Knowledge and attitude of some Nigerian dentists concerning the use of space maintainers in Dentistry.

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Abstract

Objective: This study was carried out to determine the knowledge and attitude of some Nigerian dentist concerning the use of space maintainers in dentistry.
Method: Structured and self administered questionnaires were sent to 60 dentists in Ibadan and Ile -Ife towns in the South - West region of Nigeria. Information required include respondent's biodata, year of graduation, specialty, knowledge of space maintainer, how often it is recommended, reasons for not recommending, and the types usually recommended.
Result: Forty Six (70.6%) dentists comprising 63% females and 37% males responded to the questionnaire. All respondents were familiar with space maintainers but 28 (60.8%) claimed that they had never recommended it before. A number of reasons were given for not recommending space maintainers Fifty percent (50%) of those who had never recommended claimed that there was no orthodontic technician to fabricate it and that it was an expensive procedure, 39.2% claimed it was due to lack of appropriate dental materials needed for its fabrication, 7.1% claimed that the children may not cooperate and 7.1% claimed that parents did not want it for their children. The commonest space maintainer used by the dentists was the removable partial denture (71.8%) followed by Band and Loop (28.2%). None used lingual arch and distal shoe.
Conclusion : The most commonly used space maintainer in this environment is the removable partial denture. All 46 dentists agreed that space maintainers help in preventing malocclusion and subsequently agreed to recommend space maintainers if the required materials were available and whenever it was necessary to do so.

Key words : Space maintainer, knowledge, attitude, Nigerian dentists

Introduction

Maintaining the integrity of dental arches is a primary goal in clinical dentistry as changes in the arch length may occur as a result of premature loss of primary teeth. Some harmful effects have been associated with premature loss of primary teeth[1]. These include decrease in arch length, increased overbite, crowding, tooth malposition, impaction, and disrupted eruption sequence. All these can be prevented or limited if the space had been maintained. Though the importance of space loss and molar drift on the development of dental arches have often been overemphasized, studies have shown that premature tooth loss increases the chance of space loss particularly when it is a second primary molar[2-4]. Beaver[5] in his study noted that there was mesial inclination of the unerupted first molar when the primary molar have been lost prematurely, which makes it more prone to erupt mesially in the absence of the distal root of the second primary molar. Hoffding and Kisling[6] in their study of Danish school children, demonstrated that premature loss of the second mandibular molar influenced the sagittal molar relationship to a greater degree.

A number of studies in Nigeria have shown that the primary molar is the most frequently extracted tooth in children, in the primary dentition[7-12]. Space maintenance is therefore recommended in view of the prospect of space loss after extraction. The space created by premature loss of primary teeth or even permanent teeth in the dental arches can be maintained by the use of space maintaining appliance. The knowledge and attitude of dental surgeons concerning the use of space maintainers is important, because recommendation of space maintaining appliances by dental, surgeons after premature extraction of primary teeth can go a long way in preventing malocclusion and ultimately orthodontic treatment.

The general dental practitioner and the paedodontists are usally the first contact with most child patients requiring extraction procedures. Therefore, it is important that they are sensitized to recommend space maintainers to preserve space whenever there is premature loss of

primary teeth especially where it is suspected that malocclusion may occur in future. Adequate knowledge and skill is required before they can be successfully recommended by such practitioner. The aim of this study is to determine the knowledge and attitude of some Nigerian dentists concerning the use of space maintainers with a view to guiding and educating such practitioners on the use of such appliances in Dentistry.

Materials and Method

The study was carried out among dentists treating children in Ibadan and Ile-Ife towns, South West region of Nigeria. This study sample included general dental practitioners either working in State Hospitals or having their own private practice, consultant paedodontists, resident doctors in training and house officers working in Teaching Hospitals.

Eighty Dental Surgeons were eligible for participation in the study. Relevant information on age, sex, year of graduation and knowledge of the use of space maintainers, how often it is recommended, why it is not recommended and types usually recommend were collected using self-administered questionnaire. Data were analysed manually using simple descriptive statistics.

Results

Sixty (60) Dental Surgeons were available for the assessment out of Eighty (80) who were eligible.

A total of 46 questionnaires were retrieved out of 60 sent out, a response rate of 76.1%. Their age and sex distribution are presented in Table 1. The age range of respondents was between 26-48years with the mean age of 37.5yrs. Seventeen (37%) were males while 29(63%) were females (Table 1).

Dentists who graduated 1-5 years ago represented 41.3%, 28.2% of the dentists graduated 6-10 years ago, 10.9% graduated 11-15 years ago while 19.5% graduated 16-20 years ago (Figure 1).

The dentists were in four categories : Paedodontist (17.4%), Residents in Paedodontics (15.3%), House officers (26%) and General Practitioner (41.3%). Their year of graduation ranged from 1 year to 20 years (Table 2). The respondents' descriptions of space maintainers are also shown in Table 2.

Table 1 Age and sex distribution of respondents

Age (Years)	Males	Females	Total
24 - 29	4	8	12(26%)
30 - 34	5	7	12 (26%)
35 - 39	2	7	9 (19.6%)
40 - 44	4	6	10 (21.8%)
45 - 50	2	1	3 (6.6%)
Total	**17(37%)**	**29(63%)**	**46 (100%)**

Table 2 Distribution of respondents to the description of space maintainers

	Paedodontist	House Officer	General Practitioner	Resident	Total
An orthodontic appliance	8	8	2	4	22 (47.8)
An appliance use to maintain space in the Dental arch	-	2	1	3	6 (13.04)
A partial denture	-	2	16	-	18 (39.1)
I don't know	-	-	-	-	-
Total	8(17.4%)	12(26.1%)	19(41.3%)	7(15.2%)	46(100%)

Thirty-three (71.8%) were most familiar with the partial denture while 28.2% were most familiar with the band & loop. To test their attitude to the use of the space maintainers the dentists were asked if they recommend space maintainers for children that need it. Those who claimed to have recommended when necessary were 39.2% while 60.8% claimed to have never recommended space maintainers. When asked further to state the reasons why they were not recommending space maintainers, 50% of them claimed that there was no technician and that it was an expensive procedure, 39.2% claimed that there were no dental materials available for fabrication of space maintainers, 7.1% claimed that the parents did not want it for their children while 7.1% claimed that the children could not tolerate it.

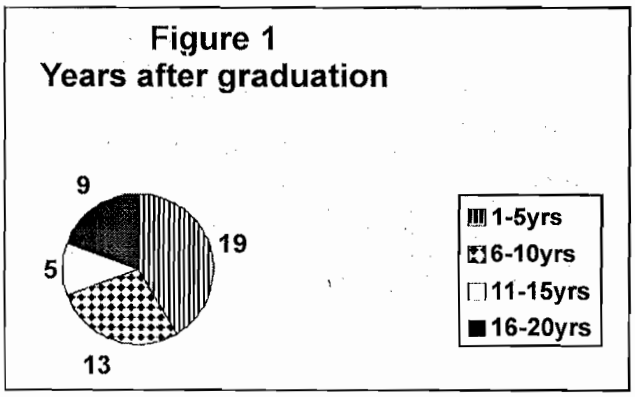
They were further asked if they agreed that space maintainers help in preventing malocclusion and whether they would recommend it if the materials were available. All 46 dentists agreed that space maintainers useful in prevention of malocclusion and agreed to recommend for their patients if the materials were available.

Table 3 Distribution of dentists and the most recommended space maintainers

	Paedodontist	House Officer	General Practitioner	Resident	Total
Band and Loop	5	5	-	3	**13**
Lingual arch	-	-	-	0	**0**
Distal shoe	-	-	-	0	**0**
Removable partial denture	3	7	19	4	**33**

Discussion

Literature search reveals that there had been no study done on the use of space maintainers among Nigeria dentists. Early loss of primary teeth especially primary molars present with potential alignment problems because drift of the permanent or other primary teeth is likely to occur resulting in malocclusion[2-5]. Several studies done on the pattern of tooth loss among Nigerian children, have shown



the deciduous molars to be the most frequently extracted teeth followed by the incisors[6-12]. In a similar study done at the University College Hospital by Denloye et al, the pattern of tooth loss among children is still the same[13]. They reported that 75% of teeth extracted among children were primary teeth and the mandibular primary molar was the most frequently extracted tooth. They disagreed with the view held by parents that primary teeth were not important for aesthetics, function and general well-being. The premature loss of these primary teeth usually lead to loss of space for the permanent successor to erupt and may eventually lead to malocclusion[14]. Whereas the space created by early loss of primary teeth can be maintained by the use of space maintaining appliance, thereby reducing the severity of malocclusion, it is significant to note that 60.8% of the Dental Surgeons in Ibadan and Ile-Ife towns, had never recommended space maintainers all through their years of practice. Fifty percent claimed that there were no orthodontic technician and that it was an expensive procedure. It is true that space maintaining appliances may require the assistance of a trained orthodontic technologist, and presently there is only one trained orthodontic technologist working in the Teaching Hospital and serving about 20 dental clinics in Ibadan and Ile-Ife! The lack of these trained personnel in most dental hospitals may actually explain why most dental practitioners do not recommend space maintainers. The cost of fabricating a space maintainer is also a major reason why some dental practitioners may feel constrained in recommending them. This is because it is expensive when compared to other dental treatment procedures the child may require. Though the benefits of recommending space maintainers far outweigh the cost implications, many parents may be reluctant to bear the cost of treatment due to the prevailing economic situation in the country.

Lack of appropriate dental materials is also directly linked to low funding of the dental sector so that priorities are placed on those dental procedures which cause discomfort or pain to the patients. Although malocclusion does not present with pain, it can affect the physical, mental and social well-being of an individual if not prevented or treated. In addition, lack of cooperation from the children or parents may be due to inadequate knowledge by the parents on the advantages of space maintainers.

The most recommended space maintainer among the dentists was the removable partial denture. This may be because they are easily fabricated in most dental laboratories and are much cheaper to fabricate than other space maintainers. The use of removable partial denture may not be popular among children, however it is indicated to maintain bilateral posterior space when more than one tooth has been lost per segment and to replace anterior teeth that have been lost prematurely, ultimately restoring occlusal function and aesthetics. The problems often encountered with young children wearing partial denture are failure to wear the appliance, which may eventually lead to space loss and failure to clean the denture may lead to oral hygiene problems. Parents of such children who may need to wear partial denture can be advised to ensure they wear the dentures and can assist in cleaning them to prevent poor oral hygiene.

In contrast, studies carried out in developed countries showed that the band & loop was the most recommended and popular space maintainers[16-17]. This may be as a result of increased awareness and easy accessibility to oral health care. Moreover, children are treated free under the National Health Insurance Scheme in some countries.

From the response in this study, the year of graduation of the dentist had no significant effect on the knowledge and attitude concerning the use of space maintainers, rather their attitude was influenced by the prevailing working conditions and cost.

Conclusion

All dentists who participated in this study agreed that space maintainers can prevent malocclusion, when they are used to maintain space created by premature loss of primary teeth and therefore prevent malocclusion. The most popular space maintainer among the dentists surveyed is the removable partial denture. Their attitude concerning its use is affected by various factors, which include cost, availability of materials and appropriate technology.

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