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ASSESSING THE BENEFIT OF HEALTH EDUCATION AND COUNSELLING BASED ON IMPROVEMENT IN THE PLAQUE INDEX IN PATIENTS: RETROSPECTIVE STUDY

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ABSTRACT

Oral diseases are still prevalent in developing countries and their impacts on both society and individuals are significant. The cost of the treatments are usually high, although the causes of the diseases are known and largely preventable. Evidence shows that the growth of the dental plaque and inflammation of the gingival tissue leading to periodontitis are ubiquitous and strongly linked irrespective of age, gender or social/ ethnic identification. Regular and thorough removal of dento- gingival plaque is crucial for maintenance of periodontal health. The aim of this study was to assess the plaque index among patients provided with health education counselling in a dental institution. This retrospective study was done in an institutional setting among patients who have visited the dental facility, the records of the patient were obtained from a given time period of June 2019 to April 2020. Data was retrieved and evaluated by 2 reviewers. Once the data was collected, it was tabulated based on the parameters which are gender, age and plaque index. The sample size for this study was found to be 1934 patients. The data was sorted and

was tabulated in excel. Analysis of data was done in SPSS software. The total number of males who had participated in this study was n=1152 whereas the number of females who had participated in the study was n=770. More number of males (1162) had come back for the counselling (P= 0.060) than the females (773). The total number of patients who had come back for the counselling were n= 1316 whereas n=618 patients had not come back for the health education counselling. The mean plaque index score for the patients who returned for the second health education review was found to be 0.8033 and the mean plaque index score for those who did not come back for their second health education review was 2.6715. For the health education that had been provided for patients between 18-27 years, 599 of the patients had come back for the counselling and in the age groups 28-37 years , 390 patients had come back for counselling and between the age groups of 8-17 years- 565 patients had come back for counselling. We conclude that Patients who had come back for their health education counselling were found to have a lower plaque index score in their second visit as compared to the plaque index score in their first visit.

Keywords: Health Education, Plaque, Oral hygiene

INTRODUCTION

Dental diseases are among the most common and widespread diseases around the globe. Poor oral health and untreated dental conditions can have a significant impact on the quality of life of children which may lead to overall deterioration of health. The delay in treatment not only results in aggravation of disease, but also costs of care are substantially escalated as a consequence. India, a developing country, faces many challenges in delivering oral health needs. In 1940, the prevalence of dental caries in 5 and 12 year old school children in India was 55.5% and it rose to 68% in the 1960s and climbed to 89% in the subsequent years.

Major improvements in oral health have occurred in many developed countries in the last 30 years **[1]**. However oral diseases are still prevalent in developing countries and their impacts on both society and individual are significant **[2]**. The cost of the treatments are usually high, although the causes of the diseases are known and largely preventable **[2]**. Evidence shows that the growth of the dental plaque and inflammation the gingival tissue leading to periodontitis are ubiquitous **[3]** and strongly linked irrespective of age, gender or social/ ethnic identification **[4]**. Regular and thorough removal of dento-gingival plaque is crucial for maintenance of periodontal health **[5]**. Though mechanical cleaning is recognised to be potentially useful in controlling supragingival plaque, the expectation that each individual will maintain a good standard seems to be beyond most people's capabilities **[6]**. A number of

factors have been suggested as playing a role in motivation of patients performing oral hygiene procedures **[7]**. Most important amongst the factors are patients' recognition of the disease and the knowledge of various preventive measures **[8]**. Health education is a widely accepted approach in prevention of oral diseases, is a process of transmission of knowledge and skills necessary for improvement in quality of life **[9]**. The goal of planned health education is not only to bring out new behavior but also reinforce and maintain healthy behavior that will promote and improve individual,[10] group or community health **[11]**. A common mode of delivery of oral hygiene messages is the personal instruction approach on one to one basis **[12]**. Studies focusing on the impact have an important role in the further development of these kinds of interventions. Until and unless, the impact of a program on the targeted population is not determined, the success of the program cannot be assessed. Keeping this in mind, the present study was planned to evaluate the assessment of plaque index among patients provided with health education counselling in a private dental institution in Chennai **[13]** and how many of them came for second counselling.

MATERIALS AND METHODS:

Study Design - Retrospective, descriptive study.

Study Setting - The study was a hospital based study conducted in Saveetha Dental College, Chennai. Data was retrieved from Dental Information Archiving Software (DIAS) and was examined by two examiners.

Ethical approval - Prior to starting study, ethical approval was obtained from Scientific Review Board, Saveetha Dental College, SIMATS University.

Study Population - The study population consists of patients reporting to the Department of Public health dentistry of Saveetha Dental College.

Study Period - The study was conducted between June 2019 - March 2020.

Inclusion Criteria - 1) Patients aged between 18 and 69 years. 2) Patients who had come back for a review for the health education counselling.

Exclusion Criteria - 1) Patients aged below 18 years and above 69 years. 2) Patients who had not come back for the review of Health Education.

Sample size: The sample size for this study is 1934 patients.

Study design: The case sheet entries were all entered by dentists. All the records in the above mentioned period were verified. Cross verification of all the diagnosis, intra oral

pictures and case sheets were done. The study included both the internal and external validity.

Study method: All the data was obtained from the Dental Information Archiving Software (DIAS). All the patient related details like the patient identification numbers were obtained from the department of Public health dentistry.

Data analysis: The data collected was tabulated in Excel and imported to the SPSS software. The Incomplete data was verified by the concerned department. Possibility of bias was excluded from this study. The independent data was assessed using T\Mann Whitney U Test. All the data was analysed using SPSS V20.Descriptive Statistics were done and the test for the proportion was done. Chi square test was assessed and tabulated.

RESULT AND DISCUSSION

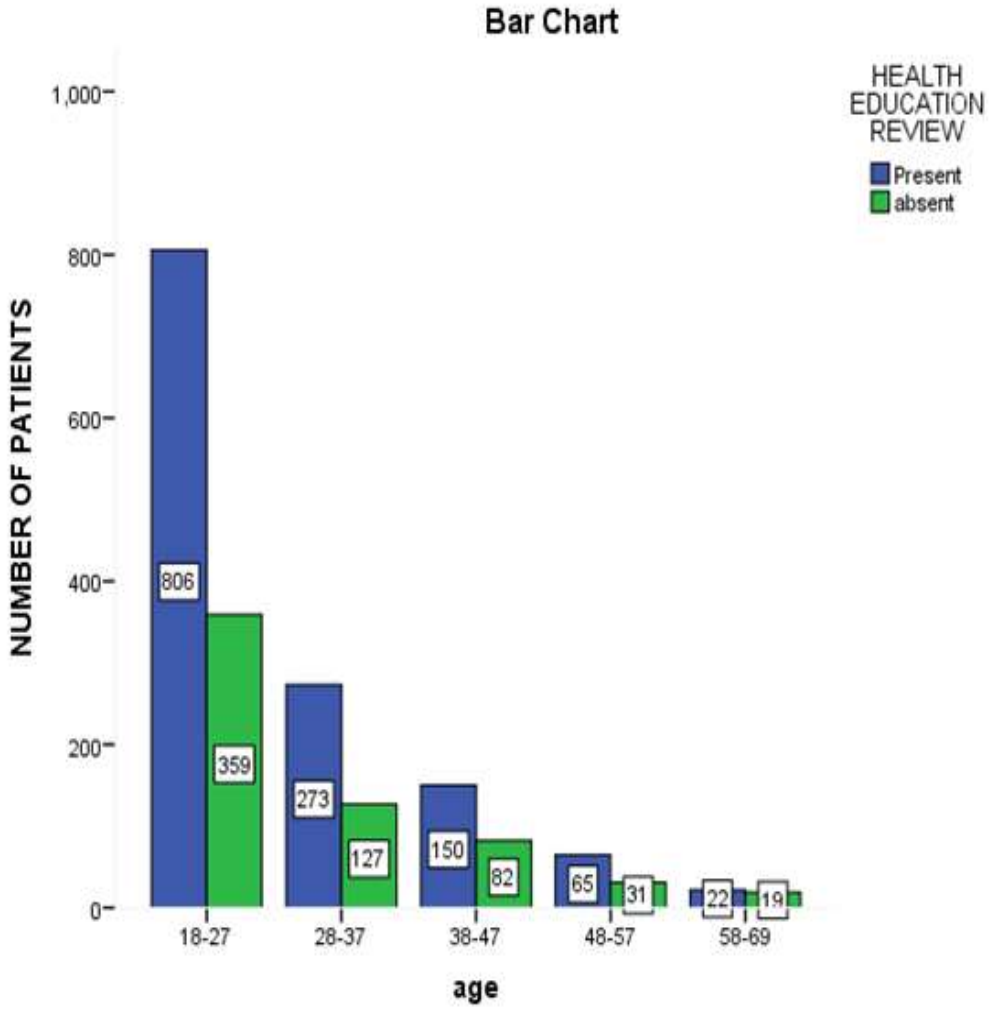
The mean plaque index score for the patients who returned for the second health education review was found to be 0.8033 and the mean plaque index score for those who did not come back for their second health education review was 2.6715.

Table 1: This table presents the mean PI score between the patients who returned for the second health education review and those who did not come back for their second health education review. The mean plaque index score for the patients who returned for the second health education review was found to be 0.8033 and the mean plaque index score for those who did not come back for their second health education review was 2.6715. P value was 0.001 <0.005 which shows statistically significant association

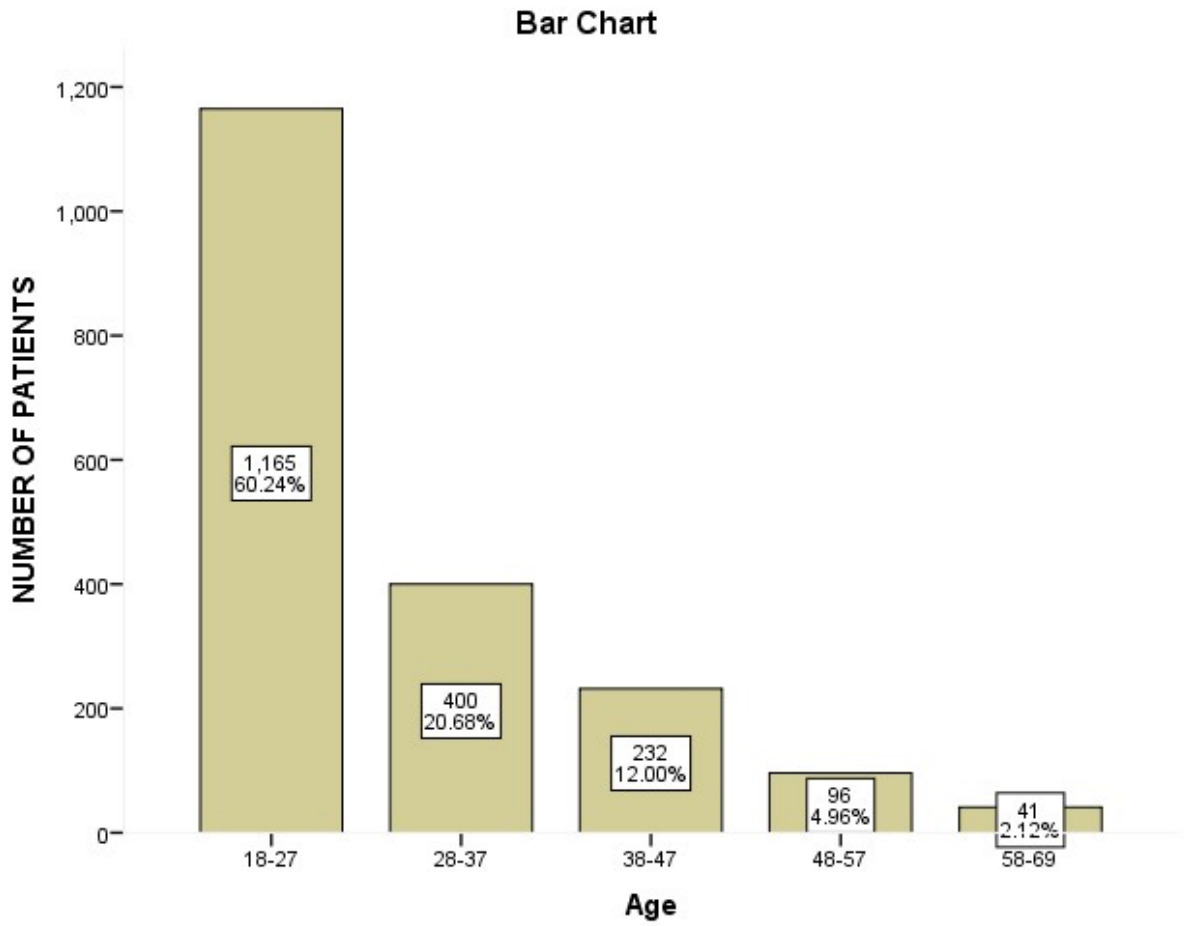
HEALTH EDUCATION REVIEW	N	MEAN PI	STD. DEVIATION	STD.ERROR MEAN	P
Absent	618	2.6715	.47004	.01891	0.001
Present	1317	.8033	.84068	.02317	0.001

Table 2: This table shows association of gender with Health Education review. This tables represent the number of males and females who returned back for their health education counselling and the ones who did not return back for their counselling review. A total 772 males returned back for their health education counselling whereas a total of 545 females returned back for their counselling review. A total of 1317 patients returned back for the counselling whereas a total of 618 patients had not returned back for their counselling review. Chi square test, p value(0.060) > 0.05, there is no statistically significant association between gender and Health Education.

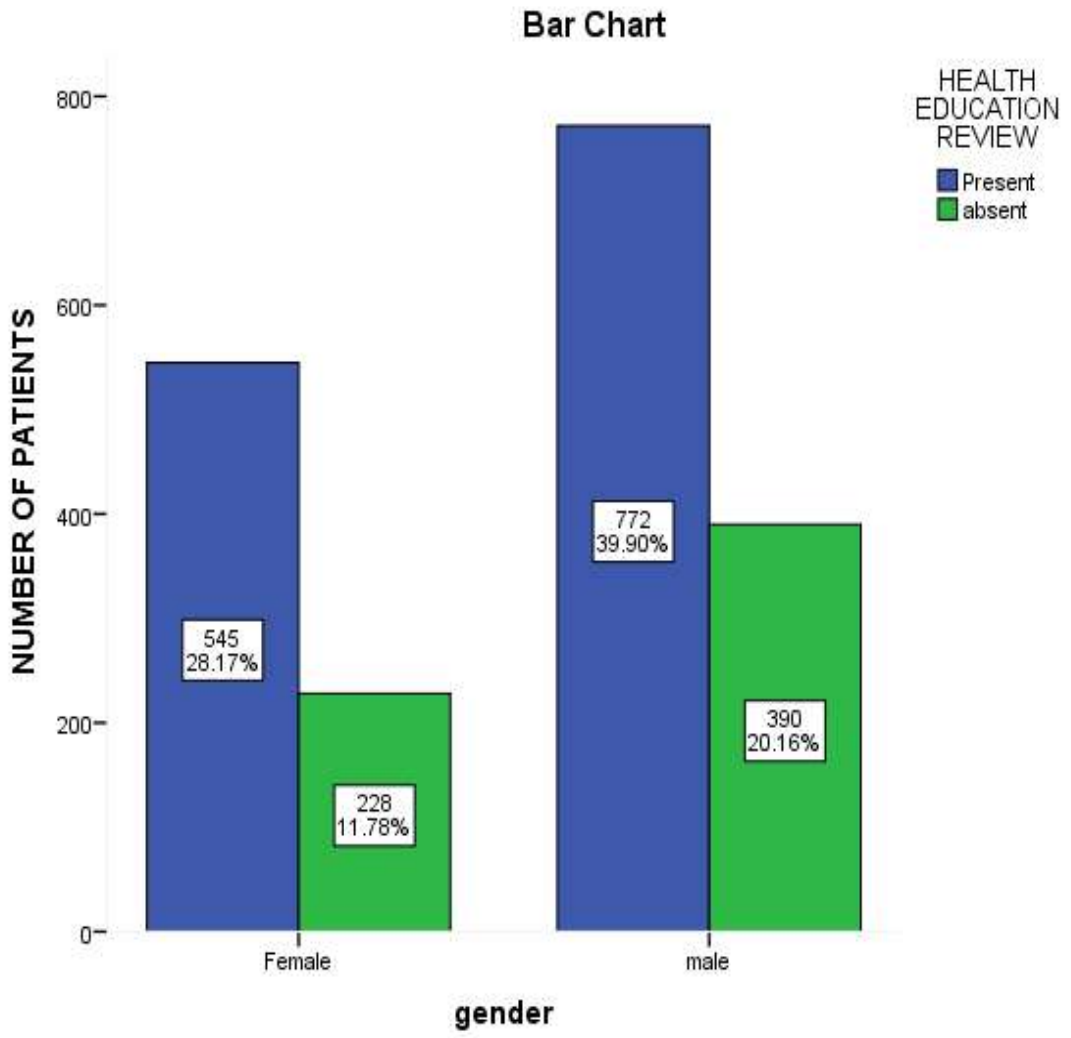
GENDER	HEALTH EDUCATION REVIEW (PRESENT)	HEALTH EDUCATION REVIEW(ABSENT)	P VALUE
FEMALE	545	228	0.060
MALE	772	390	0.060
TOTAL	1317	618	0.060



Graph 1: Graph 1 represents association between age and Health Education review, where x axis represents the age of the study population and y-axis represents the Health Education review. The blue colour in the graph denotes the number of people who came back for their review and the green colour represents the number of people who didn't come back for review of the health education. There significant association between age of participants and relatively higher number of younger individuals returned for health education review (Chi square test, p value (0.001))



Graph 2: Graph 2 represents association between age and the number of patients, where x axis represents the age of the study population and y-axis represents the number of patients in the different age groups who participated in our study. The maximum number of patients who participated in our study belonged to the age group of 18-27 years comprising 60.24% of our total study population followed by the age group of 28-37 which comprised 20.68% of our total study population. Chi square test, p value > 0.05, there is no statistically significant association between age and Health Education.



Graph 3: Graph 3 association between gender and Health Education review,where x axis represents the age of the study population and y-axis represents the Health Education follow up. The blue colour in the graph denotes the number of people who came back for the review and the green colour represents the number of people who had not come back for the counselling. Chi square test, p value > 0.05, there is no statistically significant association between gender and Health Education.

Although, the literature is saturated with recent advances in materials and technology to treat dental diseases **[14]**. There is very little being accomplished in the area of health promotion. This area needs to gain more attention all the more due to the overwhelming rise in the incidence of dental diseases **[15]**. There is very little being accomplished in the area of health promotion **[16]**. This area needs to gain more attention all the more due to the overwhelming rise in the incidence of dental diseases, **[17]** where attempts by secondary and tertiary prevention are like building a roof on a house without foundation. **[18]** Primary prevention includes health promotion by way of health education **[19]**.

The plaque index was found to be before and after health education was found to be statistically significant (0.001). From **Graph 1** we infer that the Health Education review when compared with age groups that is 18-27 years, we found that 599 of them came back for the review. In the age group of 8-17 years, 565 of them came back for the review and in the age group of 28-37 years, 390 of them had come back for review **[20]**. More males (1162) had come back for the review than the females, whereas the number of females that had come back for counselling were 773. The mean plaque index score for the patients who returned for the second health education review was found to be 0.8033 and the mean plaque index score for those who did not come back for their second health education review was 2.6715 which is similar to a study conducted by M.lalic where he concluded that oral health counselling increased plaque removal efficacy and control of gingival inflammation **[21]**. Peter in his study showed that health education by audio visual aids could be more effective to prevent plaque related oral diseases, practical aspects of health promotion **[22]**. Elias believed to promote health education by means of audio visual aids could be an effective preventive preventive measure against plaque related oral diseases **[23]**.

The limitations of this study are that it includes a small sample size. This study cannot be generalised. There is always a possibility of self-reported bias. Most patients don't come back for a review **[24]**.

CONCLUSION

From the present study, the only practical solution that is worth heading for would be primary prevention wherein the problems are struck at the root, that is even before its inception. Primary prevention includes health promotion by way of health education. Health education can be delivered by either

personal instruction or by the use of self instruction manual and audio-visual aids. Several other methods can also be employed to deliver effective health education. Within the limits of our study, we conclude that Patients who had come back for their health education counselling were found to have a lower plaque index score in their second visit as compared to the plaque index score in their first visit.

AUTHOR CONTRIBUTIONS:

First author (Rushabh S.Kamdar) performed the analysis, interpretation and wrote the manuscript. Second author (Dr. Samuel Raj) contributed to conception, data design, analysis, interpretation and critically revised the manuscript. Third author (Dr.Arun) participated in the study and revised the manuscript. All the three authors have discussed the results and contributed to the final manuscript.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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