

View Point

Anatomy of Smile in Haryanvi Males

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ABSTRACT

An attractive smile has always been the focal point of a person's attention to improve the aesthetic appearance and thus the self-esteem. In a vast majority of growing, cooperative patients, the smile can be greatly improved with orthodontic treatment. The principles discussed in this paper will aid an orthodontist to systematically and consistently deliver high-quality, stable results with beautiful smiles. Frequent improvements in natural beauty can be observed once the ideal relationship between the denture and the facial soft tissues is restored. The different characteristics of smile can also help in identification of an individual. The present study was conducted on 50 male patients, aged 18-25 years, at the Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak. Photographs were taken using a high-resolution digital camera. The following parameters of smile were noted in all the subjects: number of teeth exposed during full smile, midline relationship of central incisors with philtrum and the bilateral negative space. The maximum number of teeth exposed during full smile was 10 in 44% of the cases, followed by 12-16 in 26% of the cases, 8 in 30% of the cases and 6 in 0% of the cases. The midline relationship of the central incisors with philtrum was central in 42% of the cases, followed by right of the centre in 42% of the cases and left of the centre in 16% of the cases, while the bilateral negative space was normal in 74% of the cases, followed by increased space in 26% of the cases. The present study provides the baseline data of an aesthetic smile in the Haryanvi males. The baseline data may serve as a guideline for the restoration or enhancement of aesthetics of the anterior component of the dentition.

Keywords: Smile, Orthodontics, Aesthetics, Identification, Dentition, Philtrum

INTRODUCTION

Smile plays a significant role in facial attractiveness. It influences mating success, kinship opportunities, personality evaluations, performance and employment prospects, and it also influences personality development. The upper and the lower lips frame the display zone of the smile, bordering the dentition, the gingival scaffold and the space in the oral cavity.^[1] Dentists and orthodontists can greatly contribute to enhance a patient's smile, appearance and, subsequently, their self-confidence. In the present day, the 'art of the smile' is being driven by an orthodontist's ability to clinically examine a patient in three dimension and use the latest technology to document, define and communicate the

treatment strategy to the patients and colleagues involved in interdisciplinary care.^[2] Therefore, it is important to have an understanding of beauty and the artistic tools available to develop a beautiful smile. The teeth visible during smiling can also help in the identification of an individual.

MATERIALS AND METHODS

Inclusion Criteria

The subjects having full dentition were included in the study. However, the eruption of last molar was ignored in the subjects, as its eruption is variable and is not a dependable criterion.

Exclusion Criteria

- a) Subjects with deformity, injury, trauma, malformation, surgical scar and congenital abnormalities of the lips were excluded.
- b) Subjects who had migrated to Haryana from other places were excluded.

The photographs were taken using a high-resolution digital camera. The following parameters of smile were studied.

Number of Teeth Exposed during Full Smile

The number of teeth displayed in a smile was as follows:^[3,4]

- (i) 6 anterior teeth exposed (canine to canine)
- (ii) 8 (6 anterior teeth and first premolar)
- (iii) 10 (6 anterior teeth, first and second premolar)
- (iv) 12-16 (6 anterior teeth, first and second premolar and first molar)

The amount and position of the teeth revealed in various views and lip configurations also provide valuable guidelines in determining aesthetic tooth positions and relationships.

Midline Relation of Central Incisors with Philtrum

A practical and reliable method for locating the facial

midline, which normally coincides with the dental midline, is to use two anatomical landmarks - nasion and the base of the philtrum, known as the 'cupid's bow', in the centre of the upper lip.^[5] A midline through philtrum should ideally pass through the centre of the central incisors. It may pass right or left of the central incisor.

Bilateral Negative Space

The buccal corridor (BC) is more commonly referred by the orthodontists as the negative space present between the lateral aspects of the maxillary posterior teeth and the corner of the mouth during smile, which appears as a black or dark space. Again, the orthodontist's eye for beauty is an important factor in creating appropriately sized BCs.^[1]

RESULTS

The results of this experiment showed the following characteristics of smile in Haryanvis (Table 1).

1. The midline relation of the central incisors with the philtrum showed that the midline passed through the centre or right of the centre in most of the cases.
2. The number of teeth exposed during full smile was 10 (6 anterior teeth, first and second premolar) in majority of the cases.
3. The bilateral negative space was normal in majority of the cases.



Figure 1: a) Normal bilateral negative space. (b) Increased bilateral negative space

Table 1: Parameters of Smile

Parameters	Positions	Percentage
Midline relation of central incisors with philtrum	Centre	42
	Right of centre	42
	Left of centre	16
Number of teeth exposed during full smile	6	0
	8	30
	10	44
	12	26
Bilateral negative space	Normal	74
	Increase	26

DISCUSSION

In the present study, the most common midline relationship of central incisors with philtrum was centrally placed (42%), followed by right of the centre (42%) and left of the centre (16%) (Table 2). In the study conducted by Patnaik and Goel^[3] on the North Indian population, more than three-fourth of the females showed central relation of the central incisors with philtrum, while in Haryanvis, this is seen in less than 50% of the cases. The harmonious relationship of the central incisors with the philtrum imparts a desirable effect of ‘oneness’ of the dental composition with the smile.

Table 2: Midline relationship of central incisors with philtrum

Midline relation of central incisors with philtrum				
Authors	Region	Midline relation (%)		
		Centre	Right of centre	Left of centre
Patnaik and Goel ^[3]	North India	76.77	1.29	21.93
Present study (2013)	Haryana	42	42	16

In the present study, the maximum number of teeth exposed during full smile was 10 (44%), followed by 8 in 30%, 12-16 teeth in 26% and 6 teeth in 0% of the cases (Table 3). Our study did not follow the trend reported in the study of Tjan *et al.*^[4], which was conducted on the American population. They reported that maximum number of teeth exposed were 8 in 48.6% of the cases, followed by 10 (40.65%) and 12-16 teeth (3.74%). The study on the North Indian population conducted by Patnaik and Goel^[3] showed that maximum number of teeth exposed during full smile was 8 in 69.67% of the cases, followed by 6 in 21.29% and 10 in 9.03% of the cases. The different results observed in the above-mentioned studies could be explained on the genetic basis.

Table 3: Number of teeth exposed during full smile

Number of teeth exposed during full smile					
Authors	Region	No. of teeth exposed during full smile (%)			
		6	8	10	12-16
Tjan <i>et al.</i> ^[4]	California (USA)	7.01	48.6	40.65	3.74
Patnaik and Goel ^[3]	North India	21.29	69.67	9.03	-
Present study (2013)	Haryana	0	30	44	26

The present study revealed that the bilateral negative space was normal in 74% of the cases and increased in 26% of the cases (Table 4). The bilateral negative space was normal in 76.77% of the cases in the study on the North Indian females by Patnaik and Goel.^[3] According to Moore *et al.*,^[6] broader smiles with no BCs are more attractive than smiles with BCs. This indicates that both orthodontists and laypeople prefer smiles with no or small BCs over those with large BCs.^[6] The BC width was found to be least in subjects with attractive smile and maximum in subjects with least attractive smile, irrespective of sex.^[1] Reports show that BC has an effect on the aesthetic evaluation of smiles. Knowledge of the correlations between hard and soft tissue anatomy and smile aesthetics might add important clinical meaning to the orthodontic diagnosis and treatment planning.^[2]

Table 4: Bilateral negative space

Bilateral negative space			
Authors	Region	Space (%)	
		Normal	Increased
Patnaik and Goel ^[3]	North India	76.77	1.29
Present study (2013)	Haryana	74	26

CONCLUSION

In summary, an optimal smile is characterised by an upper lip with minimal or no lateral negative space; a commissural line and occlusal frontal plane parallel to the pupillary line; and harmoniously integrated dental and gingival components. Aesthetics is an inherently subjective discipline. By understanding and applying simple aesthetic rules, tools and strategies, the dentists have a basis for evaluating natural dentitions and the results of cosmetic restorative procedures. Macroaesthetic components of teeth and their relationship with each other can be influenced to produce more natural and aesthetically pleasing restorative care.^[7] These concepts of smile

aesthetics are not new, but are too often overlooked in orthodontic treatment planning. These components of the smile should not be considered as rigid boundaries, but as artistic guidelines to help orthodontists treat individual patients who are today, more than ever, highly aware of smile aesthetics.^[8]

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