



How Attractive is the Maxillary Midline Diastema? Perception of Undergraduate Students Attending a Nigerian University

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Abstract

Background: Although, maxillary midline diastema is acceptable and seen as a sign of beauty among Nigerians, it is believed that the width of the diastema tends to affect the aesthetic acceptability of the diastema.

Objectives: To determine the acceptable width of maxillary midline diastema among a population of undergraduate students.

Methods: This was a cross-sectional study of undergraduate students. Data on socio-demographics, presence of midline diastema, self-assessment of the attractiveness of their smile and grading of a set of pictures with varying sizes of maxillary midline diastema. Data was analyzed using IBM-SPSS statistics 21.0.

Results: A total of 333 participants whose age ranged from 16 to 30 years with a mean age of 21.8 ± 2.9 years were included in the study. The prevalence of midline diastema was 34.8%. Self-assessment of the attractiveness of their smile using the visual analogue scale was a mean of 6.93 ± 2.05 . The width which was adjudged most attractive was 1 mm (38.1%) and the least attractive was 4 mm (51.4%). There was no statistically significant association between age, gender and the choice of the most attractive diastema width.

Conclusion: The diastema width rated as most attractive was 1mm hence, the less the width of the diastema the more acceptable it is.

Keywords: Maxillary midline diastema; Width; Nigerian

Introduction

People's interest about the beauty and attractiveness of their teeth dates back to over 2000 years ago with considerable attention placed on an individual's mouth and eyes when speaking in social circumstances [1]. The maxillary midline diastema is a common feature of the anterior dentition with the need for treatment being primarily due to psychological and aesthetic need and not necessarily for functionality [2]. Midline diastema is a continuous space or gap between the maxillary central incisors [3]. This space can be a normal growth feature which is characteristic of the primary and mixed dentition with this space closing normally by the time the maxillary canines fully erupt [4]. It has been viewed as anterior midline spacing greater than 0.5 mm between the proximal surfaces of adjacent teeth [5]. There are no exact rules governing what constitutes a beautiful occlusion or face socially. However, professionals have tried to define and recreate dental and facial appearances in which objective beauty standards are difficult to define [6]. Naturally occurring midline diastema may result from a wide range of causes, with possible etiology including: Physiological, abnormal labial frenum, ectopic maxillary canines, genetic, dental alveolar disproportion, a missing tooth, peg shaped lateral, unerupted midline supernumerary teeth, proclination of the upper labial segment, prominent frenum, tooth size or shape discrepancy, mesio-distal angulations of incisors and self-inflicted pathology [3,7-9]. Previous research reported controversies regarding perception of midline diastema. In some climes, maxillary midline diastema is believed to boost the attractiveness of an individual especially women unlike in the western societies where it is regarded as a malocclusion [3,7,10-14]. However, there exists an increased frequency of maxillary midline diastema in Caucasian female models indicating an increase in acceptance of the maxillary midline diastema [15]. It is believed that the width of the diastema tends to affect the aesthetic acceptability

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of the diastema [3,16,17]. However, some researchers observed that midline diastema of any width were perceived as unattractive [18-20]. Although, maxillary midline diastema is acceptable and seen as a sign of beauty among Nigerians [7,10,11,21], there is paucity of research on the acceptable width of the maxillary midline diastema. In light of the above, this study was designed to determine the acceptable width of maxillary midline diastema among a population of undergraduate students in Nigeria.

Materials and Methods

This was a cross-sectional study of undergraduate students of the University of Benin, Benin City, Edo state, Nigeria. The study participants were drawn from the undergraduate halls of residence within the university campus. At the University of Benin where this study was carried out there were 7 undergraduate hostels as at the time of carrying out this research. A multi-stage sampling technique was used to recruit participants for the study. In the first stage, 4 hostels were randomly picked and in the second stage, blocks and rooms within the hostels were picked. Occupants of the selected rooms were approached and only those who gave written informed consent participated in the study. The study was conducted over a tenth month period using a pre-tested self administered questionnaire to collate data. The questionnaire consisted of four sections. The first section sought information on socio-demographic characteristics of the participants. The second section determined if the respondents had midline diastema or not. The third section involved self-assessment of the attractiveness of their smile using the visual analogue scale of 1 to 10. This was subsequently graded as follows: 0 not at all attractive, 1 to 3 somewhat attractive, and 4 to 6 attractive and very attractive 7 to 10. The fourth section included a set of pictures which had been photo edited (Figure 1) with varying sizes of maxillary midline diastema (narrowest = 1 mm; widest = 4 mm) which the respondents graded in increasing order of attractiveness 1 to 4 with the highest score awarded to the most attractive and the lowest score to the least attractive. The questionnaire was screened for completeness by the researchers, coded and entered into the IBM SPSS statistics 21.0 software. Cross tabulations were used to report categorical variables. Descriptive statistics in the form of mean and standard deviation were used to describe numerical variables. The Chi square test was applied to determine associations between variables with the level of significance set at $p < 0.05$. Results were presented using frequency tables and cross-tabulations.

Results

A total of 360 questionnaires were administered, however, 333 were returned giving a response rate of 92.5%. All returned questionnaires were found to be properly filled after screening for completeness by the researchers. The respondent's age ranged from 16 to 30 years with a mean age of 21.8 ± 2.9 years. Table 1 shows the demographic characteristics of the respondents. More than half (52.3%) of the respondents were 21 to 25 years old. There was gender disparity in distribution of the respondents with a higher proportion (73.0%) of males (male female ratio 1:0.37). All the various levels of undergraduate study years were represented with 4th year students accounting for the highest proportion (31.5%) of the study population. Students enrolled to study medicine accounted for 31.5% of the study population. The prevalence of midline diastema to be 34.8% among the study population. Self-assessment of the attractiveness of their smile using the visual analogue scale ranged from 1 to 10 with a mean of 6.93 ± 2.05 . Extrapolation of the visual analogue scores showed

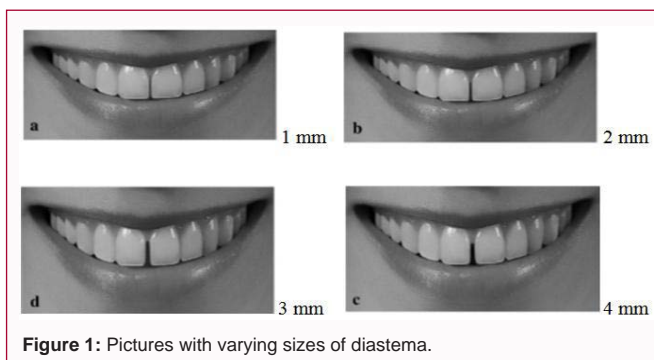


Figure 1: Pictures with varying sizes of diastema.

Table 1: Demographic characteristics of the respondents.

Characteristics	Frequency	Percentage
Age group (years)		
16-20	127	38.1
21-25	174	52.3
26-30	32	9.6
Gender		
Male	243	73
Female	90	27
Year of study		
Fresher	37	11.1
Sophomore	68	20.4
Third year	60	18
Fourth year	112	33.6
>Fourth year	56	16.8
Faculty of study		
Agricultural and Engineering sciences	46	13.8
Law, Arts and Education	35	10.5
Social and Management Sciences	29	8.7
Pharmacy and Basic Medical Sciences	27	8.1
Medicine	105	31.5
Dentistry	47	14.1
Environmental, Life and Physical Sciences	44	13.2
Total	333	100

than 55.9% of the respondents felt their smile was very attractive while 40.5% and 3.6% were of the belief that their smile was attractive and somewhat attractive respectively. Table 2 portrays the grading of attractiveness of the various widths of diastema. The width which was adjudged most attractive was 1 mm by 38.1% of the respondents while the width which was declared the least attractive was 4 mm by 51.4% of the respondents. Diastema of 2 mm was thought to be the most attractive width of diastema by 21.6% of the study population while only 10.5% reported that diastema of 3 mm was the most attractive. There was no statistically significant association between age as well as gender with the choice of the most attractive diastema width (Table 3). Similarly, there was no statistically significant association between age as well as gender with the choice of the least attractive diastema width (Table 4).

Discussion

The perception of smile aesthetics varies from individual to

Table 2: Grading of the varying widths of midline diastema.

Width	Grading of attractiveness				Total
	1 n (%)	2 n (%)	3 n (%)	4 n (%)	
1 mm	115 (43.5)	33 (9.9)	58 (17.4)	127 (38.1)	333 (100.0)
2 mm	23 (6.9)	108 (32.4)	130 (39.0)	72 (21.6)	333 (100.0)
3 mm	24 (7.2)	164 (49.2)	110 (33.0)	35 (10.5)	333 (100.0)
4 mm	171 (51.4)	28 (8.4)	34 (10.2)	99 (29.7)	333 (100.0)
Total	333 (100.0)	333 (100.0)	333 (100.0)	333 (100.0)	

1 was least attractive diastema width and 4 most attractive diastema widths

Table 3: Relationship between demographic characteristics and the most attractive diastema width.

Characteristics	Most attractive diastema width				Total n (%)
	1 mm n (%)	2 mm n (%)	3 mm n (%)	4 mm n (%)	
Age group (years)					P=0.53
16-20	48 (37.8)	28 (22.0)	13 (10.2)	38 (29.9)	127 (100.0)
21-25	63 (36.2)	40 (23.0)	21 (12.1)	50 (28.7)	174 (100.0)
26-30	16 (50.0)	4 (12.5)	1 (3.1)	11 (34.4)	32 (100.0)
Gender					P=0.99
Male	94 (38.7)	52 (21.4)	25 (10.3)	72 (29.6)	243 (100.0)
Female	33 (36.7)	20 (22.2)	10 (11.1)	27 (30.0)	90 (100.0)
Total	127 (38.1)	72 (21.6)	35 (10.5)	99 (29.7)	333 (100.0)

Table 4: Relationship between demographic characteristics and the least attractive diastema width.

Characteristics	Least attractive diastema width				Total n (%)
	1mm n (%)	2 mm n (%)	3 mm n (%)	4 mm n (%)	
Age group (years)					P=0.84
16-20	40 (31.5)	9 (7.1)	11 (8.7)	67 (52.8)	127 (100.0)
21-25	62 (35.6)	13 (7.5)	12 (6.9)	87 (50.0)	174 (100.0)
26-30	13 (40.6)	1 (3.1)	1 (3.1)	17 (53.1)	32 (100.0)
Gender					P=0.20
Male	81 (33.3)	19 (7.8)	14 (5.8)	129 (53.1)	243 (100.0)
Female	34 (37.8)	4 (4.4)	10 (11.1)	42 (46.7)	90 (100.0)
Total	115 (34.5)	23 (6.9)	24 (7.2)	171 (51.4)	333 (100.0)

individual. Midline diastema tends to affect perception of smile aesthetics. The prevalence of midline diastema observed in this study (34.8%) was higher than that reported in previous studies (16.9%) [22], and 21.6% [23], but similar to another study that reported 34.0% [6], and slightly lower than a previous report of 37% [24]. Self assessment of the attractiveness of their smile by the respondents is similar to reports of a previous study [22]. All the four widths of diastema were acceptable to varying degrees by the respondents. This is similar to previous reports where it was found that midline diastema of any width was perceived as unattractive [25]. However, the width which was adjudged most attractive was 1 mm while the width which was declared the least attractive was 4 mm. This supports the findings of a previous study in which 1 mm diastema was rated more attractive than 2 mm diastema [18,20,25]. The findings of this study buttress the observation that midline diastema is rated as unattractive when its width was 2 mm or more as large diastema is believed to negatively impact on smile attractiveness [13,25,26]. This is in contrast to the reports of a previous Nigerian study which reported 2 mm as the most attractive by respondents in their study [22]. This difference is due to the fact that the authors of the previous

research assessed diastema widths between 2 mm and 6 mm without including 1 mm. Also, the method of rating of the photographs with the various diastema widths was different from that employed in this study. It can be inferred from the findings of this study that the less the width of the diastema the more acceptable it is. The rating of diastema width of 4 mm as least attractive in this study supports the assertion that increase in width of diastema results in increased rating of unattractiveness [22]. This further buttress the report of a previous study that diastema width >4 mm is a problem [27]. There was no statistically significant association between gender and the choice of the most attractive diastema width as well as the choice of the least attractive diastema width. A finding similar to previous reports [18,20,25,28]. This lends credence to the fact that the perception of beauty is not to be related to the gender of an individual [20]. In like manner there was no statistically significant association between age and the choice of the most attractive diastema width as well as the choice of the least attractive diastema width. This can be because all the participants were young adults and their perception of aesthetics may not differ.

Conclusion

The diastema width rated as most attractive was 1 mm and the least attractive was 4 mm. hence, the less the width of the diastema the more attractive it is. Gender and age seem not to affect the perception of dental aesthetics.

References

- Houacine SA, Awooda EM. Perception of smile attractiveness towards various forms of anterior diastemas among undergraduate dental and non-dental students. A questionnaire-based study. *Int J Orthod Rehab* 2017;8(3):96-100.
- Tanaka OM, Morino AY, Machuca OF, Schneider NA. When the midline diastema is not characteristic of the "Ugly Duckling" Stage. *Case Rep Dent*. 2015;2015:924743.
- Alshahrani I, Togoo RA, Alshahrani A, Alshahrani AS, Alshehri DA, Sadatullah S. Esthetic perception of maxillary midline diastema among female students at King Khalid University. *Gulf Med J* 2017;6(1):49-54.
- Huang WJ, Creath CJ. The midline diastema: A review of its etiology and treatment. *Pediatr Dent*. 1995;17(3):171-9.
- Elfadel II, Abuaffan AH. Prevalence and etiology of midline diastema among Sudanese University Students. *Indian J Dent Educ*. 2016;9(1):16-9.
- Athumani AP, Mugonzibwa EA. Perception on diastema medially (mwanya) among dental patients attending Muhimbili National Hospital. *Tanz Dent J*. 2006;12(2):50-7.
- Umanah A, Omogbai A, Osagbemi B. Prevalence of artificially created maxillary midline diastema and its complications in a selected Nigerian population. *Afri Health Sci*. 2015;15(1):226-32.
- Abu-Hussein M, Watted N. Maxillary midline diastema- aetiology and orthodontic treatment- clinical review. *IOSR J Dent Med Sci*. 2016;15(6):116-30.
- Abraham R, Kamath G. Midline diastema and its aetiology--a review. *Dent Update*. 2014;41(5):457-60, 462-4.
- OJI C, Obiechina AE. Diastema in Nigerian society. *Odonto- Stomatol Tropicale* 1994;17(68):4-64.
- Akinboboye B, Umesi D, Ajayi Y. Transcultural perception of maxillary midline diastema. *Int J Esthet Dent*. 2015;10(4):610-7.
- Oesterle LJ, Shellhart WC. Maxillary midline diastema: a look at the causes. *J Am Dent Assoc*. 1999;130(1):85-94.
- Kerosuo H, Hausen H, Laine T, Shaw WC. The influence of incisal malocclusion on the social, attractiveness of young adults in Finland. *Eur J Orthod*. 1995;17(6):505-12.
- Rosenstiel SF, Rashid RG. Public preferences for anterior tooth variations: A web- based study. *J Esthet Restor Dent*. 2002;14(2):97-106.
- Lewis KC, Sherriff M, Stewart DE. Change in frequency of the maxillary midline diastema appearing in photographs of Caucasian females in two fashion magazines from 2003 to 2012. *J Orthod*. 2014;41(2):98-101.
- Rodrigues Cde D, Magnani R, Machado MS, Oliveira OB. The perception of smile attractiveness. *Angle Orthod*. 2009;79(4):634-9.
- Kokich VO, Kokich VG, Kiyak HA. Perceptions of dental professionals and laypersons to altered dental esthetics: Asymmetric and symmetric situations. *Am J Orthod Dentofacial Orthop*. 2006;130(2):141-51.
- Abdullah A Al Nazeh. Relationship between Perception of Maxillary Midline Diastema and Personality Profiles. *World J Dent*. 2016;7(2):59-63.
- Mokhtar HA, Abuljadayel LW, Al-Ali RM, Yousef M. The perception of smile attractiveness among Saudi population. *Clin Cosmet Investig Dent*. 2015;7:17-23.
- Talic N, Alomar S, Almaidhan A. Perception of Saudi dentists and lay people to altered smile esthetics. *Saudi Dent J*. 2013;25(1):13-21.
- Enabulele JE, Aghamiog E. Socio cultural beliefs regarding midline diastema among undergraduate students attending a Nigerian University. *Borno Med J*. 2018;15(2):26-34.
- Akinboboye BO, Umesi DC, Esan TA. Perception of midline diastema in dental and non-dental oriented individuals. *Sahel Med J*. 2018;21:104-8.
- Omotoso G, Kadir E. Midline diastema among south-western Nigerians. *Internet J Dent Sci*. 2009;8(2).
- OboroHO, Umanah AU, Chukwumah NM, Sede M. Creation of artificial midline maxillary diastema: Opinion of Nigerian dentists.
- Abu Alhaija ESJ, Al-Shamsi NO, Khateeb AS. Perception of Jordanian laypersons and dental professionals to altered smile aesthetics. *Eur J Orthod*. 2011;33(3):450-6.
- Noureddine A, FronChabouis H, Parenton S, Lasserre JF. Laypersons' esthetic perception of various computer-generated diastemas: A pilot study. *J Prosthet Dent*. 2014;112(4):914-20.
- Dunn WJ, Murchison DF, Broome JC. Esthetics: patients' perceptions of dental attractiveness. *J Prosthodont*. 1996;5(3):166-71.
- Ousehai L, Aghoutan H, Chemlali I, Anssari F, Talic N. Perception of altered smile esthetics among Moroccan professionals and lay people. *Saudi Dent J*. 2016;28(4):174-82.