ABSTRACT

Introduction: Living in a beauty conscious society, the mouth, a focal point of the face, plays a major role in how we perceive ourselves and in the impression we make on the people around us.

Esthetic perception varies from person to person, being influenced by each person’s personal experience and social environment. In the process of providing esthetic treatment for a patient, one should not only rely on one’s eyes and personal perception of beauty, but also be guided by the patient’s desires. Hence, the measurement of the perception of beauty in dentistry is fundamental for providing scientific data that can guide diagnosis and treatment planning.

Aim: This study aims at evaluating the changing trends of esthetic dentistry with the perception of people.

Materials and methods: The study using a visual pictorial questionnaire was conducted among 100 students of Nair Hospital Dental College, Mumbai, Maharashtra, India in February 2013, consequently repeated in October 2013. The scores were averaged and calculated to record the probability prevalence of the same.

Results: A marked shift from the conventional principles of smiles design has been witnessed showing a changing perception of people contrasting to the esthetic norms.

Conclusion: An equal importance needs to be given to the patient’s desire combined with the dentist’s knowledge and experience of esthetics to deliver efficient and appreciable esthetic outcomes.

Keywords: Esthetics, Perception of smile, Restorative dentistry, VAS.

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Conflict of interest: None

INTRODUCTION

‘The perfect smile’ as portrayed by media has pushed the idea ‘beautiful is better’.1,2 The publicized influence of dental appearance over the quotient of physical attractiveness and social interaction is now an illustrated fact.

Although indebted by educational experience, clinicians should be able to anticipate to the unconventional understanding of beauty, harmony, balance and proportion as perceived by society to which they are subjected.2,4

The patient’s self-image plays an essential role in clinical treatment decisions and in the dentist’s esthetic judgment.5-8

Hence, the measurement of what is beautiful or the perception of beauty in dentistry is fundamental for providing scientific data that can guide diagnosis and treatment planning.

Esthetic perception varies from person to person, influenced by their personal experience and social environment, cultures and geographic locations.9,10

Dating back to the classic first study by Dr Ronald Goldstein published in 1969 to the modern review by Jornung published in JADA, little information exists about either how dental patients, not necessarily seeking esthetic treatment perceive their own smiles or people’s perceptions of the ideal smile. Several authors evaluated the esthetic perception of various malocclusions, dental asymmetries on smile esthetics. But tracking the trends of principles of smile design, it is necessary to have a knowledge about the perception of the society we are a part of.11-18

This study is an attempt to try and gauge the perception of smile among the Indian undergraduate students in the field of dentistry and esthetics based on the various principles of smile design. But, something critical to note along with the perception was the rational to obtain those blissful moments of beauty.

MATERIALS AND METHODS

The study was conducted among 100 students of Nair Hospital Dental College, Mumbai, Maharashtra, India, in February 2013, consequently repeated in October 2013. The students were provided with informed consents.
before beginning the survey questionnaire. The students where then given a printed questionnaire which had corresponding visual pictorial questions displayed in front of them using a projector. They were asked to mark their choice with a right mark and score it on a visual analog scale (VAS), scale of 1 to 10 on the printed questionnaire sheets.

All of the students were adults and Indians. The statistical analysis were done using the analyze—its three software with the level of significance set as p ≤ 0.05.

RESULTS

The students chosen had been exposed to a wide range of patients as a part of clinical hours in their the undergraduate dentistry program. The average age of the students was 20.5 years (20–21 years). Eighty-one were females and 19 males.

Beginning the survey by gauging their confidence levels, 80 students ascertained their self-belief when they smiled, complimented by facts featuring a neutral consensus for an anticipated whiter shade among females and males (Table 1).

The present study also displayed a slight preference for a balanced and delicate tooth form by the students, scaling a VAS score of an average of 7 to 7.1, over the rest though the pearly tooth form fell short over the others scoring a VAS score of 4.2. But when the tooth form was camouflaged with soft tissue esthetic, all the tooth form received an almost equal share of appreciation, with balanced and strong tooth form obtaining a slight preference (Table 2).

The perception over the shade preference, tooth form, tooth exposure as well as visibility while smiling were tabulated with results of the preferred lip line and buccal corridor visibility, all of which explained the change in the perception over the years (Tables 3 to 6).

DISCUSSION

The budding popularity of cosmetic dentistry has augmented the professionals long standing desire to replicate nature when restorative dentistry is indicated.

The patient’s perception, a fundamental entity in the effort to create natural esthetic, needs to be speculated by the clinician to produce uncontemporary results. Individual attributes of a tooth may represent a part of the story because teeth do not exist individually and separate from patient to whom they belong. Combinations of tooth forms when position together can create an effect that is greater than equal to or less than the sum of the essential ingredients of a smile design. A beautiful smile has been governed by various principles which are overpowered by perception of the patient, dentist, society, etc.19

### Table 1: Number and percentage of students that gave a positive reply to the questions

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Females</th>
<th>Males</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>If students liked their smile like an actor?</td>
<td>67 (82.7)</td>
<td>14 (73.7)</td>
<td>0.876</td>
</tr>
<tr>
<td>If students are confident about their smile?</td>
<td>65 (80.2)</td>
<td>15 (78.9)</td>
<td>0.3515</td>
</tr>
<tr>
<td>If students wish to have a brighter smile?</td>
<td>55 (67.9)</td>
<td>10 (52.6)</td>
<td>0.7715</td>
</tr>
</tbody>
</table>

### Table 2: Visual analog scale score of the various tooth forms as scored by the students

<table>
<thead>
<tr>
<th>Tooth form and contour of choice</th>
<th>All</th>
<th>Females</th>
<th>Males</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearly</td>
<td>4.2 ± 1.1</td>
<td>4.3 ± 2.1</td>
<td>3.5 ± 2.5</td>
<td>0.417</td>
</tr>
<tr>
<td>Delicate</td>
<td>7.1 ± 2.6</td>
<td>7.5 ± 2.3</td>
<td>4.3 ± 2.7</td>
<td>0.0034</td>
</tr>
<tr>
<td>Rounded</td>
<td>6.3 ± 2.2</td>
<td>6.4 ± 2.1</td>
<td>5.8 ± 3.0</td>
<td>0.539</td>
</tr>
<tr>
<td>Strong</td>
<td>5 ± 2.4</td>
<td>4.7 ± 2.3</td>
<td>7.0 ± 1.9</td>
<td>0.0284</td>
</tr>
<tr>
<td>Balanced</td>
<td>7 ± 1.9</td>
<td>6.9 ± 1.9</td>
<td>7.8 ± 1.7</td>
<td>0.2734</td>
</tr>
</tbody>
</table>

### Table 3: Visual analog scale score of the various shades as scored by the students

<table>
<thead>
<tr>
<th>Shade selection</th>
<th>All</th>
<th>Females</th>
<th>Males</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL4</td>
<td>10</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>77</td>
<td>67</td>
<td>10</td>
<td>0.748</td>
</tr>
<tr>
<td>A2</td>
<td>13</td>
<td>8</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

### Table 4: Visual analog scale score of the various levels of lip lines as scored by the students

<table>
<thead>
<tr>
<th>Level of lip line of choice</th>
<th>All</th>
<th>Females</th>
<th>Males</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.5 ± 1.9</td>
<td>6.4 ± 1.9</td>
<td>7.3 ± 1.7</td>
<td>0.3869</td>
</tr>
<tr>
<td>B</td>
<td>7.1 ± 2.4</td>
<td>7.1 ± 2.5</td>
<td>7.2 ± 2.0</td>
<td>0.9068</td>
</tr>
<tr>
<td>C</td>
<td>1.7 ± 2.8</td>
<td>1.8 ± 1.7</td>
<td>0.5 ± 0.7</td>
<td>0.306</td>
</tr>
</tbody>
</table>

### Table 5: Visual analog scale score of the various tooth exposure levels at rest as scored by the students

<table>
<thead>
<tr>
<th>Tooth exposure at rest</th>
<th>All</th>
<th>Females</th>
<th>Males</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.2 ± 1.5</td>
<td>6.2 ± 2.1</td>
<td>6.7 ± 2.1</td>
<td>0.612</td>
</tr>
<tr>
<td>B</td>
<td>7.6 ± 2.2</td>
<td>7.5 ± 2.3</td>
<td>8.3 ± 1</td>
<td>0.5317</td>
</tr>
<tr>
<td>C</td>
<td>3.4 ± 2.5</td>
<td>3.4 ± 2.5</td>
<td>1 ± 0</td>
<td>0.3421</td>
</tr>
</tbody>
</table>

### Table 6: Visual analog scale score of the various lateral corridor visibilities as scored by the students

<table>
<thead>
<tr>
<th>Lateral corridor</th>
<th>All</th>
<th>Females</th>
<th>Males</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7 ± 1.9</td>
<td>7.3 ± 1.7</td>
<td>5.0 ± 2.4</td>
<td>0.023</td>
</tr>
<tr>
<td>B</td>
<td>7 ± 2.3</td>
<td>6.6 ± 2.3</td>
<td>9.2 ± 0.8</td>
<td>0.019</td>
</tr>
<tr>
<td>C</td>
<td>4.5 ± 2.3</td>
<td>4.6 ± 2.3</td>
<td>3.5 ± 3.5</td>
<td>0.5271</td>
</tr>
</tbody>
</table>
1. Question asking if students desired a better smile
2. Question asking if students were confident about their smile
3. Question asking if students wished a whiter smile
4. Pictorial question evaluating preferred shade

5. Pictorial question evaluating preferred tooth form

Rounded  Balanced  Pearly

Delicate  Strong

6. Pictorial question evaluating preferred tooth form when camouflaged with soft-tissue esthetics

Rounded  Balanced  Pearly
7. Pictorial question evaluating preferred lip line

8. Pictorial question evaluating preferred lateral corridor

9. Pictorial question evaluating preferred tooth exposure at rest

10. Pictorial question evaluating preferred teeth visibility

The appearance of teeth was found to be more important to women than men and significantly more important to younger people than older in a dental esthetics survey involving 250 subjects by Vallittu. Concurrently, this survey highlighted high confidence levels among both males and females with respect to their smile (Table 1). On reviewing various studies, it was also established that there was a moderate degree of disparity among all the age groups. As habitually noted, younger subjects incline for a whiter shade as opposed to the darker choice opted for by older subjects. However, this survey featured that the perception of young adults demonstrated a neutral consensus for
an anticipated whiter shade among both the genders, grounding within their peer groups rather than extreme conjectured whitest shades. When asked to review a shade guide presented by viva ivoclar, A2 shade was hit on as the most popular choice, in contrast to an anticipated whiter shade selection (Table 3).21,23

The correlation of 50% was found between tooth form and face form obtained using the visual method concluding that there is no highly defined correlation between maxillary central incisor form and face form in males and females of Indian ethnicity. Yileng et al also showed that neither the William’s method nor the visual method are reliable for selecting artificial maxillary central incisor tooth forms for edentulous patients of Indian origin because this might lead to unsatisfactory results. The inclination toward delicate tooth form dropped down by a margin of 50% when it was appreciated with the overlying lip esthetics. Hence, the opinions and desires of the patient over the tooth form does not ensure a great variance over the optimal dental esthetics for each individual24 (Table 2).

Studies by Kokich et al on the gingiva-to-lip distance to determine the quotient of unattractiveness of a ‘gummy smile’ illustrated that amount of gingiva showing during smiling, at least 1 or 2 mm is not generally regarded as esthetic and it is probably better for the patient to show some gingiva during smiling than none at all. This study proposed a similar perception of an esthetic smile (Table 4).2,25

However, when at rest, the prosthodontic literature has generally recommended setting denture teeth so that 2 mm of tooth structure is displayed at rest. But young Indian adults have shown a nearly equal inclination for both the following tooth exposures, one ranging from 2 mm, with a VAS score of 7.6 approximately, and the other showing two-third the labial surface of the incisors, scoring a VAS average of 6.2 (Table 4).26,27

Smile with least buccal corridors is labeled the most attractive in contrast to the smile with more buccal corridor identified as the least attractive by the raters, alongside absence of the corridor being titled fake. Though conversely, according to the present study an absence of the buccal corridor or a smile with a small buccal corridor was perceived as esthetic, with men holding a preference over presence of a small buccal corridor, whereas females were happier with absence of one (Table 5).28,29

The students interviewed have been a part of the dental world since 3 years as well as open to media influence. On the basis of their scores and response, it might be accurate to say that the perception of smile is not persuasable or coached is very individualized but influenced by their knowledge, belief, motivation, attitudes, experience skills, behavior, etc.

Dentist must be aware that patient who seek treatment may have as different perception than patients who do not express such desires.3

CONCLUSION

Dentist should be aware that patients seeking esthetic treatment may have different perceptions of a beautiful smile which maybe far from the principles of smile design. Hence, equal importance needs to be given to the patient’s desire combined with the dentist’s knowledge and experience of esthetics to deliver efficient and appreciable esthetic outcomes.

REFERENCES