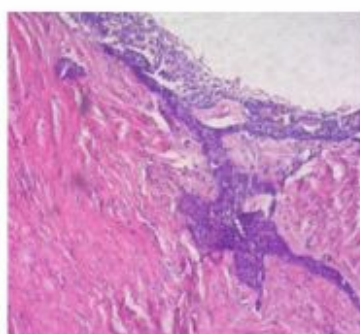
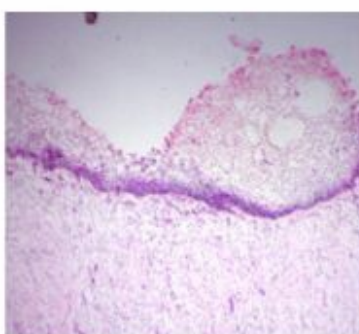
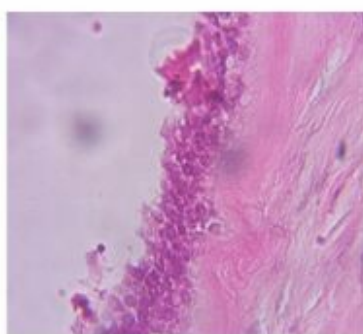


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Prevalence and Perception of Midline Diastema among Students of Institute of Health Information Management, University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria

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ABSTRACT

Objective: Midline diastema is a normal occurrence in the development of the human dentition, occurring usually during the mixed dentition stage, and is expected to close up afterwards. However, for several reasons including heredity and ethnicity, the space may persist. The choice to intervene, is largely dependent on personal preference. The objective of this study was to determine the prevalence and perception of midline diastema among students of Institute of Health Information Management, University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria

Methods: A total of 100 Nigerian students of the Institute of Health Information Management, UBTH, Benin City were enrolled in this study, 16(16%) males and 84(84%). An eleven item self-administered questionnaire which assessed demography, the presence, perception of diastema and preference for diastema was the data collection tool.

Results: The study population had 28% prevalence of the midline diastema, with a higher incidence in females (85.7%). Most cases in this study were recorded in the maxillary arch (82.2%). More than half (51%) of the study population perceived it as a sign of beauty. A significant percentage (46.4%) of those with midline diastema in this study, reported having positive family history of parents with midline diastema.

Conclusion: Based on this study, midline diastema is regarded as a sign of beauty by most people, and heredity is an important factor in the occurrence of midline diastema. Patient's opinion is important in the management of midline diastema.

Keywords: Midline, diastema, prevalence, perception, Nigeria

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INTRODUCTION

A diastema is defined as a space or "gap" occurring between two teeth. True midline diastema is a distinctive anterior space occurring between the two central incisors usually in the maxillary segment in the absence of any periapical or periodontal aetiologies, with the presence of all other anterior teeth present in the arch.¹ True diastemata are naturally-occurring. Mandibular midline diastemata are less common than maxillary, and are usually not developmental in aetiology.²

Aetiologies

True diastemata are developmental in nature, persisting beyond the primary and mixed dentition stages. Fifty percent (50%) of children

between 6-8years show maxillary midline diastemata.² Other causes include:

1. Pernicious habits e.g lower lip biting
2. Muscular imbalance in oral region due to macroglossia, lymphangiomas and flaccid lip muscle.
3. Physical impediments like supernumeraries (mesiodens), persistent enlarged labial frenum, retained primary roots, etc.
4. Abnormal maxillary arch structure:
 - a. Open suture, W-shaped or spade shaped.
 - b. Idiopathic mid-palatal suture due to orthopaedic or orthodontic treatment.
 - c. Excessive skeletal growth e.g. cerebral palsy.
 - d. Loss of bone support e.g. periodontal disease.
5. Dental anomalies and other malocclusions: tooth-arch discrepancies, peg shaped laterals.

Epidemiology

Incidence varies with age, gender and

race/ethnicity. It is more common in pediatric age group, Koora et al.³ reported a 97% incidence in 5year olds. The incidence drops dramatically between 9-11years, and gradually between 11-15years.² It usually closes after eruption of the permanent central incisors and canine, but may sometimes persist. It occurs more in Africans (West Africans), than Caucasians (British), or Mongoloids (Chinese from Hong Kong and Malaysia). Blacks and Mediterranean Whites exhibit midline diastemata as an ethnic norm.² The incidence in Blacks is 5.5%, Whites 3.4% and 1.7% in Chinese decent.⁴ It occurs more in females than in males.⁵

Possible challenges of Midline diastema

Speech disturbance especially with pronunciation of S-sound, difficulty in maintaining good oral hygiene, worsening of existing periodontal conditions e.g where the frenum is attached to the marginal gingiva, psychological challenges depending on cultural beliefs/ norms and aesthetic challenges depending on cultural beliefs and size of diastema.

Treatment options

Depending on findings from a good medical and dental history, clinical examination and adequate investigations, treatment options could range from:

1. Restorative options e.g. composite build ups, crowns, etc.
2. Orthodontic movements: fixed appliances, etc.
3. Surgical interventions e.g removal of a mesiodens.
4. Periodontal surgeries e.g frenectomy.
5. Prosthetic options e.g. replacement of missing teeth/tooth.
6. A combination of options.

Perceptions about midline diastema

Social, cultural, psychological and personal norms influence the perception of physical attractiveness. Physical attractiveness plays a major role in social interaction and influences the impression of an individual's social skill.^{6,7} Perceptions of midline diastema varies from culture to culture; it is viewed as "lucky teeth," ("dents du bonheur") in France, it is equated with lustful connotations in females in early English societies.⁸ and regarded as unattractive irrespective of the size in some other societies.^{9,10} In a study done in Finland, females with midline diastema were rated as less intelligent, less beautiful, less sexually attractive and belonging to a lower socio-economic class, illustrating the social disadvantage wrongly implied based solely on the dentition even when it is healthy.¹¹

Nigerians generally have been reported to view persons with midline diastema as having exceptionally attractive physical trait.⁸ Most dentists, including those practising generally regard the midline diastema as a malocclusion, even in Nigeria, and majority will not support the artificial creation of one, probably due to bias by western culture and reports.¹² The objective of this study was to determine the prevalence and perception of midline diastema among students of Institute of Health Information Management, University of Benin Teaching Hospital (UBTH), Benin City, Edo State, Nigeria

MATERIALS AND METHODS

This was a descriptive cross-sectional study, carried out in the School of Health Information Technology, University of Benin Teaching Hospital, Ugbowo, Benin City. A total of 100 students were enrolled for the study and an eleven item self-administered questionnaire was used to assess for demography, the presence, perception of diastema and preference for diastema. In addition, likely challenges with diastema and the presence of familial influence were also assessed. There was a 100% response rate. The students were from different geo-political zones of the country, with a majority (80%) of them coming from the South-South zone. The questionnaire was reviewed for content and face validity. The required changes were made to clarify any ambiguity and to ensure comprehension by the target population. Data analysis was done with SPSS version 16.0. The p-value was set at <0.05.

RESULTS

A total of one hundred (100) students participated in this study; 16% males and 84% females. A hundred percent response (100%) rate was received. The mean age of participants was 27 ± 6.46 years. A total of 28% of the study population had midline diastemata with a higher incidence in females (85.7%) and most were recorded in the maxilla (82.2%). About half of the respondents regarded it as a sign of beauty (51%).

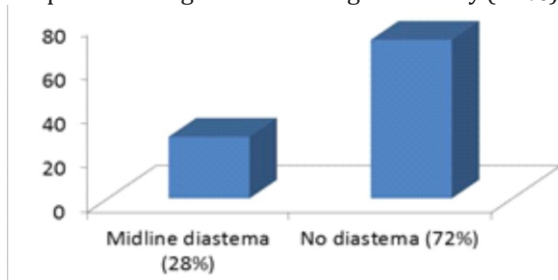


Figure 1: Prevalence of Midline Diastema in the study population

A significant number (46.4%) of those with midline diastema reported that either or both parents had the same.

Table 1: Heredity*Midline Diastema

		Midline diastema in respondents		Total n (%)
		Yes	No	
Diastema in parent	Yes	13	12	25
	No	15	60	75
Total n (%)		28	72	100

$\chi^2=9.52$, $df=1$, $p=0.002$.

DISCUSSION

In this study, 28% of the study population had midline diastemata, with females having a higher incidence than males (28.6% and 25% respectively), as previously reported in the literature.^{2,5} This suggests that gender could be a determinant in the occurrence of the midline diastema. Most midline diastemata occur in the maxillary arch.^{2,13} In this study, 82% of the diastemata were located in the maxillary arch while 10% occurred in the mandibular arch.

The perceptions of midline diastema vary from culture to culture and from society to society. Most blacks/Africans regard the occurrence of the midline diastema as an aesthetic advantage, whereas the caucasians view it as a disadvantage if not even a social stigma.^{8,11} In this study, more than half of the study population (51%) saw midline diastema as a sign of beauty while only 4% reported it as disfiguring. Most participants preferred it occurring in the maxillary arch (74%), and in females (63%). The passion for the presence of midline diastema has been demonstrated by reports of artificial creation of midline diastema by dental quacks even to the point of causing loss of vitality in the mutilated teeth.¹⁴ In this study, 20% of the participants reported a willingness to artificially create diastema, further supporting the view that the midline diastema is generally regarded as an aesthetic advantage in this part of the world. In spite of this opinion, most Nigerian dentists are unwilling to create artificial midline diastemata,¹² probably due to the influence of western views of diastema, and the possibility of causing loss of vitality in the tooth or teeth.

The possible role of genetics and heredity in the occurrence of midline diastema was significant in this study, as almost half (46.4%) of those with diastema, reported same in their parents.

A study done in Senegal, reported that most caucasian lay judges, unlike their African counterparts, would prefer to treat cases of diastemata,¹⁵ due to their opinion that all midline diastema are dental anomalies requiring intervention. However, reports indicate that most of the reasons for the treatment of diastema are for psychological, social and aesthetic reasons and not for functional reasons.^{11,16}

The need for treatment ought to be based mainly on the grounds of functional challenges as reported by 16% of this population, and where aesthetically unsightly (wide spaces), rather than on the basis of western cultural influence and ideologies. Psychological, social and aesthetic issues are very subjective and largely influenced by environmental and cultural norms around the globe. Most of the participants (86%) in this study, preferred that diastema should be left alone.

CONCLUSION

This study has shown that midline diastema is not uncommon among Nigerians. Gender and hereditary factors appear to influence the occurrence of the midline diastema. Midline diastema occurring especially in the maxillary arch and in females are rated as an added aesthetic value among this study population of Nigerians. The opinion to intervene or treat all diastema is basically western and should not be taken as a professional standard, as aesthetic issues are subjective and influenced by cultural norms and values and vary from one population to another. The patient's opinion in dental care is quite significant, if not paramount and must be properly considered in the management of midline diastema, if adequate satisfaction is to be attained.

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