



## A STATISTICAL STUDY REGARDING SMILE ATTRACTIVENESS FROM PATIENT'S PERSPECTIVE

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**Abstract:** Smile is one of the most important facial expressions essential in expressing friendliness, agreement and appreciation (Tjan et al. 1984). The aesthetic analysis of the smile represents an important step in the diagnosis, treatment and prognosis of any dental disease involving aesthetic objectives<sup>1</sup>. The goal of this study is to determine the comparative perception of the smile aesthetics at the level of other persons not trained in this field. 510 persons, between 19 and 45 years old, from the Victor Babeş University of Medicine and Pharmacy, Timișoara, Department of Dentofacial Aesthetics, were analysed. The inclusion/exclusion criteria were predefined for this study. Two persons not trained in this field rated then the attractiveness of the smile of patients on a scale from 1 to 4. A database was created in Microsoft Excel and a statistical analysis was performed. At the level of the questioned persons, for the ratings of 2 ( $p = 0.017497$  S) and 3 ( $p = 0.024934$  S) there were significant opinion differences from an aesthetical point of view. The aesthetic references studied are offered for guidance and have to consider that each person is unique in its own way. Regardless of the clinical state, the most important thing remains restoring proper functionality, and aesthetics will never be considered a top priority in the detriment of function.

**Key words:** aesthetic perception, smile, incisal edge, dental midline

### 1. INTRODUCTION

The orthodontic literature contains more studies on skeletal structure than on soft-tissue structure, and the smile still receives relatively little attention (Farkas et al., 1984). The way in which patients perceive their own smile while watching themselves in the mirror differs a great deal from the way in which the orthodontist analyses the position of teeth in occlusion using mouth spreaders (Patnaik et al., 2003). This is why, for a proper aesthetic analysis it was proposed that, when taking a photograph with the smile of the patients, the head of the patient has to be in a normal position, looking in front, towards a distant point (Moore et al., 2005; Flores Mir et al., 2003; Ackerman et al., 2002). To capture a natural, free smile of the patient, several photographs will be taken, out of which the one that best corresponds to the real situation will be selected, more precisely that of the natural smile (Farkas et al., 1984; Goldstein et al., 1998).

### 2. MATERIAL AND METHOD

The study was made on a group of 510 persons, of which 375 women and 135 men, with ages between 19 and 45, from the *Victor Babeş University of Medicine and Pharmacy*, Timișoara, Department of Aesthetic Dentistry, all having permanent dentition. Those who had or were having an orthodontic treatment were excluded from the study. The

persons with different degrees of anomalies, malformations or surgeries for facial scars, clefts, etc. were also excluded. The presence of the wisdom teeth was not taken into consideration in determining the type of dentition. In order to do this, the photographs chosen from a set of several entries, which best represented the natural smile, were aesthetically analysed.

Two persons not trained in this field analysed each photograph based on the attractiveness of the smile, by rating them on a scale from 1 to 4 as follows:

- Pleasant smile 1
- Quite pleasant smile 2
- Quite unpleasant smile 3
- Unpleasant smile 4

The statistical analysis of the data was made on a computer, based on the file created in Microsoft Excel with specialised software: SPSS 10, OpenEpi and Epi Info 6.04.

### 3. RESULTS AND DISCUSSION

The group comprised 385 females representing 75,5% and 125 males representing 24,5% with middle ages of 23,73+/-3,416(19,45). The detofacial analysis showed a convex curve of the incisal edge to lower lip, considered the ideal situation in 47,1% of cases and straight incisal edge to lower lip in 45,3% of cases. The concave curve of the incisal edge was observed in 6,1% of cases and a covered incisal edge was shown in 1,6% of cases. The upper lip was high in 56,7% of cases, average in 36,1% of cases and low in 7,3% of cases.

Most of the patients exposed during smiling between 6 and 8 teeth which can be the result of shy nature of people in front of camera and the dental midline was centered in 59% of cases with the facial midline. The results are presented in table 1 and graphically in fig. 1, 2, 3 and 4.

Nr	Parameter	Observation	Frec	Percent
1	Incisal edge to lower lip	Convex curve(A)	240	47,1%
		Straight (B)	231	45,3%
		Concave curve(C)	31	6,1%
		Covered(D)	8	1,6%
2	Upper lip	Average(E)	184	36,1%
		High(F)	289	56,7%
		Low(G)	37	7,3%
3	Number of teeth exposed during smiling	6-8(H)	351	68,8%
		9-11(I)	117	22,9%
		12-14(J)	42	8,2%
4	Midline relation of central incisors to facial midline	Centered (K)	301	59%
		Right of center (L)	152	29,8%
		Left of center (M)	57	11,2%

Tab. 1. Presents the results of the dentofacial analysis

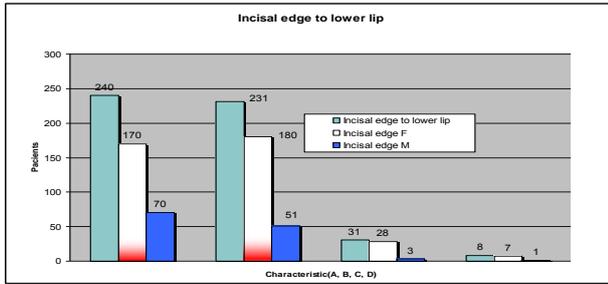


Fig. 1 presenting the distribution of the incisal edge to lower lip during smiling among sexes

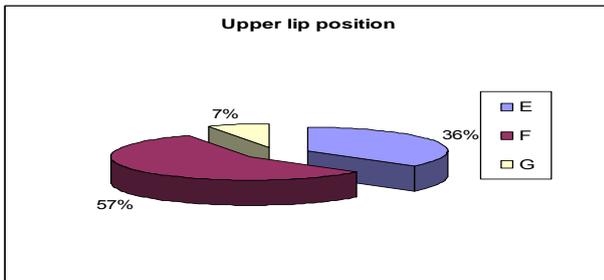


Fig.2 Presenting perceptual distribution of upper lip position

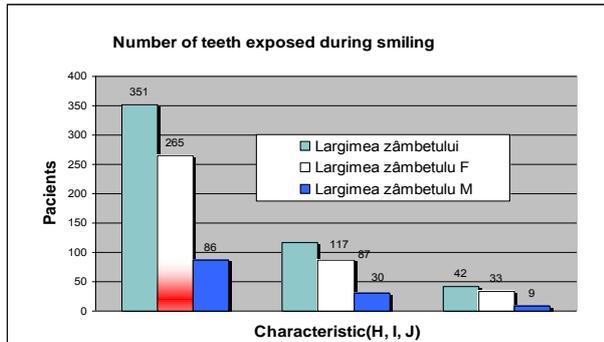


Fig.3 Presents the distribution among sexes of the number of teeth exposed during smile

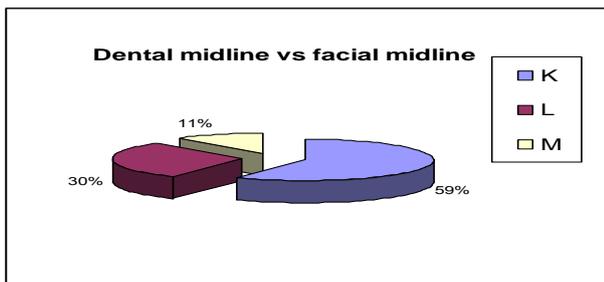


Fig. 4. The procentual distribution of midlinie position

Among the persons questioned, for the ratings of 2 ( $p = 0.017497$  S) and 3 ( $p = 0.024934$  S) there were significant opinion differences from a statistical point of view (Table 2). This proves that beauty is relative, and that what one person considers aesthetic, the other may consider less attractive.

	Frecv.	Procent	Frecv.	Procent	p	Semnificația
1	206	40,4	209	41,0	0.848358	NS
2	217	42,5	180	35,3	0.017497	S
3	74	14,5	101	19,8	0.024934	S
4	13	2,5	20	3,9	0.215439	NS
Total	510	100,0	510	100,0		

Tab. 2. The results of the statistical comparative analysis P1 -P2

### 3. CONCLUSIONS

It still is unclear how laypeople evaluate smile esthetics (Parekh *et al.*, 2006). There are many potential distracters and interactions among different smile characteristics. Substantial variability is reported in the existing literature on this topic.

The components of the smile should be considered not as rigid boundaries, but as artistic guidelines to help orthodontists treat individual patients who are today, more than ever, highly aware of smile esthetics.

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