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Prevalence of Midline diastema among University of Port Harcourt students

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ABSTRACT

Midline diastema is visually a detectable gap or space of more than one millimeter (1mm) in width between the upper first permanent central incisors which continues to exist throughout adult life. This study was carried out to study and document the prevalence of different types of midline diastema and its perception in the studied population. Two hundred and fifty (125 male and 125 female) respondents were included in this study. Only subjects with midline diastema and with one parent displaying it were included in the study. All respondents were students of the University of Port Harcourt. Maxillary midline diastema was observed in 70%, Mandibular 4.8% and both 25.2%. It was observed that 73.6% of the respondents both like and attached some positive aesthetic value to the trait. While 1.6% showed interest in creating an artificial diastema, 81.6% had diastema present from birth. Based on the findings, recommendations were forwarded to the dental practitioners, beauty industries and general public. In view of the results, the study concluded that midline diastema especially maxillary midline diastema is considered pleasant and this type is actually the most common form of midline diastema.

INTRODUCTION

Facial attractiveness is one of the components that determine overall attractiveness of an individual. Among the components of the face; the eyes and the mouth have been found to be the major determinates of attractiveness[1]. A beautiful smile is said to be determined by the overall attractiveness of an individual's teeth. Midline diastema is visually a detectable gap or space of more than one millimeter (1mm) in width between the upper first permanent central incisors which continues to exist throughout adult life [2]described midline diastema as anterior midline spacing greater than 0.5 mm between the proximal surfaces of adjacent teeth. The incidence of midline diastema varies greatly with the age- group, gender, population and race. A tooth is identified and described on the basis of whether it is deciduous (primary) or permanent (secondary)[3]. Teeth development is a complex process by which embryonic cells grow and erupt into the oral cavity. [4]are of the view that tooth is divided into various stages; the bud stage, cap stage, bell stage and maturation stage. According to [2]anterior midline space of midline diastema is greater than 0.5mm between the proximal surfaces of adjacent teeth. He further reported that the incidence of maxillary and mandibular midline diastema are 14.8% and 1.6% respectively.[5] reported that relapse of the maxillary midline diastema appears to be 34%. [6]defined relapse as the placement of teeth in a position where no equilibrium exists with their functional environment. [7]found in his study that 98% of six-year old children presented interincisal diastema. Midline diastema was present in 88.7% of 6 to 7 year old children, while as age increased, this percentage significantly decreased. The 10 to 11 year old group showed a midline diastema in 48.7% and in the sample of 12 to 18 year old students the figure dropped to 7%. [8]found that midline diastema in a sample of 751 children was present in 56.8% following eruption of permanent central incisors, in 38% following eruption of the lateral incisors, in 7.4% after canine eruption and in 5.7% between 14 and 16 years of age. He further concluded that the developmental stage of the dentition rather than age per se is a more accurate basis for treatment planning.

In Nigeria, the presence of maxillary midline diastema is thought to enhance the attractiveness of an individual, unlike in the western societies where it is regarded as malocclusion. Hence, many undergo mutilation of their anterior teeth in order to create one. This study aimed at determining the association prevalence and perception of midline diastema amongst Nigerians and to determine the prevalence or the frequency of occurrence of midline diastema in a sample of students in particularly University of Port Harcourt students.

MATERIALS AND METHODS

This cross-sectional study involved 250 subjects, 125 males and 125 females selected by multi-stage

stratified random sampling that exhibits the phenotypic pattern of midline diastema ranging from 16-32 years of age from University of Port Harcourt. Structured questionnaires were administered to 250 respondents after consent was obtained from each of them. Instruments used were digital caliper, cornerbrand office pin and digital camera.

Subjects having little gap between their anterior median incisors teeth were provided with a Cornebrand office pin of 0.7mm in diameter as measured using a digital caliper to access the gap between their anterior median incisors teeth, subjects having little gap between their anterior median incisors teeth but the Cornebrand office pin passes through freely were considered having a gap tooth and were included in this study. While subjects having little gap between their anterior median incisors but the Cornebrand office pin does not pass through freely were excluded from this study.

The data obtained were subjected to statistical analysis using percentage and chi square with the aid of a statistical package for social sciences (SPSS) 20.

RESULTS

The prevalence and perception of midline diastema among University of Port Harcourt are presented in table 1 and 2. In table 1 it showed the preference of the frequency of the results which revealed as follows; gap teeth which has upper 184(73.6%), lower 12(4.8%) and both 54(21.6%). Those that wish to create gap teeth had Yes 55(22.0%), No 103(41.2%) and neutral 92(36.8%). Those that like gap teeth has Yes 236(94.4%) and No 14(5.6%). Reason for creating gap teeth, genetic 59(23.6%), cosmetic 102(40.8%) and neutral 89(35.6%).

The results of the association of preference revealed as follows; the upper, lower and both gap teeth are 6.435, 2.024 and 4.566 respectively. Those that wish to create gap teeth Yes (1.501), No (6.916) and neutral (5.466). Those that like gap teeth, Yes (4.843) and No (0.771) and those that have reason to create gap teeth age cosmetic (39.199) and neutral (19.551).

Table 4.2 revealed the results on the prevalence of midline diastema amongst University of Port Harcourt. The results revealed the results of the frequency of the midline diastema as follows; response on item one revealed upper, lower and both type of gap teeth as 175(70%), 12(4.8%) and 63(25.2%). Item two shows Yes and No on artificial gap teeth as 4(1.6%) and 246(98.4%) respectively. Item three shows time of acquisition of gap teeth as birth 204(81.6%), second dentition 34(13.6%) and after second dentition 12(4.8%).

The results of the association of the prevalence revealed the responses as follows; type of gap teeth in upper (32.875), lower (3.783) and both (5.466). Those that have artificial gap teeth Yes (0.337) and No (16.149). Time of acquisition on birth (15.843), second dentition (2.024) and after second dentiotion (2.655).

The results of the association revealed that upper and both type teeth, artificial gap of teeth in No response and time of acquisition of gap teeth during birth show significance difference while lower in type of gap teeth, artificial gap teeth in yes response, time of acquisition in second and after second dentition show no significance difference.

Table 1: Percentage frequency and chi square analysis of prevalence and perception of midline diastema amongst University of Port Harcourt.

Parameter			Frequency (%)	$\chi 2$	P	Inference
Preference	Gap teeth prefer	Upper	184(73.6%)	6.435	0.040	Significant
		Lower	12(4.8%)	2.024	0.364	Not significant
		Both	54(21.6%)	4.566	0.101	Not significant
	Wish to create gap teeth	Yes	55(22.0%)	1.501	0.220	Not significant
		No	103(41.2%)	6.916	0.055	Not significant
		Neutral	92(36.8%)	5.466	0.090	Not significant
	Like of gap teeth	Yes	236(94.4%)	4.843	0.028	Significant
		No	14(5.6%)	0.771	0.680	Not significant
	Reason to create gap teeth	Cosmetic	102(40.8%)	39.199	<0.001	Significant
		Neutral	89(35.6%)	19.551	0.003	Significant

Table 2: Percentage frequency and chi square analysis of prevalence and perception of midline diastema amongst University of Port Harcourt.

Parameter			Frequency (%)	$\chi 2$	P	Inference
Prevalence	Type of gap teeth	Upper	175(70%)	32.875	0.001	Significant
		Lower	12(4.8%)	3.783	0.151	Not significant
		Both	63(25.2%)	5.466	0.050	Significant
	Have artificial gap teeth	Yes	4(1.6%)	0.337	0.561	Not significant
		No	246(98.4%)	16.149	0.001	Significant
	Time of acquisition of gap teeth	Birth	204(81.6%)	15.843	<0.001	Significant
		2nd dentition	34(13.6%)	2.024	0.364	Not significant
		After 2nd dentition	12(4.8%)	2.655	0.851	Not significant

DISCUSSION

Facial attractiveness is one of the components that determine overall attractiveness of an individual. Amongst the components of the face; the eyes and the mouth have been found to be the major determinates of attractiveness[1]. This study has given insight on the prevalence and perception of midline diastema amongst University of Port Harcourt students. Midline diastema is usually a detectable gap or space of more than one millimeter in width between the upper first permanent central incisors which continues to exist throughtout adult life.in buttressing this point Keene[2] posited that anterior midline space of midline diastema is greater than 0.5mm between the proximal surfaces of adjacent teeth.

Keene[2] reported that, the incidence of maxillary and mandibular midline diastema are 14.8% and 1.6% respectively which disagree with the present study on the maxillary midline diastema of 70% and mandibular midline diastema of 4.8%. The present study observed that only 1.6% of respondents had midline diastema created artificially due to cosmetic beauty which is consistent with the study done by Oboro *et al.*[1] who reported that majority of dentists did not like the artificial creation or opening of midline diastema.

The findings were consistent with the work done by Gass *et al*.[9] reported that midline diastema can be inherited by an autosomal dominant pattern of inheritance, it is also in line with the study done by [10]have it that genetic predisposition is a precondition contributing to midline diastema development. The high frequency of artificial Midline diastema in cosmetic is not surprising; since young individuals especially females tend to care more about aesthetics, facial appearance and self-esteem. Differences in epidemiological study findings may be attributed to the increased number of factors contributing to midline diastema, to the definitions used to explain its presence and to gender and race differences in the distribution of the hereditary feature in question[5].

CONCLUSION

The prevalence or occurrence of midline diastema varies from one individual to another as the study has shown that maxillary midline diastema is more prevalent and accepted than the mandibular midline diastema. The findings of this study provide baseline information on the prevalence and perception of midline diastema, thereby making available useful research data in the comparative regional anatomy.

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