

The Knowledge and Practice of Space Management among Dental Practitioners of Central India.

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ABSTRACT

Background: Premature loss of primary teeth can result in the space loss leading to malocclusion. Space maintenance forms an integral part of preventive and interceptive orthodontics. Early interception and prevention of malocclusion in deciduous and early mixed dentition prevents the space loss, thereby, reducing or eliminating the need for later orthodontic treatment. Therefore, the present study was conducted to find out the knowledge and practice of space management among dental practitioners of Central India. **Methods:** A cross-sectional study was conducted among practicing dentist of Central India to find out their knowledge and practice of space management over the time period of 6 months. Ethical approval was obtained from the Ethical Committee. The questionnaire consisted of questions assessing four main categories; (a) Demographic data, (b) knowledge regarding space management, (c) practice of space maintainers. The demographic data included age, gender, educational level. Data were processed and analyzed using Excel (Microsoft Excel, Version 2013) and SPSS version 21.0 programs. **Results:** In our study total practicing dentist were 320 in which 190(59.37%) were male dentist and 130(40.62%) were female dentist. Participating dentist were of age <25 were 125(39.06%) and of age group 25-40 were 93(29.06%) and of age group 41-60 were 102(31.87%). 210 (65.62%) participating dentist were BDS and 110 (34.37%) participating dentist were MDS. 290(90.62%) participating dentist know when space maintainers were used. 320(100%) participating dentist know that space maintainers require special care with brushing. 230 (71.87%) participating dentist know what type of food should be avoided when having space maintainers. 180(56.25%) dentist know how often space maintainers will be taken out. 175(54.68%) dentist know if the space maintainer was lost or broken what time is best to go to the dentist. 175(54.68%) dentist practice space management. **Conclusion:** Our study concluded that maximum number of practicing dentist have knowledge about space management and more than half the dentists who participated in this study practice space management in their practice.

Keywords: Space management, primary teeth, preventive orthodontics, interceptive orthodontics.

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INTRODUCTION

Primary teeth play a critical role in the growth and development of a child. In addition to their role in esthetics, eating, speech, encouraging normal growth and function, the other main function is to hold space for the permanent successor until it is ready to erupt.^[1] The number of children affected by malocclusion due to premature loss of primary teeth has increased significantly and is considered one of the most common dental problems together with dental caries, gingival disease, and dental fluorosis.^[2,3] Crowding and lack of space in the permanent dentition are amongst the most common orthodontic problems encountered in patients. Often

the etiology of these problems is linked to premature loss of one or more deciduous teeth with corresponding loss of space.^[4] The pattern of space loss depends on many factors including age, stage of development, which teeth have been lost, the presence of crowding or spacing, and occlusal relationships.^[5] Among the preventive measures is "Space maintenance" using certain appliances called "Space maintainers." Space maintainers are fixed or removable appliances used to preserve arch length following the premature loss or elective extraction of primary tooth.^[6] The loss of arch length may lead to multiple problems such as crowding, ectopic eruption, dental impaction, cross bite formation, and dental centerline discrepancies. Thus, the use of space maintainers often affects the future dental needs of a complex orthodontic treatment as it may potentially obviate the need for later extractions.^[7] Space maintainers are appliances used to maintain space or regain minor amounts of space lost, so as to guide the unerupted tooth into the proper position in the arch. After the premature loss of a tooth, not only

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do space maintainers maintain function and preserve arch length, they also maintain esthetics, prevent encouragement of detrimental habits and eliminate any potential psychological damage, a child could face as a result of the premature loss of teeth. The space maintainer also allows the permanent tooth to erupt unhindered into proper alignment and occlusion.^[8] The use of space maintainer appliance, or restoration of a carious primary tooth that can then act as a natural space maintainer, may potentially obviate the consequences of loss of arch length and the need for complex orthodontic treatment at a later stage.^[9] The present study was conducted to find out the knowledge and practice of space management among dental practitioners of Central India.

MATERIALS & METHODS

A cross-sectional study was conducted among practicing dentist of Central India to find out their knowledge and practice of space management over the time period of 6 months. Ethical approval was obtained from the Ethical Committee. The questionnaire consisted of questions assessing four main categories; (a) Demographic data, (b) knowledge regarding space management, (c) practice of space maintainers. The demographic data included age, gender, educational level. Data were processed and analyzed using Excel (Microsoft Excel, Version 2013) and SPSS version 21.0 programs.

RESULTS

Table 1: Demographic Data

Variables	N=320(%)
Gender	
Male	190(59.37%)
Female	130(40.62%)
Age	
<25	125(39.06%)
25-40	93(29.06%)
41-60	102(31.87%)
Educational level	
BDS	210(65.62%)
MDS	110(34.37%)

In our study total practicing dentist were 320 in which 190(59.37%) were male dentist and 130(40.62%) were female dentist. Participating dentist were of age <25 were 125(39.06%) and of age group 25-40 were 93(29.06%) and of age group 41-60 were 102(31.87%). 210 (65.62%) participating dentist were BDS and 110 (34.37%) participating dentist were MDS. 290(90.62%) participating dentist know when space maintainers were used. 320(100%) participating dentist know that space maintainers require special care with brushing. 230 (71.87%) participating dentist know what type of food should be avoided when having

space maintainers. 180(56.25%) dentist know how often space maintainers will be taken out. 175 (54.68%) dentist know if the space maintainer was lost or broken what time is best to go to the dentist. 175(54.68%) dentist practice space management.

Table 2: Knowledge regarding space management

Questions	Answers	
	Yes	No
Do you know when are space maintainers used	290(90.62%)	30(9.37%)
Do you think that space maintainers require special care with brushing?	320(100%)	0(0%)
Do you know what types of food that should be avoided when having space maintainers?	230(71.87%)	90(28.12%)
Do you know how often space maintainers will be taken out?	180(56.25%)	140(43.75%)
Do you know if the space maintainer is lost or broken, what is the best time to go dentist?	175(54.68%)	145(45.31%)



Figure 1: how many dentist practice space management

DISCUSSION

Uneventful loss of multiple posterior deciduous teeth before the normal exfoliation culminates into mesial migration of the erupting first permanent molars, the sequel of which is deficient room for accommodation of succeeding permanent teeth leading to ectopic eruption and in extreme cases, impaction. To intercept such consequences and regain the lost space, several methods for distalization of molars have been suggested that include headgears, space gaining appliances, sliding jigs with class II elastics, lip bumpers, space gaining appliances, NiTi open-coil springs, super elastic nickel titanium wires, and repelling magnets. However, the significant disadvantage of most of these techniques is that an equal and opposite mesially directed force leads to labial flaring of the incisors.^[10]

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Borrie et al. by a random sample of 400 general dental practitioners in Scotland significantly found that the greatest barrier in providing interceptive orthodontic care was the practitioners' lack of self-confidence in their chosen treatment plan.^[11]

Talekar et al. found that only half of their assessed population, who reported having children lost their primary teeth due to caries, abscess or trauma, was treated with space maintainers; with no further data to explain the management taken for such cases. They emphasized in their study that parental awareness and perception had a significant impact on children oral health and treatment received.^[12]

Space maintainers require special attention in terms of care, maintenance, regular dental visits, and follow up. Space maintainers are liable to fracture, impinge on the oral mucosa or interfere with the eruption of adjacent teeth, as well as attract plaque that could lead to inflammation.^[13]

The socioeconomic status was also found to be correlated with the severity of malocclusion and general oral health of children in the study conducted by Hanna et al. in Beirut city.^[14]

CONCLUSION

Our study concluded that maximum number of practicing dentist have knowledge about space management and more than half the dentists who participated in this study practice space management in their practice.

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