

**PREVALENCE OF GUMMY SMILE IN A SAMPLE OF EGYPTIAN  
POPULATION AND LAYMEN PERCEPTION OF ITS  
ATTRACTIVENESS**

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**ABSTRACT:**

**Aim of the study:** this study aims at evaluating the prevalence of gummy smile in a sample of Egyptian population and the perception of Laymen of the attractiveness of that smile. **Materials and methods:** 346 volunteer students were randomly selected of age range 17-25 years. They were asked to smile in a posed fashion and the amount of gingival display, if any, was measured. Standardized digital photographs were taken for the students who had gummy smile and then they were shown to a panel of 100 laymen. The laymen judged the attractiveness of the smile on a visual analogue scale. **Results:** 11.8% of the sample had gummy smile with a mean of 1.0mm, 68.3% of them were females. 24.4% of the gummy smiles were judged as attractive and 63% of the judges considered them as attractive. **Conclusion:** gummy smile is not prevalent among Egyptians and contrary to a previous belief is perceived as attractive among laymen. Orthodontists must modify their treatment plans to better serve trending beauty demands.

**Keywords:** gummy smile, gingival smile, gingival display, smile esthetics.

**INTRODUCTION**

The attractiveness of the smile has been tackled from many aspects throughout time starting from discussing the golden proportion<sup>10,21,24</sup>, its

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strengths and failures<sup>6,15,25</sup> to discussing the smile line<sup>2,17</sup>, smile arc<sup>22,23</sup>, incisor display upon smiling<sup>3,11,18,20</sup>. Relatively little attention though was given to the gummy smile along the literature especially when it comes to the Egyptian population. Nevertheless, one study was conducted by the author in 2005<sup>5</sup> on some esthetic aspects of the smile of Egyptians and it included some mention to the gingival display among many other things; however it was not the main topic of interest. Hence, in this study the prevalence of gummy smiles during posed smile in a group of Egyptian volunteers was investigated. Since beauty is in the eye of the beholder, it was important to investigate laymen's perception of the attractiveness of such a smile.

## **MATERIALS AND METHODS**

A sample of 346 students was collected randomly from a group of volunteer students of an age range 17-25 years.

The students were asked to smile in a posed fashion without strain and were coached to achieve the same lip configuration at least twice successively before any measurements were taken<sup>18,23</sup>. The amount of gingival display, if there was any, during the posed smile was measured clinically using a digital caliper. It was measured from the midpoint on a line connecting the most superior point at the gingival margin of both central incisors to the most inferior portion of the upper lip on the vermillion tip of Cupid's bow<sup>5</sup> (figure1).

Photographs were taken using a digital camera for those students who had any gingival display at all during the posed smile. The head and camera position were standardized according to a routine suggested by Claman et al<sup>4</sup>. For the head position, the interpupillary line was parallel to the horizontal plane, the distance from the outer canthus of the eye to the hairline was visually equal on both sides and the line from the outer canthus of the eye to the superior attachment of the ear (C-SA line) was parallel to the horizontal plane to prevent tilting of the head. As for the camera position, the ideal position was when a line from the middle of the lens to the eye is parallel to the horizontal plane to prevent the

appearance of a tilted head and the lens was centered between both eyes to produce an equal space visible between hairline and outer canthus of the eye on both sides.

A timed power point presentation was then created where the students' eyes were covered. The presentation was then shown to a panel of 100 laymen for evaluation of the level of attractiveness of the gummy smile on a visual analogue scale.

The data were collected: means, standard deviations and percentages were calculated.



**Figure 1**

## **RESULTS**

The results of the sample showed that 41 of the 346 volunteers had gingival display upon smiling which accounts for 11.8% of the sample. Their mean gingival display was 1.0 mm and the standard deviation was 0.56 (Table 1). 68.3% of them were females and 31.7% were males. The females had a mean of 0.74 mm gingival display while the males had a mean of 0.28 mm (Table 2).

When the results of the laymen panel of judges were calculated, it was found that 63% of them considered gummy smile as an attractive smile, 20% considered it very attractive and 17% not attractive (Table 3).

Of the 11.8% gummy smiles 61% were judged as very attractive, 24.4% attractive and 14.6% not attractive as shown in Table 3.

**Table 1:** Descriptive statistics showing frequency, mean and standard deviation.

Number of sample	Gummy smile %	Mean gingival display(mm)	Standard deviation
346	11.8%	1.0mm	0.56

**Table 2:** Female and male percentages in the gummy smile sample.

	Females	Males
Gummy smile %	68.3%	31.7%
Mean gingival display(mm)	0.74mm	0.28mm
Standard deviation	0.72	0.51

**Table 3:** Laymen panel judgments and gummy smile percentages.

	% of laymen judges	% of gummy smiles
Not attractive	17%	14.6
Attractive	63%	24.4
Very attractive	20%	61%

## DISCUSSION

The aim of this study was to find the prevalence of gummy smile in a sample of the Egyptian population and rate the level of attractiveness of this gumminess in the eyes of laymen.

The prevalence of gumminess in this study was found to be 11.8% which was more than that found in a previous study in 2005 conducted by the author on Egyptians as (9%)<sup>5</sup>. This could be attributed to the larger sample size in this study, or perhaps a change in the population pattern along the years. On the other hand, it was far less than that found in young Chinese which was 72.7%<sup>12</sup>. Nevertheless, in this population the spontaneous smile was evaluated rather than the posed smile as in this study.

In addition, the mean gingival display has increased from 0.2mm to 1.0mm compared to our previous study<sup>5</sup>. The 1.0mm mean display was less than that reported by Rigsbee et al<sup>20</sup> which may be a result of ethnic differences as well as time difference and population changes.

The frequency of female subjects with gingival display was 68.3% in contrast to that found in our previous study<sup>5</sup>, which could be assigned to secular trends. On the other hand, this was in agreement with other studies<sup>19,20</sup>.

It was reported in the literature that gummy smiles are not as objectionable to people as orthodontists and oral surgeons might imagine<sup>26</sup> and that it was pleasing in the eyes of the public to have gummy smiles<sup>19</sup>. In 2011, Guo et al<sup>8</sup> found that a range of 0.09-2.35 gingival display upon smiling was considered as an acceptable range by lay persons. Hunt et al<sup>9</sup> showed that from 0-2 mm was considered beautiful while more than 2 mm was considered not beautiful and Abu Alhajja et al<sup>1</sup> agreed with him. These studies were consistent with our study in which 63% of the laymen found that gummy smiles with a mean of 1.0mm were attractive while 20% found them very attractive and only 17% found them not attractive. On the other hand, a few studies reported that as the amount of gingival display increased upon smiling it was scored less attractive<sup>7,13</sup>.

When the findings of the current study were compared to those of our previous study<sup>5</sup>, it was found that the results contrasted each other. In this study, 61% of the gummy smiles were judged as very attractive, 24.4% attractive and only 14.6% as not attractive, while in the previous study only 23.5% were considered as beautiful by the judges. The reasons to this high contrast in opinions could be attributed to the great technological revolution which allowed people to open up to the world resulting in an intercultural exchange of opinions and thoughts, nourishing the Egyptian population with different beauty concepts from different civilizations.

To conclude our study, gummy smiles are not so prevalent among Egyptians, and peoples' tastes change by time. The perception of laymen to what is attractive or not could be affected by many factors; the most important of which are secular trends and intercultural exchanges. Accordingly, orthodontists should be always updated with changes in people's tastes to be able to modify their treatment plans to better serve trending beauty demands.

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