who visited the dental clinic for check up especially among those in the 25-44 years age group [28].Resin et al, 1987, found that gender was the most influencing factor. It was found that utilization of dental services was greater among females than male. Female patients were more likely to seek preventive dental care whereas male patients were more likely to seek dental services for operative care. These findings were in accordance with the finding of study done by Rajah et al. [29] Females were concerned about their appearance which influenced the visits to the dentist for preventive dental care.

Since the study was hospital based and employed deliberate sampling, the results cannot be generalized at the community level. Although the study was carried out at a small scale, it may provide an initial step in understanding which variables are important in utilization of dental care.

CONCLUSION

Within the limitation of the study, most of the cases reported for pain and sensitivity followed by discoloration (spots) on teeth and fractured teeth. Although this study had a smaller sample size, it may help us in understanding the factors which can influence the patient's attitude towards decision making with regard to dental treatment.

DECLARATION OF PATIENT CONSENT

All authors certify that appropriate patient consent forms were obtained. The patients understand that their names and initials will not get published and their identity will be concealed.

ACKNOWLEDGEMENT

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CONFLICTS OF INTEREST

None

STUDY LIMITATION AND FUTURE SCOPE

Limitation of the study includes lesser sample size. Further study is required to identify other factors which influence the treatment outcome like cost factor, any associated comorbidities etc. Randomized controlled trials are considered most reliable to establish the relationship between the contributing factors.

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