KNOWLEDGE, AWARENESS AND PRACTICE OF USAGE OF INTERDENTAL AIDS AMONG DENTAL PROFESSIONALS

ABSTRACT

Aim: To evaluate knowledge, awareness and practice of usage of interdental aids among dental professionals.

Introduction: Dental caries and periodontal diseases, the two most common oral diseases, are mainly avoidable by professional and self-care activities. Dentists' knowledge and people's attitude on oral hygiene maintenance have a key role in the prevention of oral diseases.

Study design: This was a survey conducted in an online forum. It was a questionnaire based survey.

Methodology: A set of 10 questions to assess knowledge, awareness and practice of usage of interdental aids was distributed among dental professionals. The data was collected and statistically evaluated using SPSS software.

Results: Majority of the dental professionals are aware of the purpose of interdental cleaning among which 74.5% being MDS and 3.92% being BDS.

Conclusion: Because of the minimal positive reaction to interdental aids among general dentists, educational campaigns offering information on various interdental aids should be conducted.

Keywords: Dental professionals; Brushing; Interdental brush; Flossing; Novel method.

1. INTRODUCTION

The most common oral diseases, dental caries and periodontal illnesses are treatable via an aggregate of expert and self-care activities. The people's mindset and behavior also play a crucial role in improving and prevention of oral diseases (1). Concern has been expressed that upgrades in oral health have been taking place in many western countries; whereas, deterioration of oral health has been taking place in many developed countries(2). Personal oral hygiene and periodic expert care continue to be the actions of preference to prevent periodontal diseases. The American Dental Association (ADA) recommends that brushing and flossing to be performed very well at least once a day, with brushing period being optimally about 3 minutes (3). Further, the ADA advises that dental visits must be made on a regular basis. Although the efficacy of those preventive practices has been proven in managed scientific settings, there are a few questions about the effects of these behaviors as they're performed with the aid of the general public in "natural" settings (3–5)

Epidemiological investigations show that plaque is the leading cause of periodontitis (6). Furthermore, gingivitis has been convincingly shown to be the most common and most severe in the interproximal area(7). These areas are generally out of reach of the toothbrush. Existing data show that correct use of toothbrushes can prevent gingivitis on the buccal and lingual sides, but the effect of toothbrushes alone on the interdental space is limited. With this deficiency in mind, various other materials have been designed to complement the toothbrush(8)(9). Some researchers have reported promising results after using dental irrigators; while others have failed to demonstrate any beneficial effects(10). Dental floss, toothpicks and single-strand brushes are recommended tools for interdental cleaning(11)(12).

Dental disease prevention awareness is becoming a necessity for the medical population. The attitude of patients to general health throughout the medical industry has a dramatic impact on the work of dentists/periodontists. If medical professionals begin to address the need for good dental care, then the use of oral hygiene aids plays an important role in the preventive measures of periodontal medicine concepts. Taking into account the impact of periodontal infection on general health, it is necessary to assess the knowledge of the medical population about dental diseases, preventive measures and tools. The knowledge, attitude and practice of dental students and professionals about interdental assistance tools is very important to improve the oral hygiene maintenance in general public (13,14).

Based on this attributable nature of periodontitis, it is necessary to understand or evaluate the oral hygiene measures performed by dental professionals using common aids or interdental cleaning aids. The knowledge, attitude and behavior of dental professionals on oral hygiene measures can be used as an important motivation and educational tool for patients seeking medical diagnosis and treatment.

2. MATERIALS AND METHODS

2.1 STUDY DESIGN AND STUDY SETTING

The present study was conducted in a university setting (Saveetha dental college and hospitals, Chennai, India). Thus the data available is of patients from the same geographic location and have similar ethnicity. The study was carried out in an online setting and circulated among the dental students and dentists. Ethical clearance to conduct this study was obtained from the Scientific Review Board of the hospital.

2.2 SAMPLING

Convenience sampling was used and 100 dental professionals were interviewed. All dentists and dental students in the given duration of time period were evaluated. Only relevant data was included to minimize sampling bias. Simple random sampling method was carried out. Cross verification of data for error was done by presence of additional reviewers. Incomplete data collection was excluded from the study.

2.3 DATA COLLECTION

A single calibrated examiner evaluated the responses. The study was designed to evaluate knowledge, awareness and practice of usage of interdental aids among dental professionals. The questionnaire consists of self-structured standard questions pertaining to the interdental aids. The questionnaire was circulated through an online survey portal.

2.4 STATISTICAL ANALYSIS

The collected was tabulated and analysed with Statistical Package for Social Sciences for Windows, version 20.0. Categorical variables were expressed in frequency and percentage. Chi- square test was used to test association between the educational qualification and the responses to the questionnaire. P value < 0.05 was considered statistically significant.

3. RESULTS AND DISCUSSION

The present study population included 25.49% of the BDS graduates and 74.51% of the MDS graduates out of which 21.57% of them are male and 78.43% were female participants.

Correlation between educational qualification and awareness on purpose of the interdental cleaning was analysed by Chi- square test where p- value is 1.07 (>0.05) suggesting statistically not significant. In the present study about 21.57% of the BDS qualified dentist were aware about purpose of the interdental cleaning which is used to remove dental plaque instead to dislodge the food whereas 74.51% of the MDS qualified dentist and 3.92% of the BDS graduate dentist responded that it is used to dislodge the wedge food between the tooth (Figure 1). Evidence from the literature suggests that the general population of the world is unaware of the importance of interdental cleaning as a preventive treatment. As the level of education has been rising, there was good awareness of the interdental aids and its use for the overall well-being of oral health (15–17).

Association between educational qualification and interdental aid used in case of interproximal spaces with no papillae. Around 0.98% of the MDS and BDS graduated dentist recommended single tufted brush as cleaning aid for interproximal spaces with no papillae, where as 73.53% of the MDS qualified dentist and 11.76% BDS qualified dentist recommends interproximal brush in case of no papillae and 12.75% of the BDS qualified dentist recommended dental floss in the above case. Correlation was analysed using Chi- square test in which the p value is 0.547(>0.05) suggesting it is statistically not significant (Figure 2). According to a few recent literature, single tufted brushes were normally recommended in case of no papillae; it's due to the fact that loss of papillae leads to increased spaces due to which it requires proper cleaning to prevent proximal caries(18–20).

In case of interproximal spaces with no gingival recession the responses were as follows 68.63% of the MDS qualified dentist and 13.73% of the BDS qualified dentist recommended interproximal brushing, where as 2.94% of the BDS qualified dentist and 5.88% of the MDS qualified dentist recommended single tufted brush and 8.82% of the BDS qualified dentist recommended dental floss (p value of 0.02 (<0.05) which is statistically significant) (Figure 3). Gingival recession which is caused due to improper brushing is nowhere related to use of interdental aids and therefore unwaxed dental floss can be commonly used in such cases due to the fact that waxed dental floss can cause sticking of food leading to further problems (21–23).

Dental professionals recommended interproximal cleaning based on following criteria as follows, 8.82% of qualified dentists recommended based on interdental space architecture, 1.96% of the BDS qualified dentist and 0.98% MDS qualified dentist recommended interdental aids based on presence of furcation, 12.75% of the BDS qualified dentist and 62.75% of MDS qualified dentist recommended based on teeth alignment, 9.8% of the MDS qualified dentist recommended based on orthodontic appliances and 1.96% of the BDS qualified dentist and 0.98% of the MDS qualified dentist recommended in all the above cases. Majority of the MDS qualified dentists recommended interdental aids primarily based on teeth alignment than any other criteria. (p value 0.04 (<0.05) which is statistically significant) (Figure 4). Interdental aids should be recommended based on various criteria whereas its specification needs a higher expertise and experienced professionals to correctly recommend the indicated interdental aid that suits the problem. However various studies showed that improper indication and use of interdental aids can cause mechanical periodontal tissue damage(12,16,24). Our team has extensive knowledge and research experience that has translated into high quality publications.(25–37),(38–42) (43) (44). According to previous studies, students' oral health knowledge, attitude, and behaviour improve as they progress through the college curriculum, from first to final year. Preventive behaviour among students can still be enhanced through modifications in dental curriculum, such as the inclusion of preventive dentistry courses in pre-clinical and professional education. Dental students' professional education should foster consistent health behaviours that will assist future dental health practitioners deliver appropriate preventive oral health care to their patients, family, and friends, despite disparities in personal characteristics.

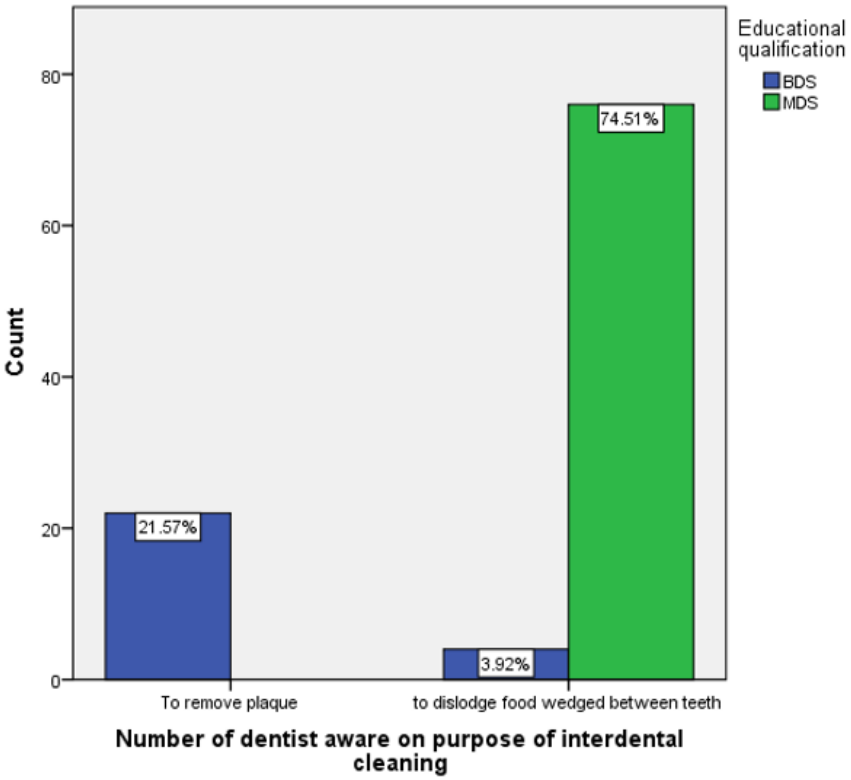

Fig. 1. Association between educational qualification and awareness on purpose of interdental cleaning.

X axis represents awareness on purpose of interdental cleaning and Y axis represents educational qualification. Blue colour denotes BDS qualified dentist and green colour denotes MDS qualified dentist. Majority of MDS qualified graduates responded that the purpose of the interdental cleaning was to dislodge food wedged between teeth as BDS qualified graduates to remove plaque. Chi- square test was done and the association was found to be statistically not significant, p= 1.07 (p> 0.05).

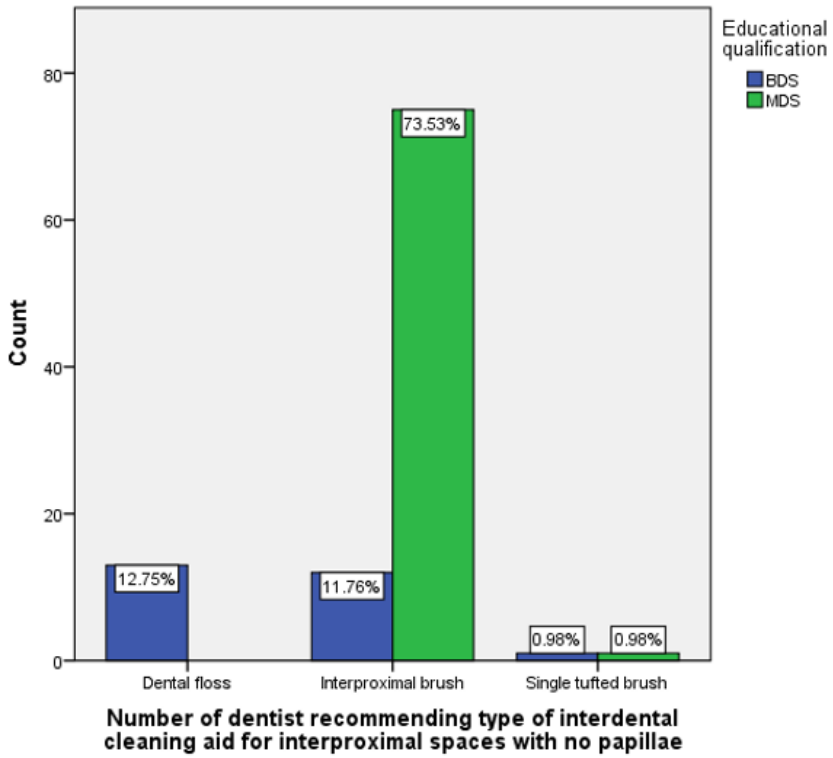

Fig. 2. Association between educational qualification and interproximal spaces with no papillae. X axis represents recommendation of interdental aids for interproximal spaces with no papillae and Y axis represents educational qualification. Blue colour denotes BDS qualified dentist and green colour denotes MDS qualified dentist. In case of interproximal spaces with no papillae, single tufted brushes are recommended by both BDS and MDS qualified dentists. Chi- square test was done and the association was found to be statistically not significant, p= 0.547 (p> 0.05).

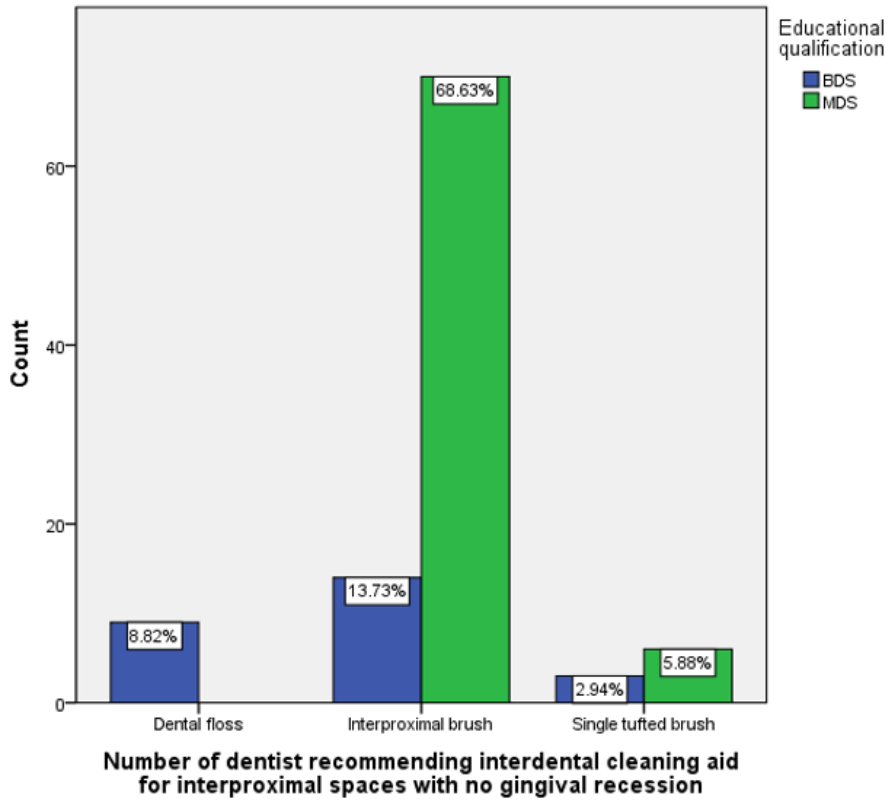

Fig. 3. Association between educational qualification and interproximal spaces with no recession. X axis represents recommendation of interdental aids for interproximal spaces with no recession and Y axis represents educational qualification. Blue colour denotes BDS qualified dentist and green colour denotes MDS qualified dentist. In case of interproximal spaces with no recession dental floss are recommended by BDS qualified dentist whereas MDS qualified dentist doesn't recommend dental floss. Chi- square test was done and the association was found to be statistically not significant, p= 0.02 (p> 0.05).

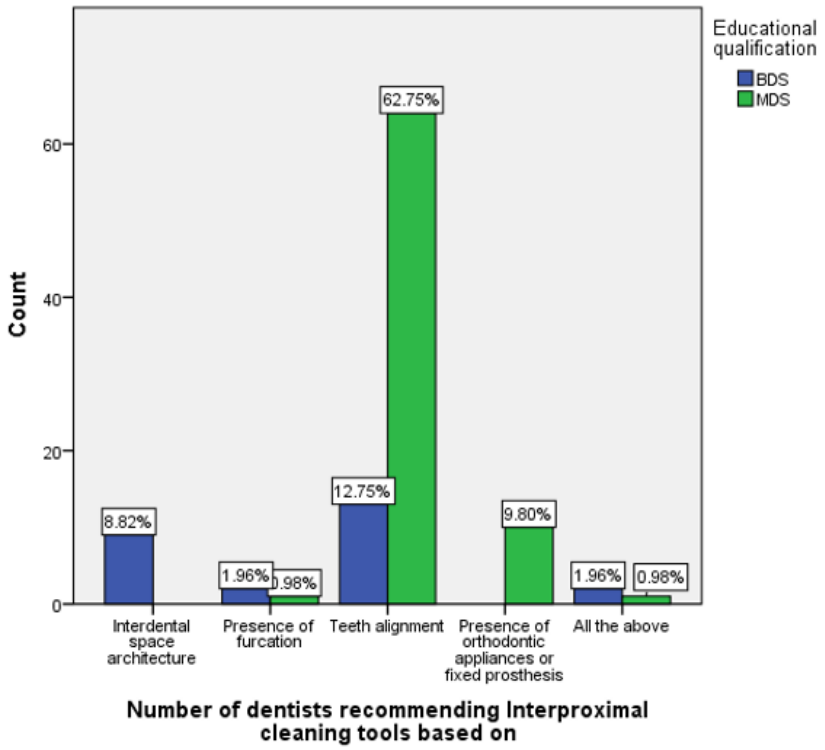

Fig. 4. Association between educational qualification and recommendation criteria for interdental aids usage

X axis represents criteria based on which interdental aids are recommended and Y axis represents educational qualification. Blue colour denotes BDS qualified dentist and green colour denotes MDS qualified dentist. In case of cleaning teeth based on criteria, the majority of the MDS graduated dentists recommended interdental aids based on teeth alignment when compared with BDS. Chi- square test was done and the association was found to be statistically significant, p= 0.04 (p< 0.05).

4. CONCLUSION

The overall knowledge of interdental assistance among dental professionals was good, while there were some gaps in knowledge in a few areas. With growing levels of education, knowledge and practise of interdental aids improved. This research has shed light on the understanding and utilisation of interdental assistance. Future studies are needed to determine whether there is a difference in caries experience and gingival health among dental professionals and the patients using interdental aids.

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