

An Outlook on the Perception of Smile Esthetics by General Population - A Questionnaire Study

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ABSTRACT

Objective: To analyze the expectancy of a general population from an orthodontic point of view and arriving at a conclusion of how attainment of a virtuous treatment planning could deliver a satisfactory result.

Materials and methods: A total of 150 people from the general Indian population belonging to the mean age group of 18-28 years were included in the questionnaire study. They were asked to go through a set of eight questionnaires, which were prepared keeping in mind the requirements of people in a day to day life from an orthodontic point of view.

Results: Chi Square test was done using SPSS software 20.0, according to which all the frequencies were found to be significant with a value of $p < 0.001$.

Conclusion: Variations of perception among individuals of different age, sex, culture will always prevail, hence an overall assessment of smile esthetics should be done keeping in mind the basic requirement of the general population that should come forth in conquering the desires of the patients within the boundaries of orthodontics in order to deliver a socially acceptable result.

Key Words: Smile esthetics, Orthodontics.

INTRODUCTION

General population seeks out orthodontic services to enhance their smile orthodontically. People's perception of a perfect smile esthetics has been seen to vary from one individual to another as every other individual has a different point of view in relation to the prospects of a successful treatment outcome.

Taking inspiration from an esthetically pleasing role model with an above average smile esthetics, people now a days have sought to improve their appearances which are acceptable, pleasing, personality enhancing and the most important its impact in daily walks of life.

It is important from an orthodontist point of view to upgrade themselves in order to meet the expectations of the patients. An orthodontist's view point may sometimes vary in what is exactly desired by them and what exactly needs to be done which is the real expectancy of the patient. For some people it is acceptable to have spaces closed, for some it is important to have irregularities corrected, for a few individual these corrective measures may not matter at all or in fact some may even desire to accept those irregular arrangements of teeth.

What may be required is a dilemma but and in order to solve this patient and doctor equation it is very important to be

versed with the ideologies and mentality of the patient which can be practically applied in order to achieve a good and satisfactory result within the boundaries of orthodontics and smile esthetics.

Arrival at a conclusion can only be expected when a patient puts forward his/her opinion with a free mindset and taking an orthodontist into confidence in knowing whether his/her expectations can be turned into reality.

MATERIALS AND METHODS

A total of 150 candidates took part in the study. Selections of candidates were made from an Indian population studying in Mysore city (Karnataka) from various parts of the country. People who were a part of this study were belonging to the age group of 18-28 years of age. People below the age of 18 years were excluded on the grounds of not having awareness regarding the expectancy outcomes as they were still minors and their lack of understanding of the questions put forth which could have led to biased opinion. Reasons for not undertaking individuals above the age group of 28 years was mainly due to their lack of interest in seeking orthodontic treatment in that late phase of life as most of the population were already married and the thought of improving their smile esthetics has never bothered them after they have settled in their respective lifestyles.

The people in this survey were given a set of 8 questions which were answered after a through reading.

Each individual was evaluated on the basis of their choice and opinion regarding:

1. Rate your smile on a scale of 1-4, with 4th being perfect.
 - A. Poor
 - B. Average
 - C. Acceptable
 - D. Perfect
2. When you see yourself in a picture how would you describe yourself.
 - A. I rarely smile
 - B. I smile a lot although I don't have a perfect smile
 - C. My smile affects my self confidence in a negative way.
 - D. My smile does not bother me at all.
3. Does it bother you what people may be thinking about your smile?
 - A. Yes, it always bother me.
 - B. Yes, it may bother if the opinion is negative.
 - C. I rarely bother.
 - D. No, I don't bother at all.
4. How do you think having a perfect smile would improve your life?
 - A. I would feel better about myself.
 - B. I would smile more often.
 - C. I would have more confidence with friends, family as well as at my work place.
 - D. I don't think having a perfect smile improves our daily lives in any way.
5. What would you most like to improve about your smile?
 - A. It should look whither and brighter.
 - B. Should get rid of the gaps.
 - C. Should get rid of the irregularities (straightening of teeth).
 - D. I don't want to have any changes in my smile.
6. Would you like if your gums are visible while smiling or having a conversation.
 - A. Yes, I would like if it is visible.
 - B. Yes, it should be partially visible.
 - C. No, it should not be visible at all.
 - D. Visibility of the gums does not bother me at all.
7. Is it acceptable by you if your lips do not close while your lips are at rest position.
 - A. Yes, it is acceptable by me.
 - B. No, not acceptable at all.
 - C. Not acceptable but I feel I can manage.
 - D. I don't care if it is acceptable or not.
8. What kind of smile would you aspire to have in your life partner?
 - A. Smile does not matter to me.
 - B. A perfect smile.
 - C. With slight visibility of gums.
 - D. Smile with no show of teeth.

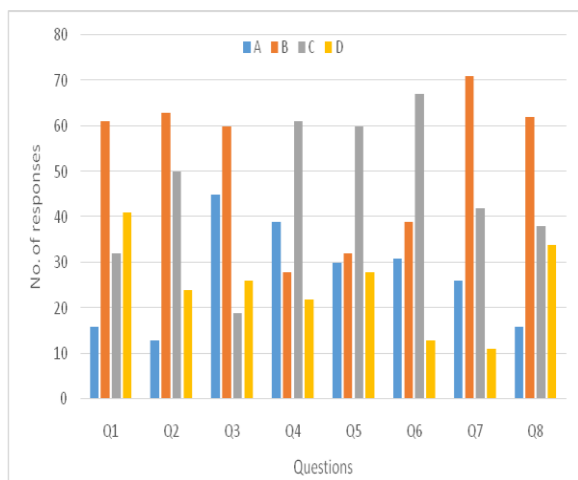
Based upon the answers chosen by the population, a statistical analysis was done and conclusions were made on the grounds of what reasons were suited to be fit for a good treatment outcome which was mostly desired by a particular set of individuals in a population.

Statistical Analysis:

A statistical analysis was done using SPSS software 20.0, Chi square test was performed, all the asked questions were found to be significant with a $p < .001$ value.

Table 1: Test Statistics showing frequency distribution

	Question1	Question2	Question3	Question4	Question5	Question6	Question7	Question1
Chi-Square	28.187	42.373	27.653	23.600	18.213	40.400	52.720	28.667
Degree of freedom	3	3	3	3	3	3	3	3
Asymptotic Significance	.000	.000	.000	.000	.000	.000	.000	.000



Graph 1: Frequency distribution

RESULTS (Table 1 & Graph 1)

For the first question (q1) answered, it was found that the option ‘b’ was the most significant, showing a test statistics of ($p < 0.001$, $X^2 = 28.187$).

For the second question answered (q2), it was found that option ‘b’ was found to be significant with a values of ($p < 0.001$, $X^2 = 42.373$)

For the third question answered (q3) option ‘b’ was the most significant with a value of ($p < 0.001$, $X^2 = 27.653$).

For fourth question (q4) value of ($p < 0.001$, $X^2 = 23.600$) was most significant after the population answered for option ‘c’.

For the fifth question answered (q5), option ‘c’ was the most significant with a value of ($p < 0.001$, $X^2 = 18.213$).

For the sixth question (q5), option ‘c’ was the most significant with the value of ($p < 0.001$, $X^2 = 40.400$).

For seventh question (q7), significant option was option ‘b’ with a value of ($p < 0.001$, $X^2 = 52.72$).

For the eight questions (q8), option ‘b’ was the most significant with a value of ($p < 0.001$, $X^2 = 28.667$).

DISCUSSION

An orthodontists assumption can definitely go a different way when it comes to the matter of assigning a routine treatment plan, however when assessed thoroughly and keeping in mind the possibility of performing an art of smile designing, an orthodontist still has a million ways of executing that goal.

For the following parameters assessed, it was found out that when people were asked to rate their smile on scale of poor, average, acceptable and perfect. Population in the frequency of 61 feels they have an average smile, a difference between an average and an excellent smile can be better judged by an orthodontist depending upon the skills of an orthodontist which also correlates with the study of Rabia Bilal which says that few of the minor details can be overlooked by the layman population as they are not trained enough to judge the minor differences when it comes to the standards of smile esthetics when compared with a specialist of smile esthetics such as an orthodontist. [1] People in the frequency of 41 felt they had a perfect smile despite the fact the they still feel the need to take up an orthodontic treatment in order to make their smile perfect, in a study conducted by Seong-Mu et alit was stated that esthetically

there was improvement in the perception of esthetics because of the fact that patients involve themselves and pay more attention when called upon for frequent visits to the orthodontist, hence a view point of a perfection (from patients perspective) can still change during an orthodontic visit. [2] Population in the frequency of 32 still feels that they have an acceptable smile, according to the study conducted by Cotrim ER et al the frequency of acceptable smile was the most prevalent one, by which it can be concluded that beauty is a subjective phrase and establishment of a protocol for esthetics for a treatment outcome will be a difficult task for both the orthodontist and the patient. Population infrequency of 16 felt that their smile was poor, the percentage being less here could significantly shows that people despite having a poor smile might not be able to accept that they have a poor smile as the majority of opinion for poor criteria is less. [3]

When asked about their reactions upon observing themselves in photographs... people in the frequency of 63 replied that they smile a lot although they don't have a perfect smile, a kind of smile globally used in self-portraits and in social interactions, which usually helps patients in alteration of a negative smile for the purpose of disguise. [4] Frequency of 50 in the population felt that their smile affects their self confidence in a negative way. According to the study of RogriguesCDT an expectancy of the deviations in the view of a population against the norms will be anticipated, hence in this regard more studies predicting the opinion of a population in relation to beauty standards needs to be done in order to have a predictable parameter for acceptability in clinical practice. [5] On the contrary, people for a fact want to undergo a treatment for betterment of their esthetics but still there are a set of population who feel that their smile does not bother them at all when asked about their reactions to their own observation when they look at themselves quite often in their own photographs,

frequency of 24 in the population felt that their smile does not bother them at all, this factor can be related to the study of Gustava Barbosa Ribeiro et al stating that few of the patients may be aware of the small deviation, but may live with the deviations, and some may not support it from esthetic standards. [6] Population in the frequency of 13 said they rarely smile which means on rare occasion if they display a smile it may be attributed to the fact that people may be displaying a socially acceptable posed smile but when it comes to the issue of a spontaneous smile orthodontist may have a say in the issue that how can it be made into a good and naturally appearing smile. [1]

Population in frequency of 60 showed there concern towards seeking treatment in case they observe a negative review and 45 frequency of population found it to be bothering. Speaking in the context of botherance of a patient, according to Jornung J various groups of patients have differences in perceiving esthetics which mainly depends upon age, sex, patient's education, variation in attitude in the appearance of their teeth. [7] According to the study conducted by Marta Liliana et al oral care professional tend to perceive smile esthetics differently than a layman population hence it is very important that an orthodontist takes a good care in offering procedures that may not be expected as necessary from a point of view of the population. [8] Hence as far as perception of people in the patient's vicinity is concerned, it may give a biased opinion when it comes to the area and cultural differences. Frequency of population when asked about their level of bothering of others views regarding their smile, they came up with the outcome that they don't bother at all of what other people may be thinking of their smiles. This can be attributed to the fact that people may or may not be able to accept the fact that esthetics is desirable but still have an inborn desire to look good when it comes to their respective personal propaganda. Population in the frequency of 19 rarely bothered.

There was definitely a positive response from the population in the frequency of 61 when asked about how would having a perfect smile improve their life? There was no denying the fact that the population feels that they would have more confidence when with their friends, family as well as when they are in environment of their work place. Frequency of 39 people would feel better about themselves and 28 would smile more often hence it can be accepted that patients who desire an esthetic makeover may have different perceptions than patients who do not have such desires. [8] However, 22 frequency of population felt that having a perfect smile would not improve their way of life in any way. As said by Beall AE, one of the prominent reasons for people to seek orthodontic treatment lies in the fact that appearance may have a greater impact on the success in professional life, personality, physical attractiveness along with its associated differences to intelligence and happiness of an individual. [9] Hence a detailed understanding of esthetics is desirable as it greatly affects the treatment decisions. [6]

When asked about the changes they want to have in their smile esthetics, population in the frequency of 61 desired to get rid of the irregularities, which was observed secondly to the desire of tooth whitening as observed by Samorodnitzky-Navah et al. [10] Frequency of 32 in the population desired to get rid of the gaps, in context of this finding, midline spacing was rated as a second least attractive factor affecting smile esthetics according to Hanan et al [11] which was opposite to the findings of Rosenstiel and Rashid RG [12] who concluded that public showed a strong preference towards depiction of a midline spacing in their smiles. Population in the frequency of 30 said they would appreciate if their teeth were more whiter and brighter which as discovered by Samorodnitzky-Navah [8] in their study was true as subjects desired a more whiter teeth, which in agreement with the studies of Alkhatib MN et al [13] stating that general population was

more inclined towards the colour of their teeth when asked to evaluate their smile, a frequency of 28 of the population feels that they don't want to have any kind of changes made to their smile, which was strange! but considering the fact that it is almost and always a choice of an individual, this was in accordance with the studies conducted by Somorodnitzky-Navah GR et al [10] who also concluded that as patients may have received a dental treatment in the past, they felt more satisfied with their appearances and desired they didn't want to have any changes. Taking into account an orthodontists point of view which may not always be in accordance with a patients point of view, talking in this context, a patient may desire only to set the irregularities right (with non-extraction treatment plan) or getting rid of the gaps (with minor intervention) or may want the teeth to look more whiter and brighter, which on the other hand may not be the expected plan of treatment by the orthodontist.

On obtaining a viewpoint of the population regarding the visibility of the gums, about 67 frequency of the population feels that the gums should not be visible at all, which is in similarities with the findings of Larissa Suzuki et al [14] who found out that in an ideal smile there is no gingival display, a relationship of the upper lip is seen contacting only the gingival margin of upper central incisors. This does not go in accordance with the standards of orthodontics that having a visibility of gums to an extent of 1-2 mm gives a youthful appearance to an individual. A frequency of 39 in the population said that it should be partially visible which was in agreement with the studies of Guus Van Heck Geld et al [15] who in their study mentioned that smile line present in the range of 2-4 mm had the most favorable smile line display. This result was also in accordance with the study of Kokich et al [16] where layman population felt that it was unattractive to notice an individual with a smile exceeding 4mm. 38 frequency of the people felt that

visibility of a gummy smile was esthetically acceptable norm (assuming the visibility above the standard levels of 4mm) which was in accordance with the findings of Larissa Suzuki et al [14] who in their study concluded that a rating of 7mm was acceptable by the laymen population as it received the highest of scores. For the population in the frequency of 13 visibility factor was not at all a concern, from this finding it can be assumed that patients point of view would always remain unknown but an orthodontist may well consider the patients view point before he/she decides for a more invasive surgical procedure to mask the gummy smile despite the fact if it is bothering or not bothering the patient.

As far as the first and foremost objective of treatment planning is concerned, i.e., the competency of the lips about 71 frequency of the population feels that having an incompetent lip is not at all acceptable. By making a correlation between the extent of visibility of gums and competency of lips it can be assumed that as the visibility decreases, there is more inclination towards the attainment of lip competency, this assumption can be put to reality by taking into account the study of Larissa Suzuki et al who concluded that gingival display of 0 mm (upper lip positioned on the gingival margin of upper central incisor) received the highest esthetic scores. This assumption upon correlating with the results obtained in our study which was found to be highly significant ($p < 0.001$) in terms of having a competent lip could be related to the idea that incompetent lips are not acceptable because a level of gingival display of 0mm was acceptable by the layman population in highest proportion in the study of Larissa Suzuki et al. [14] A frequency of 42 population were in acceptance of the need for competency but felt that it could be managed, which can be correlated to the fact of delivering a cuspid or socially acceptable smile in which the upper lip is pulled uniformly upwards on the anterosuperior aspect, which often helps to disguise a gingival smile. [17] 26 frequency

of the population felt that having an incompetent lip is acceptable. Frequency of 11 in the population felt they didn't care if it is acceptable or not which can be related to delivery of a spontaneous smile or a complex smile [15] (involuntary) by an individual which is characterized by wider movement of the upper lip and normal movement of lower lip. Thus smile perception for esthetics is a personal norm and varies among different subjects. [18]

Lastly people were questioned about their perspective of smile esthetics in their life partners, about 62 frequency of the population voted and desired to have a life partner with a perfect smile, which was in accordance with the findings of Shaw WC [19] and Helm S et al [20] who in their study mentioned that attractiveness of an individual depends upon the occlusal relationship and smile esthetics. The study of Mueser K T et al [21] also had a similar finding stating that as an indicator of overall attractiveness of physical and facial quality, facial esthetics was a powerful indicator. With this view point it can indeed be concluded that patient's feelings towards their own esthetics may be of outmost concern but they may as well desire a partner who is esthetically versed. A frequency of 38 expected some visibility of gums whereas 34 felt a smile should be present with no display of teeth. For 32 frequency of the population smile quality did not matter to them as a factor of concern in a life partner.

CONCLUSIONS

A patient's viewpoint on the aspects of poor, average, acceptable and perfect may vary all the time but an orthodontist should develop reasonable assessment among the maneuvers from start to finish in order to achieve a harmonious balance that includes interaction with patient along with the experiences of an orthodontist.

Perception of the population regarding the negativity about the unpleasantness of their smiles can only be dealt by not imposing orthodontist's view

point instead accepting their own desire of change in relation to the standard of smile esthetics for which photographic assessment and people's botherence of their smile was a genuine tool.

People may well require the correction of irregularities, correction of shade and minor closing of gaps along with esthetic corrections but there are many who are happy the way they are hence a therapeutic call should be taken as per the desires of each and every individual, which is a variable phenomenon at the end of any discussion.

Visibility of gums and competency of lips are very delicate issues to handle as it may lead to different treatment protocols from extractions to surgical procedures hence the flaws of such appearances are to be explained by an orthodontist within orthodontic principles and keeping in mind wishes of a patient.

A desire for a perfect smile in a life partner is prominent among the population even if they don't possess that need for themselves which explains how subjective an esthetic quality can get, hence points for betterment of esthetics should always be kept in front of the patient if they lack a understanding of smile esthetics that could turn out to be beneficial for them.

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