Knowledge, Awareness, and Practice of Interdental Aids and its Significance in Improving Quality of Life in Patients with Prosthetic Crowns and Proximal Restorations - A Survey

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ABSTRACT

Introduction: Plaque accumulation especially in interdental areas where local factors like proximal restorations and crowns are present require additional methods of control. The role of interdental aids thus becomes indispensable.

Objective: To evaluate the awareness, knowledge, perception and practice towards use of interdental aids in patients with proximal restorations and prosthetic crowns visiting the Periodontology Department of our college.

Materials and Method: A total of fifty patients with 200 interdental sites were evaluated in region of crown or proximal restoration. The patients were examined for tenderness and periodontal health in area of crown and proximal restoration and were also asked to fill a questionnaire.

Result: Out of the surveyed fifty patients, 70% of the population were unaware and only 30% were aware of interdental aids. 20% of them reported routine use. 60% of them reported that their Dentist had never advised them. Out of the surveyed sample 18% reported food lodgement and 24% reported interdental pain ranging from mild to severe in nature. Radiographs were advised to patients with interdental pain to rule out endodontic cause; they were treated with scaling and curettage especially in region of pain and motivated to use interdental aids.

Conclusion: Majority of patients with crowns and proximal restoration were totally unaware of interdental aids use and reported with food lodgement and interdental pain. This survey reinforces the importance of interdental aids in maintaining an optimum oral hygiene. It also mandates the need for Dentists to prescribe routinely interdental aids especially in such patients.

Keywords: Awareness; interdental aids; interdental pain.

INTRODUCTION

Oral hygiene maintenance is essential for good oral health and also for a better quality of life.1 A quintessential for optimal hygiene maintenance is preventing plaque accumulation. Routine brushing is inefficient in removing the food and plaque deposits in between the teeth.2 Interdental aids are important for removal of this plaque, food and debris.

Interdental space refers to the physical space between teeth, determined by the tooth morphology.3 It is filled by the interdental papilla and is related to alveolar bone level, distance between teeth, the contact point, contour of developmental grooves and marginal ridges. Cusps that forcefully wedge food in interproximal area are known as Plunger cusps, they influence interdental food impaction.4 Local factors like proximal restorations and fixed prosthesis can contribute to plaque deposits and

food accumulation. Iatrogenic factors like deficient restorations and improper crowns can cause plaque accumulation along with inflammation.5 This space requires mandatory maintenance through use of interdental aids. A variety of products are available and they are prescribed depending on the size of interdental space.6

This survey was an attempt to estimate the awareness level, use and maintenance of interdental area in patients with crowns and proximal restorations and quality of life of patients not using interdental aids.

MATERIALS AND METHOD

A survey was conducted involving 50 individuals in the age group of twenty to fifty years from December 2018 to February 2019 in the Periodontology Department of our college. The survey group comprised of patients with either a proximal restoration or a fixed prosthesis which included single crowns, multiple crowns and/or to long span bridges placed at least 3 months back. The patients belonged to different socioeconomic status ranging from professors, postgraduates to people of low educational and socioeconomic status.

A detailed case history was recorded of each patient. An informed verbal consent was taken, then a periodontal examination was carried out, and the status of the periodontal condition was determined. Patients who did not meet the criteria mentioned formerly were excluded from the study. They were questioned about their knowledge of interdental aids through a questionnaire (attached below).

SURVEY QUESTIONNAIRE

Q1) Name- Age- Sex-
Q2) Contact no- OPD No.-
Q3) Educational status-
Q4) Medical history-
Q5) Dental history-
Q6) How many times do you brush daily?
Q7) Are you aware of interdental aids? (Interdental brush floss, unitufted brush etc) - **Yes/No**
Q8) Have you been prescribed the use of Interdental aids by your dentist? - **Yes/No**
Q9) Do you use any interdental aids? **Yes/No**
Q10) If Yes How frequently do you use interdental aids?-**Daily/sometimes/rarely/after every meals**
Q11) Have you recently experienced any pain in between teeth?-**Yes/No**
Q12) Onset of the pain? **Dull/sharp**
Q13) What was the severity of the pain? (According to numeric pain rating scale)

No pain (0) **moderate pain (5)** **worst possible pain (10)**

Q14) Nature of pain?- **Continuous /intermittent**
Q15) Duration of pain? - **Hours /minutes/seconds**
Q17) Frequency of pain-(number of times it is experienced in 24 hrs.)?
Q18) Radiation of pain? - **Yes/No**
Q19) Any complaint of sensitivity to hot or cold? **Yes/No**
Q20) Whether food gets trapped in between the teeth of involved region? **Yes/No**

Clinical Examination

Q1) Region of pain?
Q2) Presence of any fixed prosthesis-
Q3) Presence of any proximal restoration-
Q4) Tender on Interdental probing?

Mild (0) **moderate (5)** **severe (10)**

Q22) Tender on percussion?

Mild (0) **moderate (5)** **severe (10)**

Q21) Any other associated complaint?

The region with crowns or proximal restoration was percussed for tenderness if any. Interdental Probing was also done in that region with William's periodontal probe. The standard probing force was used with only one examiner to control bias in probing force. The purpose of this survey was explained to patients and their verbal consent was taken prior to examination. Those patients who complained of pain were radiographed to rule out endodontic cause. They were treated with full mouth scaling and sub gingival curettage in interdental area and were motivated to use interdental aids. On subsequent visits the patients were re-evaluated for relief of pain, the first visit being after 10 days and second visit after a period of one month.

RESULT

Fifty patients were surveyed, in whom a total of 100 crowns and 20 proximal restorations were evaluated. Total 200 interdental sites were examined. The male and female participants were 20 and 30 respectively. Most of the survey sample populations were literate. The age group was vast ranging from 20 years to 60 years though majorities were between 40 to 50 years.

Seventy percent of the patients were unaware of interdental aids and among them 50 (%) reported that their Dentist had never advised them the use of these aids. 30 (%) of the patients who were aware of these interdental aids had been either advised by their Dentist or had heard about it through advertisements, friends or social media. Amidst the users,60 (%) were using dental floss after meals on a regular basis while 30 (%) were using interdental brushes on a regular basis. About 10 (%) of the patients although aware about these aids were the category that rarely used them.

Twenty-four percent of the interdental sites probed were painful in the region of crown or class II restoration, out of which 58 (%) was of a mild nature of pain and 40 (%) of a moderate natured pain. A very small percentage of about 2 (%) was pain of severe nature. 10 (%) of the sites were tender on percussion. 18 (%) of the examined interdental sites was reported to have food lodgement problems

Table 1: Demographic factors based on age, gender, and socioeconomic status.

Demographic Factors	n (%)
Gender	
Male	20 (40)
Female	30 (60)
Age group	
20-30	15 (30)
30-40	10 (20)
40-50	25 (50)
Education level	
Illiterate	7 (14)
Undergraduate	18 (36)
Postgraduate	25 (50)
Interdental aids awareness	
Aware	15 (30)
Not aware	35 (70)

n = number of individuals

Table 2: Interdental aids related factors.

Related Factors	n (%)
Food lodgement	36 (18)
Sensitivity	30 (15)
Pain	48 (24)
Mild	28 (58)
Moderate	19 (40)
severe	1 (2)

n-no.of interdental sites=200

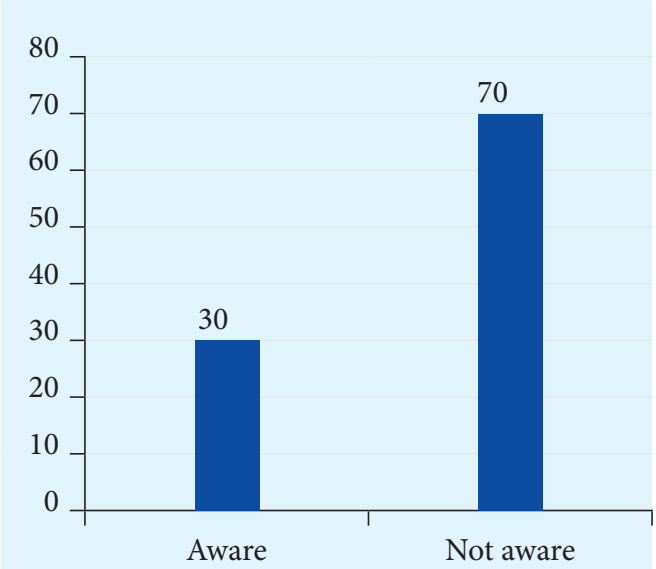

Figure 1: Interdental aids awareness.

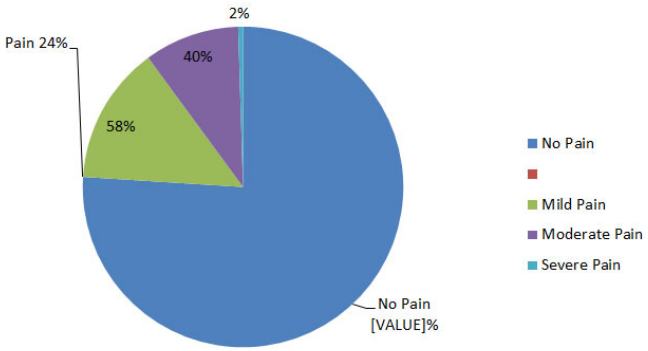

Figure 2: Incidence of interdental pain.

and 15 (%) of the sites was reported to have mild sensitivity.

DISCUSSION

Fixed prosthesis and crowns require additional means of hygiene maintenance by patients as they may act as a local contributing factor in plaque and food accumulation. Majority of such patients are totally unaware of the use of interdental aids and many of them have not even being prescribed by their Dentists. Those patients with poor interdental cleaning and upkeep, experience pain due to periodontal inflammation. The aim of this study was to correlate the knowledge and awareness of use of interdental aids in patients with Class II restorations/crowns and the incidence of interdental pain in such patients and their management.

Earlier studies in literature have shown the importance of the use of interdental aids and its benefits in reducing the inflammation and bleeding7 and scope for improved oral health8 but our study has specifically emphasized the necessity in specific type of patients and its positive correlation in terms of increased incidence of pain and food lodgement.

Interdental aids are of different types–interdental floss, interdental brush, unitufted brush, wooden tips, and toothpicks.9Each of them are designed based on type of embrasure and ensure effective cleaning of the inaccessible interdental embrasure area.

The presence of class II restoration or a crown can compromise the natural interdental space therefore these patients should mandatorily be using aids for additional hygiene maintenance. Not only the mere presence of crowns and proximal restorations but also the type of restoration and contour of crowns affects the interdental food and plaque accumulation and subsequently the presence of pain. Overhanging restoration and/or improper contact buildup in restorations; over or under crown contours further worsens maintenance in interdental area which perhaps makes use of interdental aids all the more important.

The majority surveyed were totally unaware of interdental aids, the reason being more was that they had not been recommended by their Dentists. A considerable amount of people who were aware of interdental aids did not use them on the regular basis. Pain in the interdental area was reported in a considerable proportion of the sample population along with sensitivity and food lodgement.

The patients after evaluation and thorough examination were treated with full mouth scaling and localized subgingival curettage in areas of pain. These patients were advised and motivated to use interdental aids after every meal. Local anatomic and iatrogenic factors like plunger cusp, defective restorations and crowns were corrected. On follow up visit they reported a significant reduction in pain. Thus thorough debridement of interdental

debris and granulation tissue offered relief to the patient and regular maintenance with interdental aids prevented recurrence of pain.

CONCLUSION

This survey concludes that the lack of interdental aids usage in patients with crowns and proximal restorations has a detrimental effect on the periodontal status of that region with complaints of pain, food lodgement and sensitivity. To improve the quality of life in such patients it is necessary to educate and motivate them to use interdental aids. More so over it is recommended that every Dentist should prescribe their patients the use of such interdental aids.

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