

ESTHETIC PERCEPTION OF MAXILLARY MIDLINE DIASTEMA AMONG FEMALE STUDENTS AT KING KHALID UNIVERSITY

Ibrahim Alshahrani, Rafi A. Togoo, Abdulaziz Alshahrani, Amal S. Alshahrani, Dareen A. Alshehri, Syed Sadatullah

ABSTRACT

Objective: The objective of this study is to evaluate the esthetic perception of maxillary midline diastema (MMD) in a sample population of female students at King Khalid University.

Materials & Methods: A total of 367 female students between the ages of 18 and 26 years were randomly selected for a survey by means of a self-administered questionnaire. The questionnaire was based on the criteria proposed by “Psychosocial Impact of Dental Aesthetics Questionnaire”.

Results: Two-thirds (75.1%) of the participants were of the opinion that MMD has an effect on the appearance of the teeth. Moreover, 39.3% considered MMD esthetically acceptable, while 11.8% regarded it as a sign of beauty. However, according to 74.1% of the participants, this opinion would change depending on the size of the diastema. It was further found that 47.9% were unsure if they would get their midline diastema corrected, compared with 12.8% who stated that they would surely avoid getting it corrected. Two of three respondents would consult some form of a dentist to get the gap corrected, and almost a quarter (24.3%) would consult a beautician before opting for any treatment.

Conclusion: It was found that just a minority of Saudi female students from the southern region seemed to consider midline diastema a trait of beauty, and the size of the diastema was an important factor influencing esthetic approval.

Keywords: Maxillary midline diastema, esthetics, dental students, King Khalid University

Citation: 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 Medical Journal. 2017;6(1):49–54.

INTRODUCTION

The perception of human beauty is exceptionally contextual and differs from person to person. It varies according to culture, social environment, and the period of time during which it is assessed^{1, 2}. A pleasing smile is an important determinant of human beauty, while teeth are important elements of a smile. In various cultures, women perceive beauty by assessing certain aspects of teeth³. Popularly in the Middle Ages, women with a gap between their front teeth were considered attractive (*The*

Canterbury Tales by Geoffrey Chaucer, 1342–400 AD). The continuous presence of a gap between the maxillary central incisors is known as maxillary midline diastema (MMD). In some African countries, MMD is not only considered a sign of attractiveness but also an indication of fertility. Although a high prevalence of MMD is observed among the Nigerian population, those who do not possess “gap teeth” create MMD by artificial means^{4–6}. Even today, diastema is referred to as “dents du bonheur” in France, which implies “lucky teeth”. Nonetheless, unlike the 1960s and 1970s, when Caucasians from Western societies considered it esthetically appealing, MMD was later regarded as a disturbance in occlusion, which produced an unattractive smile^{7–10}.

Correspondence: Dr. Syed Sadatullah, College of Dentistry, King Khalid University, PO Box No. 3263, Abha – 61471, Saudi Arabia. Email: sasadat@kku.edu.sa

However, in contrast to these past preferences, a surge was witnessed in recent years in the popularity of MMD in Western countries. A report noted a rise in London not only in the number of patients requesting the artificial creation of gaps between their upper front teeth but also in patients with diastemas who refused to have the gaps treated¹¹. The Wall Street Journal reported a surge in the popularity of gap teeth as these were found to be considered among “the most coveted attributes” of a model¹².

A strong relationship was observed between the prevalence of and preference for midline diastemas in a population¹³. Based on ethnicity, the prevalence of MMD was found to be lower among Caucasians and Asians than populations of African descent^{14, 15}. MMD was noted to be moderately prevalent among adults of Middle East origin^{16–18}. As treatment is sought by those who find MMD unappealing, a considerable amount of money, time, and manpower are spent worldwide in correcting malocclusions each year¹⁹. In light of the stated problem, it is utilitarian to evaluate the discernment of young females in Saudi Arabia regarding MMD from the point of view of esthetics. This would offer insight into the degree of demand for the treatment of MMD in this particular region. Therefore, the purpose of this study was to evaluate the esthetic perception of MMD in a sample population of young female students in an urban area in southern Saudi Arabia.

MATERIALS & METHODS

A cross-sectional study design with non-probable convenient sampling was employed in selecting the study group. Prior to the commencement of the study, the research proposal was approved by the Ethics Committee of King Khalid University’s College of Dentistry Scientific Research Committee. The participants of the study included 367 randomly selected female students between the ages of 18 and 26 years at King Khalid University College of Medicine and Applied Sciences. Students from College of Dentistry were excluded from the study. A questionnaire

comprising 11 questions based on the criteria proposed by “Psychosocial Impact of Dental Aesthetics Questionnaire” was prepared in the English and Arabic languages in Google Forms®²⁰. An informed consent clause was also included at the start of the questionnaire, with five additional questions probing the health of the participants’ anterior teeth. The responses of the participants with a history of prosthetic, restored, missing, weak (periodontally), and orthodontically treated anterior teeth were excluded from the analysis. The received data was analyzed by employing descriptive statistics, including response frequencies and percentages.

RESULTS

The number of respondents to the questionnaire were 341 (93% response rate); of these, 28 were excluded for not meeting the inclusion criteria (Table 1). Since 26 participants did not respond to the emails, the study eventually used the 313 responses that met the inclusion criteria (Table 2). The average age of the participants was found to be 20.8 years.

Table 1. Details of participants excluded from the study

	Number	Percentage
Restoration(s) in front teeth	16	57
Artificial (prosthetic) front teeth	4	14
Missing front teeth	0	0
Weak front teeth	1	3
Orthodontically treated teeth	7	26

Table 2. Details of participants included in the study

	Number	Percentage
Number of questionnaires sent out	367	-
Number of responses received	341	93
Number of responses not received	26	7
Number of responses excluded from the study	28	8
Number of participants included in the study	313	85

Table 3. Details of responses to questionnaire

Question 1	Yes, only upper	Yes, only lower	Upper and lower	No midline space
Do you have a gap between your front teeth?	11.2%	3.2%	7.3%	78.3%
Question 2	Yes; got it corrected	Yes; not corrected	No one has a midline gap	
Does anyone in your family have a gap between their front teeth?	80.6%	12.1%	47.3%	
Question 3	Esthetically acceptable	Esthetically unacceptable	A sign of beauty	Inconsequential
You consider a gap between the upper front teeth to be...	39.3%	42.2%	11.8%	6.7%
Question 4	Size of the gap	Gender of the person	Age of the person	Others
My opinion of a midline gap would change depending on...	74.1%	2.9%	10.9%	12.1%
Question 5	Yes, that is the only issue		No, I know of other reasons too	
A midline gap affects the appearance of teeth!	75.1%		24.9%	
Question 6	Yes		No	
Would your opinion of a person's looks change if you observed a midline gap at a later stage?	76%		24%	
Question 7	Yes, as soon as possible	No, I do not think I have to get it corrected		Not sure
Would you get a midline gap corrected?	39.3%	12.8%		47.9%
Question 8	Yes, without hesitation	Yes, only if I am asked	I would not give any suggestion	
Would you suggest that your friends or relatives correct their midline gap?	13.7%	52.4%	33.9%	
Question 9	High cost of treatment	Religious reasons	Cultural reasons	Would correct it
If you had a midline gap and did not get it corrected, it would be due to...	27.2%	7.3%	2.9%	62.6%
Question 10	A general dentist	A beautician	Any specialist dentist	An orthodontist
If you wished to correct a midline gap, you would consult...	26.4%	24.3%	29.1%	38%
Question 11	My dentist	Electronic and social media	Journals and magazines	Family and friends
The last you were educated about midline gaps was through...	20.1%	24.6%	2.6%	52.7%

In the group that was surveyed, 23 respondents reported a gap between their front teeth (7.3%), 11.2 percent (35 of 313) in their upper front teeth, and 3.2 percent (10 of 313) in their lower front teeth. Diastema was observed to be prevalent among the close family members of more than half (52.7%) of the respondents with a gap between their front teeth. The majority of the family members (80.6%) reportedly had the gap corrected. When investigating the esthetic acceptability of MMD, 123 of the respondents (39.3%) considered it esthetically acceptable, while 132 (42.2%) found it to be esthetically unacceptable. It was also noted that 11.8% of the participants regarded MMD as a sign of beauty, whereas 6.7% deemed it inconsequential. Additionally, almost two-thirds (74.1%) of the respondents stated their opinion would change depending on the size of the diastema. Just 10.9% commented that they would change their opinion based on the age of the person with MMD. Similarly, two-thirds (75.1%) believed that MMD affected the appearance of teeth. When asked whether their opinion about a person's looks would change if they discovered the person had MMD at a later stage, 76% responded in the affirmative. Nearly half of the respondents (47.9%) were unsure of whether they would get their midline diastema corrected. In contrast with this, 12.8% stated that they would surely avoid getting it corrected. Almost one-third of the respondents (33.9%) stated they would not suggest treatment if they found that their friends or relatives had a gap between their two front teeth. Nevertheless, 62.6% believed that there was no reason stopping them from getting the midline diastema corrected, while 27.2% opined that high cost was one of the reasons to avoid correction. Two of three respondents would consult some form of a dentist to get the gap corrected, and almost a quarter (24.3%) would consult a beautician before opting for treatment. Finally, it was found that 52.7% of the respondents had received information about MMD through family and friends.

DISCUSSION

Numerous disparities were observed in the esthetic perception of MMD from one population to another. The significance of patients' perception of MMD could not be overemphasized as they were the ones who decide to receive or reject any treatment for it. The results of our study appear to indicate that young female students in Saudi Arabia were conscious of the esthetics of their teeth (Question 5), though they seemed to be undecided about the esthetic appeal of MMD (Question 3). Merely a minority considered it to be a sign of beauty. However, if the respondents who considered MMD a sign of beauty were added to those who considered it esthetically acceptable, they would together outnumber the ones who considered it esthetically unacceptable. This inference is strengthened considering that almost 50% of them were unsure whether they would get MMD corrected (Question 7), and one-third would not recommend treatment for it (Question 8).

It is probably incongruous to consider this in line with the global shift in trend, especially in the absence of any previous data from this region. Nevertheless, our results reveal a striking difference in opinion of Saudis from Southern region as compared to the results reported by Mokhtar, H.A. *et al*²¹ and Talic, N *et al*²². In their studies on western and central population of Saudi Arabia, they found that lay men, dentists, and dental students unequivocally considered MMD to be esthetically unacceptable. Similar results were reported by Abu Alhaija *et al.* in their study conducted on the Jordanian population²³. This difference in preference for MMD may be due to the southern region in Saudi Arabia being more culturally preserved than the major metropolitan cities. Differences in dental anatomical traits have also been noted between the population in the southern region and the rest of the Kingdom²⁴.

In close agreement with the findings of Luqman *et al.*, as perceived by the respondents in our study, MMD was moderately prevalent in

southern Saudi Arabia (Question 1), compared with the city of Riyadh^{16–18}.

Some reports indicate that just wide MMDs were regarded as unattractive, while midline diastemas of up to 1.5mm were believed to positively affect smile esthetics^{25, 26}. A similar assessment was made in our study (Question 4), wherein 74.1% of the respondents' opinions of midline diastemas were affected by the size of the gap. Conversely, according to the findings of Mokhtar *et al.* and Talic *et al.*, a diastema of any size was unacceptable to the respondents^{21, 22}. In such a scenario, treatment planning becomes challenging, and the patient's objective remains the foremost criteria for choosing the best treatment option. Furthermore, 25% of the respondents in our study considered high treatment cost a deterrent in treating MMD. While an ideal smile is a myth, a balanced smile is a combination of patients' expectations and functional requirements.

It was expected that the majority would consider midline diastema an important factor influencing a person's looks (Question 6); however, it was interesting to note that 25% respondents stated that they would consult a beautician in case they planned to correct the gap (Question 10). Since females are seemingly more concerned with MMD than males, our study included just young university female students⁶. However, further investigations are expected to be conducted on males belonging to the same age group and region. Dental students were excluded from the study as they would have a preconceived idea of MMD, which could introduce an unwanted bias.

CONCLUSION

According to our findings, a small minority of female students in Saudi Arabia considered MMD a trait of beauty. This may have been a cultural preference, not in confirmation with changing global trends. Their perception was observed to be largely related to the size of the diastema.

CONFLICT OF INTEREST

None of the authors have conflict of interest to declare.

REFERENCES

- Oumeish OY. The cultural and philosophical concepts of cosmetics in beauty and art through the medical history of mankind. *Clin Dermatol.* 2001;19(4):375–86.
- Flores-Mir C, Silva E, Barriga MI, Lagravere MO, Major PW. Lay person's perception of smile esthetics in dental and facial views. *J Orthod.* 2004;31(3):204–9.
- Qualtrough AJ, Burke FJ. A look at dental esthetics. *Quintessence Int.* 1994;25(1):7–14.
- Oji C, Obiechina AE. Diastema in Nigerian society. *Odontostomatol Trop.* 1994;17:4–6.
- Arigbede AO, Adesuwa AA. A case of quackery and obsession for diastema resulting in avoidable endodontic therapy. *Afr Health Sci.* 2012;12(1):77–80.
- Omotoso G, Kadir E. Midline diastema amongst South-Western Nigerians. *The Internet Journal of Dental Science.* 2009;8(2).
- Dunn WJ, Murchison DF, Broome JC. Esthetics: patients' perceptions of dental attractiveness. *J Prosthodont.* 1996;5(3):166–71.
- Oesterle LJ, Shellhart WC. Maxillary midline diastemas: a look at the causes. *J Am Dent Assoc.* 1999;130(1):85–94.
- Rosenstiel SF, Rashid RG. Public preferences for anterior tooth variations: a web-based study. *J Esthet Restor Dent.* 2002;14(2):97–106.
- 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.
- Pope S. Hot cosmetic trend: gap teeth [Internet]. Florida: Austus Media LLC; 2010 [cited 2017 Mar 16]. Available from: <http://www.thehealthyhomeeconomist.com/hot-cosmetic-trend-gap-teeth/>
- Dodes R. We don't mind the gap: the fashionable flash a new smile [Internet]. New York: The Wall Street Journal, Dow

- Jones & Company, Inc.; 2010 [cited 2017 Mar 16]. Available from: <http://www.wsj.com/articles/SB10001424052748703720004575478213601248720>
13. Akinboboye B, Umesi D, Ajayi Y. Transcultural perception of maxillary midline diastema. *Int J Esthet Dent.* 2015;10(4):610–7.
 14. Lavelle CL. The distribution of diastemas in different human population samples. *Scand J Dent Res.* 1970;78(6):530–4.
 15. Richardson ER, Malhotra SK, Henry M, Little RG, Coleman HT. Biracial study of the maxillary midline diastema. *Angle Orthod.* 1973;43(4):438–43.
 16. Luqman M, Sadatullah S, Saleem MY, Ajmal M, Kariri Y, Jhair M. The prevalence and etiology of maxillary midline diastema in a Saudi population in Aseer region of Saudi Arabia. *International Journal of Clinical Dental Science.* 2011;2(3):81–5.
 17. Albarakati SF, Al-Dlaigan YH. Maxillary midline diastema among Saudi schoolchildren in Riyadh: prevalence and some related etiological factors. *Egyptian Orthodontic Journal.* 2011;40:41–55.
 18. Al-Balkhi KM, Zahrani AA. Pattern of malocclusions in Saudi Arabian patients attending for orthodontic treatment at the College of Dentistry, King Saud University, Riyadh. *Saudi Dent J.* 1994;6(3):138–44.
 19. Kinderknecht KE, Kupp LI. Aesthetic solution for large maxillary anterior diastema and frenum attachment. *Pract Periodontics Aesthet Dent.* 1996;8(1):95–102.
 20. Klages U, Claus N, Wehrbein H, Zentner A. Development of a questionnaire for assessment of the psychosocial impact of dental aesthetics in young adults. *Eur J Orthod.* 2006;28(2):103–11.
 21. 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.
 22. 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.
 23. Abu Alhaija ES, Al-Shamsi NO, Al-Khateeb S. Perceptions of Jordanian laypersons and dental professionals to altered smile aesthetics. *Eur J Orthod.* 2011;33(4):450–6.
 24. Sadatullah S, Odusanya SA, Mustafa A, Abdul Razak P, Abdul Wahab M, Meer Z. The prevalence of fifth cusp (Cusp of Carabelli) in the upper molars in Saudi Arabian school students. *Int J Morphol.* 2012;30(2):757–60.
 25. Rodrigues CD, Magnani R, Machado MS, Oliveira OB. The perception of smile attractiveness. *Angle Orthod.* 2009;79(4):634–9.
 26. 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.