

Effect of buccal corridors on smile attractiveness

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Abstract

Background: Physical attractiveness is an important social issue in our culture and the face is one of its key features. Since aesthetic consideration is one of the foremost reasons for patients to consider orthodontic treatment, it becomes the job of orthodontist to properly evaluate and understand the factors influencing aesthetics of any individual. Thus the aim of the study was to evaluate the effectiveness of various sized buccal corridors on smile attractiveness perceived by male and female lay persons.

Materials and Methods: One male and one female smiling photograph were taken and digitally altered to produce various sized buccal corridors i.e narrow, medium and broad. The images were then presented to the panel of 40 patients (20 males, 20 females) who were undergoing orthodontic treatment or were willing to get the orthodontic treatment done. They were instructed to choose the smile which they preferred out of the three images as an attractive smile.

Results: The difference in the judgement of male and female patients pertaining to the influence of buccal corridors on smile attractiveness was not significant. Both male and females rated the smile with narrower buccal corridors as more attractive than the ones with large buccal corridor space.

Conclusion: Narrower buccal corridors are considered esthetically pleasing. There are no gender differences in buccal corridor attractiveness ratings.

Keywords: Buccal corridors, smile esthetics, smile attractiveness.

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I. Introduction

Physical attractiveness is an important social issue in our culture and the face is one of its key features. Several authors¹⁻³ have reported a hierarchy in the characteristics that determine the aesthetic perception of a person, with the face being the most important factor. Within the face, the mouth (31%) and eyes (34%) also appear to play an important role in attractiveness.⁴ Smile aesthetics is one of the most important contributors to the facial aesthetics. Further the factors contributing to smile aesthetics include the area of gingival display, colour, contour, texture and height of the gingiva; the presence of smile arc; the teeth by its contributing factors of size, shape, shade and alignment and the buccal corridor space.⁵⁻⁸

Since aesthetic consideration is one of the foremost reasons for patients to consider orthodontic treatment, it becomes the job of orthodontist to properly evaluate and understand the factors influencing aesthetics of any individual.⁹

The perception of smile esthetics is subjective and is influenced by personal experiences and social environment. Further, numerous studies have concluded that dental professional and general population differ considerably in their preferences for smile esthetics.^{10,11} Moreover, among the dental professionals, the orthodontists are more analytical than the general dentist. This is due to the special training of orthodontist to observe and evaluate features that do not seem to influence the general dentist and the public. How much the buccal corridors influence the smile attractiveness is a subject of controversy. The paradigm shift from occlusion to aesthetic emphasizes the need to explore the variables affecting smile.

This study was designed with a purpose to evaluate the effectiveness of various sized buccal corridors on smile attractiveness, perceived by male and female lay persons.

II. Materials And Methods

Smiling, full face colour photographs of aesthetically pleasing subjects (1 male & 1 female) were taken. Only those subjects who had good alignment of teeth and who had all teeth up to second molars were chosen for the study. The anterior teeth did not have any cavities, restorations or any other type of pathology in the surrounding tissues.

The images were then digitally modified to produce varying smile fullness. The only difference in the altered images and the original image was the amount of buccal corridor space (or smile fullness); broad smile fullness (2% buccal corridor space), medium smile fullness (15% buccal corridor space) and narrow smile fullness (22% buccal corridor space). Smile fullness was calculated as the visible maxillary dentition width divided by the inner commissure width, and buccal corridor was calculated as the difference between the visible maxillary dentition width and the inner commissure width divided by the inner commissure width (Figure 1). Both ratios were reported as percentages. The sum of the 2 ratios for a given image would equal 100%.

Data Collection: The images were presented to the panel of 40 patients (20 males, 20 females) who were undergoing orthodontic treatment or were willing to get the orthodontic treatment done. They were approached and asked if they would voluntarily agree to participate in the study. None of the evaluators had a Health Sciences or Artistic background. They were classified according to gender and were instructed to choose the smile which they preferred out of the three images.

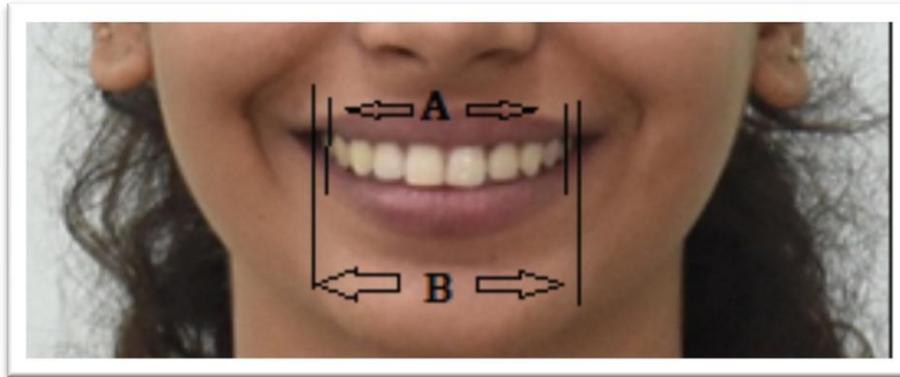
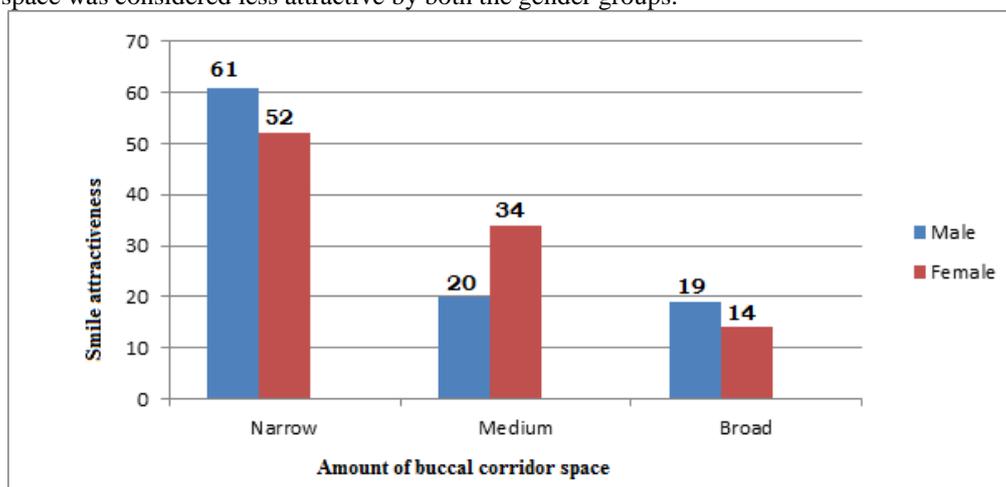


Figure 1 Measurement of buccal corridor and smile fullness. Smile fullness was calculated as visible maxillary dentition width (A) divided by inner commissure width (B). Buccal corridor was calculated as difference between visible maxillary dentition width and inner commissure width divided by inner commissure width.

III. Results

The results showed consistent relationship between the amount of smile fullness (buccal corridor space) and smile attractiveness in the study. As Figure 2 depicts, 52% Females chose smiles with small buccal corridor space in of the sample images provided and 61% Males chose smiles with small buccal corridor space. Thus, it can be clearly said that smaller the buccal corridor space (broader the smile fullness) the more attractive the smile as per both the groups. Similarly, larger the buccal corridor space (narrow smile fullness), less attractive the smile as per both the groups. On an average broad smile fullness (2% buccal corridor space) was rated the best, by both male and female evaluators, Followed by medium smile fullness (15% buccal corridor space) and narrow smile fullness (22% buccal corridor space). This indicates that smile with larger buccal corridor space was considered less attractive by both the gender groups.



IV. Discussion

The results of the present study highlight the importance for general dentists, orthodontists and dental surgeons to consider the patient's viewpoint when planning and assessing orthodontic treatment. Various Studies have stated that when the entire face is taken in context the buccal corridor space influences the smile attractiveness of a person.^{9,12} This study was designed with the intention to determine whether laypersons (male and females) have similar or contravening opinion regarding the influence of buccal corridors on smile aesthetics. The results however revealed that both male and females preferred smiles with minimal or no buccal corridors. These findings however are in sharp contradiction with a study by Hulsey who reported that laypersons had no preference regarding buccal corridor width, and width variation seemed to be of no significance in determining smile attractiveness.¹³ However, Hulsey calculated the intercanine width/smilewidth ratio and did not take into account any visible dentition distal to the maxillary canines. Frush and Fisher¹⁴ defined buccal corridors as the spaces between the buccal surfaces of the posterior teeth and the corners of the mouth when smiling; Hulsey did not actually examine buccal corridors as defined by Frush and Fisher. Also, Hulsey used pictures limited to mouths. We used pictures of the entire face and can conclude that the size of buccal corridors influences smile attractiveness when the entire face is taken in context. The findings of the present study parallel a trend noted by Dunn et al¹⁵, lay people considered more teeth displayed to be more attractive. Moore et al. reported that a broader smile with minimum buccal corridor was more acceptable and attractive than a narrow smile with large buccal corridors.¹⁶ Orthodontists and laypersons favored smaller corridors than broad corridors.¹⁷

The results of this study indicates that less buccal corridor space is perceived to result in better smile aesthetics as judged by both the groups which can be taken from the orthodontists point of view that minimizing buccal corridors will improve smile aesthetics. Some of the treatment procedures that can be considered for reducing the buccal corridor space are such as maxillary arch expansion and increasing the torque in posterior teeth. However, it should be noted that smilefullness (buccal corridor space) is just one feature apart from various features that affect smile attractiveness.

V. Conclusion

- Narrower buccal corridors are considered esthetically pleasing.
- There are no gender differences in buccal corridor attractiveness ratings.
- Having minimal buccal corridors is a preferred esthetic feature for both men and women, and large buccal corridors should be included in the problem list during orthodontic diagnosis and treatment planning.

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