

# Perception of an esthetical smile in relation to the buccal corridor

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## Abstract

**Introduction:** Assess the influence of esthetic parameters, in this case buccal corridors on the esthetics of smile when visually judged by laypersons.

**Material & Methods:** Buccal corridor was assessed on frontal smile photographs after taking standard 3 pictures which were judged by random 60 laypersons (30 males and 30 females) using Visual analogue scale (VAS). The VAS was marked least attractive, attractive and most attractive for the purpose of description and perceptible (subjective) categorizations.

**Results:** According to the results of this study, perception level on visual analogue scale for narrow width buccal corridor photograph patient had gotten highest score whereas broad width photograph patient got the least attractive score by most of the judges who participated.

**Conclusions:** Having minimal buccal corridor is esthetically accepted in both males and female while a larger buccal corridor is not accepted to be a norm and should be included in treatment planning as a part of problem list.

**Keywords:** Photograph; self esteem; appearance

## Introduction

Smile is one of the most distinguishing features defining the personality. Among humans, it is customarily an expression denoting pleasure, happiness, and amusement. A beautiful smile improves confidence, self esteem, makes the appearance younger, and improves social interactions. The mouth and teeth are a basic fundamental part of facial esthetics.<sup>1</sup>

The attractiveness of smiles has been appraised in modern orthodontics. Esthetics of smile is judged by many features such as the sum of gingival display, length of the incisors, shape of teeth, presence of a smile arc, shade of the teeth & buccal corridors.<sup>2</sup>

Buccal corridor (BC) is potentially an important smile feature.<sup>3</sup> Buccal Corridors can be best assessed on the Frontal Smile Photograph which is now an essential component for orthodontic diagnosis &

treatment planning. Presence or absence of Buccal Corridors has been best evaluated by analyzing Buccal Corridor width which is the planetary between the buccal surfaces of the maxillary teeth and the corners of the mouth during a smile. Frush and Fisher however defined the buccal corridors as the planetary between the facial surface of posterior teeth and the corners of lips, when the patient is smiling.<sup>4</sup> Buccal corridor is critical in having a more natural look. They supposed that a very broad buccal corridor gave the patient an unnatural appearance. At the present day, however, because more people are active longer and preserving their natural teeth, the awareness of attractive smile esthetics could be changing. In fact, when laypersons were revealed with full-face color photographs with five modifications in the buccal corridors, they favoured faces with minimal buccal corridor spaces.<sup>5</sup> Specifically, laypersons suggestively favoured broader smiles to narrow smiles.

Though some data on the ideal buccal corridor size is accessible in the literature, most of it is grounded on clinical opinions, whereas the scientific studies that tackled this issue generated controversial conclusions.<sup>6,7</sup>

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Several studies displayed that broad smiles with narrower buccal corridors are appreciated more attractive.<sup>8,9</sup> Supplementary, other authors noted that buccal corridor width does not distress how the smile is judged from an artistic interpretation.<sup>10</sup> Similarly according to Isiksal et al,<sup>11</sup> transverse features appear to be of slight implication in smile charm. By the same gesture, some researchers debate that the lateral negative planetary impacts smile charm only when it becomes excessively wide.

Aim of this cram is thus to judge the impact of Buccal Corridors width on the smile esthetics in patients visiting orthodontics department of Peshawar dental college which will help in future treatment planning as well as in order to achieve esthetic results acceptable to patients.

The purpose of this study was to enhance the importance of buccal corridor width on smile esthetic so that a lay person could also have knowledge about it.

## Material and Methods

For this cross sectional descriptive study after taking consent from participants a total of 60 subjects (30 male, 30 female) were selected of different age groups. Non probability purposive sampling technique was used from 1<sup>st</sup> march 2018 to 1<sup>st</sup> May 2018 at the Department of Orthodontics Peshawar Dental College Inclusion criteria was anyone who was old enough to give consent and understand the VAS. Exclusion was being a dentist. As in this study any participant who was a dentist could not be considered a layperson. To each participant, 3 standardized pictures were presented to be judged. These photographs were initially analyzed and measured clinically with respect to the buccal corridor space i.e. on one picture with narrow buccal corridor space, was 6% of the distance among the outer

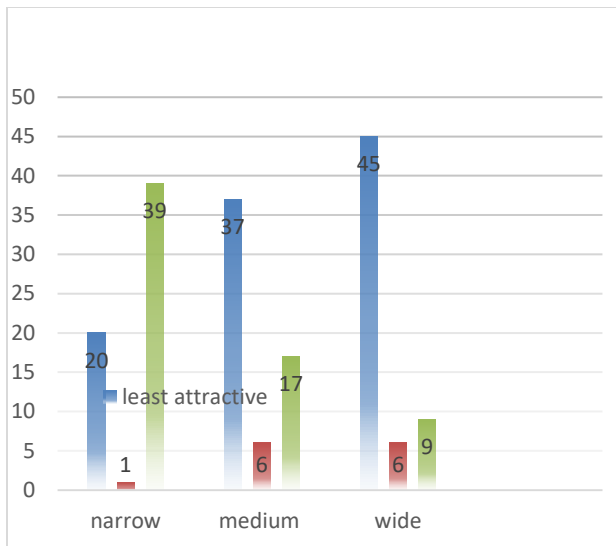
commissures, with 3% for bothside; on the medium category buccal corridor picture, 16%, with 8% for each plane; and on the wide corridor picture, 26%, 13% for each side. The entire population of participants was unaware of this description.

Images that were selected exhibited ample dental arrangement, proper show of the upper incisors on smiling, happenstance of the upper and lower midlines with the facial midline. After assortment, the images were digitally manipulated using Adobe version 9 Photoshop software. In order to homogenize and render more accurate amendments, dental inclinations and gingival contours were corrected in all novel photographs, and a near golden ratio was found. This digitally manipulated half of the face was duplicated in order to turn out to be completely symmetric. Thereafter, they (judges) were given a VAS which was 0-10 cm but for descriptive purpose marked least attractive, attractive and most attractive regarding the smile esthetics. The 60 judges/accessories marked the 3 pictures according to their perception on this VAS. This data was then compiled on Microsoft excel 2007 and presented on charts and tables for the purpose of description.

## Results

A reliable bond between width of buccal corridor and smile charmness was shown in this cram. A total of 60 subjects participated in the study belonged to age group from 15 to 25 years of age. 30 subjects were male and 30 subjects were female. Frequency of esthetic perception of narrow medium and broad buccal corridor on the basis of visual analogue scale is shown in figure 1.

This underlying figure indicates that according to perception level on VAS narrow width buccal corridor picture has scored the highest among two other pictures. Whereas broad width was considered as the least attractive.



|        |                  | Level of education |     |     |       |
|--------|------------------|--------------------|-----|-----|-------|
|        |                  | Matric             | F.A | B.A | Total |
| Narrow | Least attractive | 02                 | 7   | 11  | 20    |
|        | Attractive       | 0                  | 1   | 0   | 01    |
|        | Most attractive  | 11                 | 16  | 12  | 39    |
| Medium | Least attractive | 12                 | 13  | 12  | 37    |
|        | Attractive       | 0                  | 4   | 02  | 06    |
|        | Most attractive  | 1                  | 07  | 09  | 17    |
| Wide   | Least attractive | 11                 | 17  | 17  | 45    |
|        | Attractive       | 0                  | 4   | 2   | 06    |
|        | Most attractive  | 2                  | 3   | 4   | 09    |

This table comprises of the comparison of results among different education levels indicating that with increasing education levels people could have better perception of smile esthetics and close to perception of orthodontists.

## Discussion

This study is based on one factor, effect of buccal corridor width on smile esthetics. Each photograph was shown to patients belonging

to different age groups, level of education and reason for orthodontic treatment. According to the results of our study patients opted for narrow buccal corridor space as most attractive and broad buccal corridor space as least attractive. Results of our study are similar to the study of Sarver et al.<sup>12</sup>

The VAS is one of the most widespread apparatus used to evaluate pain concentration, attractiveness and anxiety and has been shown to be a suitable, unfailing, and reproducible process of measuring skewed pain.<sup>13</sup> As several investigators<sup>14</sup> have used the VAS mode to judge attractiveness, use of the VAS mode in numbering esthetics should also grant uncomplicated, swift, and reproducible products. To date, there has not been sufficient data to sustain what is esthetically striking in the smiles of our population. This study paid attention on the effects of buccal corridors on smile charmness when judged by patients seeking orthodontic treatment. Age was not noteworthy in rating of buccal corridor preferences. Ratings patients belonging to different groups were not significant.

Our results matches with the opinions of many other investigators (Dierkes<sup>15</sup>; Blitz<sup>16</sup>; Sarver and Ackerman<sup>12</sup>, 2003) i.e small BCs are more desired, and also with the result of Moore et al. (2005) that general population favor smiles with no or small BCs. However, this is the first precise study to show that orthodontists also favor smiles with smaller or no BCs. notably, both the current study and that by Moore *et al*<sup>3</sup> tainted only the BC ratio from smile to smile, which abolished the possibility of other mystifying aesthetic Variables that could sway perceptions.

Distinctly these conclusions and agreeing with Dunn et al,<sup>17</sup> the results of this study demonstrated that varying buccal corridor widths appreciably affected smile beautifulness. Buccal corridor parameters have been discussed in the literature for some time and have been described by numerous

researchers as objectionable.<sup>18,19</sup> Other researchers have found that buccal corridor do not have an association to smile esthetics; this study ropes these conclusions.<sup>19</sup> This investigation is distinctive in that each smile was assessed twice, once with buccal corridor and once without buccal corridor, thus dropping error linked with choosing representative populations of each set. The outcome might also echo that the digital alterations were not significant sufficiently to produce a obvious effect on smile esthetics. The limitations or weakness of this study was not showing the raters the metaphors haphazardly that could introduce an order effect because the assessor is scared of giving a high score to a situation in case he finds the next upcoming image better. secondly this study was carried out in Peshawar dental college orthodontic department only & further study is required.

## Conclusions

Laypeople desire smiles with small or no buccal corridor. There are no gender or age group differences in buccal corridor attractiveness rating. A broad buccal corridor can be considered in the problem list while assessing patients pre-operatively for orthodontics.

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