

# International Journal of Research in Health and Allied Sciences

Journal home page: [www.ijrhas.com](http://www.ijrhas.com)

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

## ORIGINAL RESEARCH

### ASSESSMENT OF SMILE TYPE IN KNOWN POPULATION- A CLINICAL STUDY

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#### ABSTRACT:

**Background:** Dento-facial aesthetics has an important role in dental practice of the contemporary era, reflected by increasing demands for more cosmetic and aesthetic procedures by the patients. The present study was conducted to assess different smiles in known population. **Materials & Methods:** 108 subjects of both genders were enrolled. Parameters such as smile line, smile arc and smile type was assessed. **Results:** Out of 108 patients, males were 50 and females were 58. Smile line was low in 30, average in 46 and high in 32, smile arc was consonant in 48, straight in 40 and reverse in 14 and smile type was commissure in 38, cuspid in 52 and complex in 18. The difference was significant ( $P < 0.05$ ). **Conclusion:** In most of the subjects smile line was average, smile arc was consonant and smile type was cuspid.

**Key words:** Smile line, Cuspid, Smile type

Received: 12 November, 2020

Accepted: 21 November, 2020

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**This article may be cited as:** Purohit J, Gupta A, Gupta D, Purohit P. Assessment of smile type in known population- a clinical study. Int J Res Health Allied Sci 2020; 6(6):79-81.

#### INTRODUCTION

Dento-facial aesthetics has an important role in dental practice of the contemporary era, reflected by increasing demands for more cosmetic and aesthetic procedures by the patients.<sup>1</sup> The perception of beauty varies according to individual preferences and influenced by the ethnic or cultural background. In order to achieve an optimum aesthetic result in oral rehabilitation, the crucial steps involving proper pre-treatment workup, diagnosis and treatment planning cannot be overlooked.<sup>2</sup>

Smile is defined as a happy or friendly expression on the face with ends of mouth curving up slightly with display of teeth accompanied by brightening eyes.<sup>3</sup> Smile is considered as a first-rate human interaction due to color contrast present in teeth, gingivae and lips.<sup>4</sup> The features included in ten commandments of smile are vertical positioning of maxillary incisors at smiling, width-height ratio of incisors, proportionate distribution between maxillary anteriors, no diastema, proper level of gingival margin, intermediate buccal corridor, minimal gingival exposure, minimal midline

and tooth angulation, ideal color and anatomical shape and lip volume. During smile, maxillaries are separated, and a dark space develops between upper and lower teeth, also known as negative space.<sup>5</sup> The norms for these smile characteristics may differ in different populations thus the ethnicity should also be taken into account as a variable. The present study was conducted to assess different smiles in known population.

#### MATERIALS & METHODS

The present study was conducted among 108 subjects of both genders. All were enrolled after explaining them the purpose of the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Smile line, smile arc and smile type was assessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

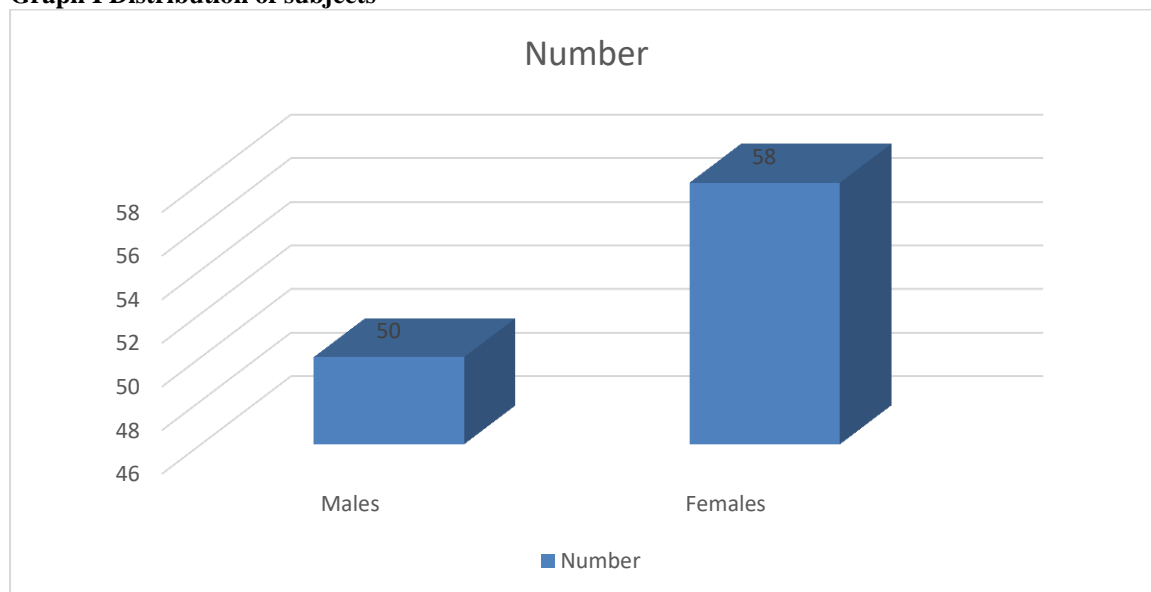
**RESULTS**

Table I shows that out of 108 patients, males were 50 and females were 58.

**Table I Distribution of subjects**

Total- 108		
Gender	Males	Females
Number	50	58

**Graph I Distribution of subjects**

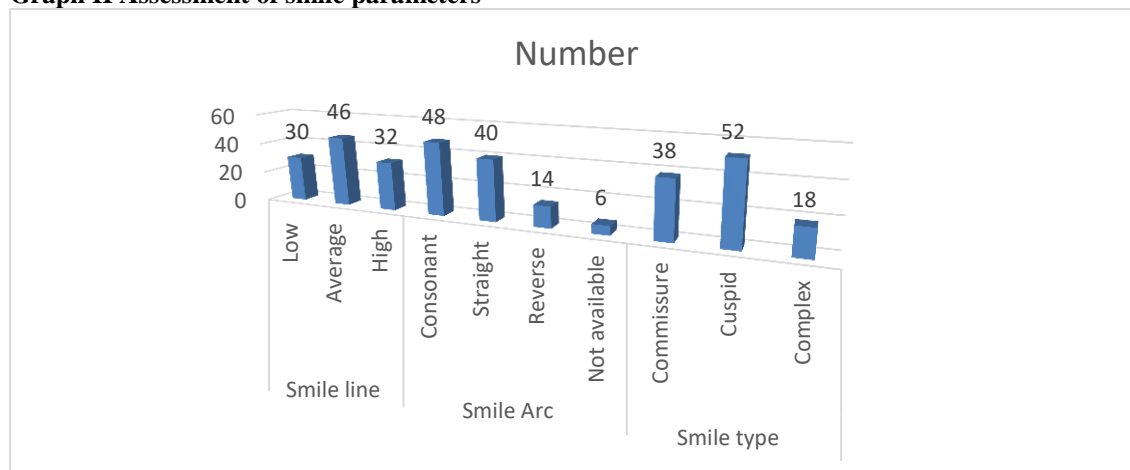


**Table II Assessment of smile parameters**

Smile parameters	Variables	Number	P value
Smile line	Low	30	0.61
	Average	46	
	High	32	
Smile Arc	Consonant	48	0.04
	Straight	40	
	Reverse	14	
	Not available	6	
Smile type	Commissure	38	0.02
	Cuspid	52	
	Complex	18	

Table II, graph II shows that smile line was low in 30, average in 46 and high in 32, smile arc was consonant in 48, straight in 40 and reverse in 14 and smile type was commissure in 38, cuspid in 52 and complex in 18. The difference was significant ( $P < 0.05$ ).

**Graph II Assessment of smile parameters**



## DISCUSSION

Smile is a facial expression that usually indicates pleasure, friendliness and gratitude. Analysis of smile is imperative in the diagnosis and treatment planning phases of prosthodontics and aesthetic dentistry.<sup>6</sup> According to neurological control, smile can broadly be divided into involuntary (spontaneous) and voluntary (posed) smile. An involuntary smile is related to emotion, whereas the posed (social) smile is intentional and usually not related with emotion. There are a number of parameters that constitute the natural smile of an individual. These include smile line, smile arc, smile design, upper lip curvature, labiodental relationship, teeth display, buccal corridor, and position of incisal edge.<sup>7</sup> In addition, dental-facial midline, symmetry, gingival display and gingival zenith position also play an important role in the aesthetic appraisal of smile. All these factors must be taken into account while designing a smile makeover. Furthermore, the norms for these smile characteristics may differ in different populations thus the ethnicity should also be taken into account as a variable.<sup>8</sup> The present study was conducted to assess different smiles in known population.

In present study, out of 108 patients, males were 50 and females were 58. Khan et al<sup>9</sup> evaluated the components of smile among students of a dental institution. Frontal view digital photographs with posed smile of 157 dental students were assessed using Adobe Photoshop7.0. Smile characteristics evaluated included; smile line, smile arc, smile design, upper lip curvature, labiodental relationship and number of teeth displayed. Average smile line (43.3%), consonant smile arcs (45.2%), cuspid smiles (45.9%), upward lip curvature (43.9%), maxillary anterior teeth not covered by lower lip (60.5%) and teeth displayed up to first premolars (35.7%). Gender based differences were not statistically significant except for smile arc (p value = 0.02) and number of teeth displayed (P < 0.001). There was a significant relationship between lip curvature and smile pattern (P < 0.001) and lip curvature and smile arc (p value = 0.01) revealing that upward lip curvature was associated with commissure type smiles and consonant smile arcs.

We observed that smile line was low in 30, average in 46 and high in 32, smile arc was consonant in 48, straight in 40 and reverse in 14 and smile type was commissure in 38, cuspid in 52 and complex in 18. Basnet et al<sup>10</sup> in their study the prevalence of different characteristics of smile was assessed. The standardized digital photographs of 529 participants were collected and transferred to personal computer in which the different characteristics of smile were visually inspected. Smile with average upper lip position (54%) straight upper lip curvature in smile

(46.9%), parallel incisal line to upper border of lower lip (51.8%) and incisal edges of maxillary dentition not touching to lower lip (62.4%) were most occurring characteristics with statistically significant prevalence of gingival and mucosal smiles amongst females.

In the study done by Al-Johany et al<sup>11</sup>, 42% female celebrities have this feature. Others also reported 'not touching' feature as most prevalent in both genders. In Indian population, who share many anthropometric characters to Nepalese population, have 'touching' relationship in about 41% of the studied sample.<sup>12</sup>

## CONCLUSION

Authors found that in most of the subjects smile line was average, smile arc was consonant and smile type was cuspid.

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