

Study of Aesthetic Components of Smile in North Indian Males

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Abstract

Smile is an important physical factor for reflection of inner emotions and well being of person. People with an aesthetic smile are judged socially attractive. It would be useful to represent some desirable characteristics of the smile, which help to achieve desirable results in surgical and aesthetic oral rehabilitation. To analyze the various aesthetic components of smile, assessing the teeth displayed during smile, relationship between curve formed by incisal line of anterior maxillary teeth and the curve of lower lip, the touch of this incisal line on lower lip, the alignment of facial midline with the arch midline and compared the data with the previous studies. The study comprises of 200 North Indian males age group 18-40 years. Prior informed written consent for this study was obtained from the subjects. The exclusion and inclusion criteria for the subjects were predefined. Photographs were taken both in rest position as well as in Smile position using digital camera with high resolution. Results show that during smile the position of upper lip was average in 49% of males, alignment of upper incisal edge to lower lip was convex in 47%, tooth lower lip was non touching in 60%, no. of teeth displayed during smile was 8-10 in 68%, midline from philtrum passing through the centre of central incisors in 76% and bilateral negative space was not visible in 92% males. So, it is concluded that smile is aesthetic in North Indian males.

Keywords: Aesthetic, Lip, North Indian Male, Teeth, Smile

1. Introduction

Smile is an important factor in the presentation of a human being which favors his or her social acceptance. it is one of the most attractive facial expressions which demonstrates the gesture of person. It is uniquely a human feature. Lips form the frame of smile and defines the aesthetic zones. The word aesthetic means the pleasant sensation of beauty in nature. ^[1] Psychosocial well being of a person depends upon the dentofacial attractiveness. Dentofacial attractiveness is harmonious interrelationship of face symmetry with the position and exposure of anterior teeth, midline of lips, location and shape of smile line, gingival, buccal corridor and outline

of vermillion border of lips. These are possible aesthetic factors of smile which may considerably affect a person's smile and facial aesthetics. These are harmoniously interrelated to each other and form the basis of aesthetic smile. This study formulates a standard position of upper and lower lip during active smile, desirable characteristics of smile which may serve as a guideline for restoration or enhancement of aesthetic and plastic surgery.

2. Material and Methods

The present study done on 200 North Indian males belonged to (J&K, Punjab, Haryana, Himachal Pradesh, Rajasthan, Uttar Pradesh, Uttarakhand, Delhi) chosen by

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simple random method. Subjects aged between 18-40 years having full dentition were included. Eruption of last molar was ignored as eruption of 3rd molar is variable.^[2] Those with congenital anomalies, deformities, under orthodontic treatment, trauma and any history of surgery (operations for cleft lip and cleft palate) of or around lips were excluded. An informed written consent both in English and vernacular of all the subjects was obtained. The objectivity of the data was ensured by taking measurements directly from the subject instead of from photographs, which are less reliable.^[3]

A beautiful and aesthetic smile has following vital parameters suggested by Patnaik et al.,^[4] and Solomon.^[5]

1. **Three types of smile based on Position of upper lip while smiling** - (Figure 1) High smile - If gingiva is visible. Average smile- This is one of the feature of aesthetic smile. In this upper lip covers upper 25% of maxillary teeth or just remains at the junction of gingival and teeth. Low smile - in this upper lip covers more than 75% of maxillary teeth.
2. **Three types of smile based on alignment of upper incisal edge to lower lip** - (Figure 2) Convex smile line is a positive smile line and give pleasantness to smile. The concave smile line is a negative smile line. Straight smile line can have a positive or negative effect depending on its relationship to the lip curvature.
3. **Two types of smile in Maxillary Teeth-Lower lip position** - (Figure 3) Touching - For an aesthetic smile contact between vermilion border of lower lip and incisal edges of maxillary teeth should preferably be present.

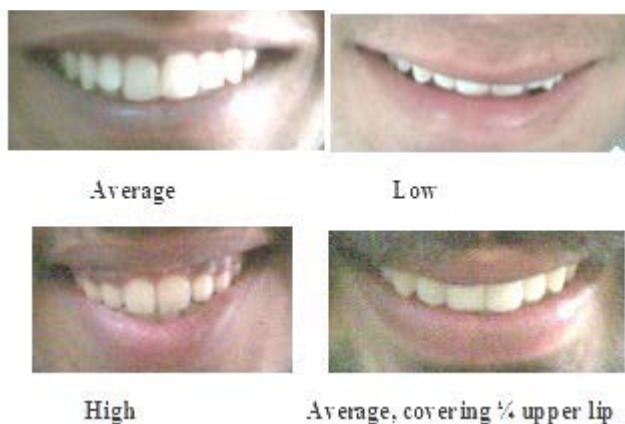


Figure 1. Three types of smile based on Position of upper lip while smiling.

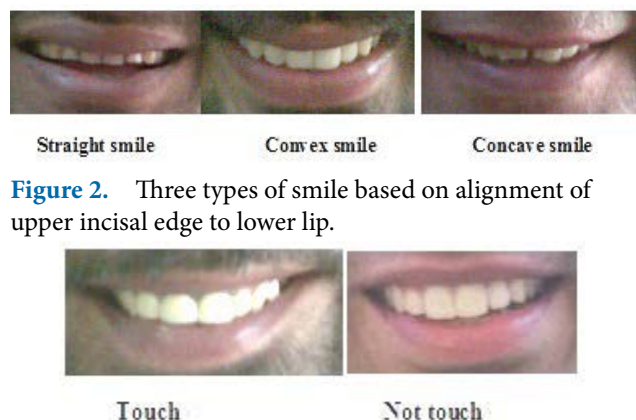


Figure 2. Three types of smile based on alignment of upper incisal edge to lower lip.

Figure 3. Two types of smile in Maxillary Teeth-Lower lip position

Non touching - There may be a slight gap during smile.

4. **Number of teeth exposed during full smile** - (Figure 4) canine to canine (6 teeth exposed); premolar to premolar (8-10 teeth exposed); molar to molar (12-16 teeth exposed). Best position is premolar to premolar.
5. **Midline relationship of central incisors to philtrum** - (Figure 5) In aesthetic smile midline through philtrum passes through the center of the maxillary central incisors. It may pass through right or left of the center of central incisors.
6. **Bilateral negative space** - (Figure 6) Under normal condition, there is little space visible between angles of mouth and teeth while smiling. This is called bilateral negative space. If the inner mucosa of cheek is visible during smile, it is called increased bilateral negative space.

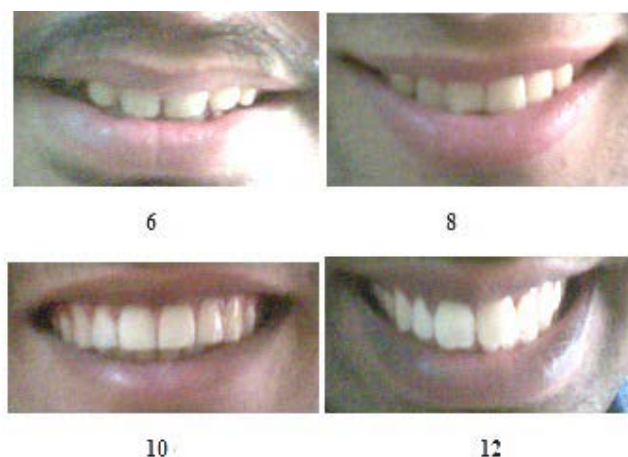


Figure 4. No. of teeth exposed during smile in males.



Figure 5. Midline relationship of central incisors to philtrum.



Figure 6. Bilateral negative space.

3. Results

Maximum number of subjects showed average type of smile, alignment of upper incisal edge to lower lip was convex. Maxillary teeth were not touching vermilion border of lower lip, 8-10 teeth were exposed during smile, Midline relationship of central incisors to philtrum was central. No increased bilateral negative space was normal. So, North Indian Males fulfill the criteria of beautiful smile.

4. Discussion

The present study showed that the position of upper lip while smiling was maximum number of subjects had average type (49%), then low type (36%) and the least was high type (15%) smile. The alignment of upper incisal edge to lower lip was convex (47%), followed by straight (45.5%) and concave curve (7.5%). The study coincided with the previous studies^[6,7] conducted on American population as well as on North Indian population as shown in Table 2. They also had the same pattern of variabilities of various positions of smile. Esthetically, Average and convex smile are the criteria of best smile. In present study 28.5% subjects showed the maxillary teeth were just touching the lower lip while in 60% subjects maxillary teeth were not touching lower lip. In present study more than 50% population showed non touching type smile while in Americans less than 50% population had not touching type smile, this may be due to racial differences. Certain factors like variations in the contraction and tone of muscle groups of lips and surrounding area play an important role in the creation of different smiles. Vigorous contractions pull down the lower lip, increasing tooth exposure. Individuals with intense contractions of

Table 1. Showing different parameters of present study

Parameter (while smiling)	Position	North Indian Males [n (%) = 200]
1. Position of upper lip	a) Average	98 (49%)
	b) High	30 (15%)
	c) Low	72 (36%)
2. Incisal edge to lower lip	a) Convex	94 (47%)
	b) Straight	91 (45.5%)
	c) Concave	15 (7.5%)
3. Tooth- lower lip position	a) Touching	57 (28.5%)
	b) Not touching	120 (60%)
	c) Slightly covered	23 (11.5%)
4. No. of teeth exposed	a) 6	50 (25%)
	b) 8-10	136 (68%)
	c) 12-16	14 (7%)
5. Midline relationship of central incisors to philtrum	a) Centre	152 (76%)
	b) Right	06 (3.0%)
	c) Left	42 (21%)
6. Bilateral negative space	b) Normal	185 (92.5%)
	c) Increased	15 (7.5%)

Table 2. Comparison of various positions of smile of present study with previous study

Parameter (while smiling)	Position	Patnaik et al6 (n= 95)	Tjan et al7 (n=207)
1. Position of upper lip	a) Average	45.26%	63.28%
	b) High	7.36%	6.76%
	c) Low	47.36%	29.95%
2. Incisal edge to lower lip	a) Convex	49.49%	83.57%
	b) Straight	48.10%	14.49%
	c) Concave	2.10%	1.93%
3. Tooth - lower lip position	a) Touching	20%	39.31%
	b) Not touching	63.15%	43.35%
	c) Slightly covered	16.84%	17.34%
4. No. of teeth exposed	a) 6	17.84%	-----
	b) 8 - 10	73.68%	-----
	c) 12 -16	8.42%	-----
5. Midline relationship of central incisors to philtrum	a) Centre	80%	-----
	b) Right	5.26%	-----
	c) Left	14.73%	-----
6. Bilateral negative space	a) Normal	96.84%	-----
	b) Increased	3.16%	-----

the lower lip tend to also expose their lower teeth. This situation can vary among individuals.^[8]

The position of upper lip, lower lip and teeth exposure regarded as the determining factor for evaluation of esthetic smile.

Maximum subjects 68% showed 8-10 teeth during smile which coincided with previous study done by Patnaik et al.,^[6] 76% male subjects of present study showed midline passing through centre of central incisors, while 21% showed left deviation and only 3% showed right deviation (Table 1). No bilateral negative space was visible in 92.5% of males (Table 2). It was coincided with Patnaik et al.,^[6] study. Now these days people are also more aware of esthetics, especially smile. The lips are forming an important part of the face, any modifications in this area can have a dramatic change on facial appearance. To analyze soft tissue data as in planning of esthetic smile surgery it is mandatory to know about actual as well as desired soft tissue dimensions. The functional importance is the fundamental goal of reconstruction, obtaining the best aesthetic outcome should be a secondary goal. So, Aesthetic considerations are paramount in treatment planning; but rigid rules cannot be applied to this process because almost unlimited variety of faces could be esthetic.^[9]

Accordingly, it is important to have general guidelines that aid the clinician to optimize the dentofacial esthetics, while satisfying other treatment goals.

5. Conclusion

It has been concluded from this study that an average smile in North Indian males exhibit approximately 3/4th or full length of maxillary teeth, has the convex incisal curve of the teeth parallel to the vermilion border of the lower lip, has the incisal curve of the upper incisors touching or not touching the lower lip, displays the eight to ten maxillary teeth, midline passes through centre of central incisors, no bilateral negative space is visible. It is inferred from the present study that smile is more esthetic in North Indian males.

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