

Smile Line Effect in Complete Denture Wearers

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Abstract

Aim: This study is done to evaluate the aesthetic perception in patients wearing complete denture based on tooth exposure. Background: The aesthetic appearance of a smile has been shown to be affected by, among other factors, the position of the lips and their curvature and relationship with the teeth. This study is done to know the perception of aesthetic smile line of complete denture wearers by Indian people.

Materials and Methods: Sixty people appraised 6 different images printed in a paper along with a questionnaire. Changes were made in front-viewed photograph of a smiling patient wearing complete denture based on tooth exposure. Visual analogue scale is used for grading 0 representing the least attractive, 5 representing attractive and 10 representing the most attractive.

Reasons: Since aesthetic plays a very important role in dentistry, this study is carried out to acknowledge the most accepted aesthetic characteristics appropriate for the patient's age thereby preventing negative aesthetic effects.

Result: Out of 60 participants, 52% were women and 49% were men. Figure.2 presents the pie chart of the Evaluators sex distribution. Table.1 represents the data of the study participants per group. The mean scores awarded to each photograph are shown in Table.2. Image A was awarded the highest score by all three age groups. Image B was given the worst score by the age group 15-19 years. The other two age groups attributed worst score to the image D.

Conclusion: This study concludes that perception of aesthetic smile line in complete denture wearers varies among different age groups. Complete denture wearers with a smile line with the whole of maxilla up to cervical third of the teeth exposed was considered to be the most attractive smile.

Keywords: Aesthetic, Complete Denture, Smile Line, Artificial teeth

INTRODUCTION

Facial attractiveness plays a key role in social interaction. It influences mating success, personality evaluations, performance, and employment prospects (1-3). The aesthetic appearance of a smile has been shown to be affected by, among other factors, the position of the lips and their curvature and relationship with the maxillary anterior teeth (4). In the analysis of the smile, this parameter, also known as the smile line or tooth exposure when smiling, is calculated as the difference between the height of the lip line and the tooth exposure (5-6). The goal of treatment with complete dentures has been described as the achievement of a smile that is aesthetically and functionally as close as possible to the smile obtained with natural teeth. Therefore, when planning a complete denture, a careful and detailed analysis must be made of all the anatomic and prosthetic components to achieve an aesthetically and functionally ideal smile.

In this context, this study aimed to evaluate the impact of aesthetic smile line of complete denture wearers using images with different degrees of teeth exposure using complete dental prosthesis by systematically altering the photographs.

METHODS AND MATERIALS

This study was conducted using a front view intraoral photograph of a 70-year-old patient with complete maxillary and mandibular dentures. The original photograph was obtained, in which the teeth, gingiva and the lips were exposed and the images were manipulated using a software program (Adobe PhotoshopCS6; Adobe Systems Inc.). Changes were made both in the maxillary

and mandibular denture. Six images were obtained: (figure.1)

Figure.1 Images evaluated in the study with the help of VAS (Visual Analogue Scale).



- A. Full upper Teeth**
- B. Half of upper and lower Teeth**
- C. Middle and Lower third of upper Teeth**
- D. Full lower Teeth**
- E. Lower third of upper and incisal third & middle third of lower Teeth**
- F. Full upper and lower Teeth**

All the images were printed all together on photo paper. Upon being shown these images, the evaluators were asked to select which images they thought were the most and least attractive with an attached **Visual Analogue Scale (VAS)**. The evaluators were to attribute scores to the aesthetic appearance of each particular image. On this scale, the score 0 corresponded to a minimally attractive image, 5 to an attractive image, and 10 to a very attractive image. The evaluators had a maximum of 60 seconds to analyse each image. The evaluations were performed by 60 laypersons from three different age groups; 15-19 years, 35-44years, and 65-74 years as recommended by WHO (7). Evaluators were excluded from the study if they had any visual defects. The mean score awarded to each photograph by each group was calculated.

RESULT

Out of 60 participants, 52% were women and 49% were men. Figure.2 presents the pie chart of the evaluator’s sex distribution. Table1 represents the data of the study participants per group. The mean scores awarded to each photograph are shown in Table.2. Image A was awarded the highest score by all three age groups. Image B was given the worst score by the age group 15-19 years. The other two age groups attributed worst score to the image D.

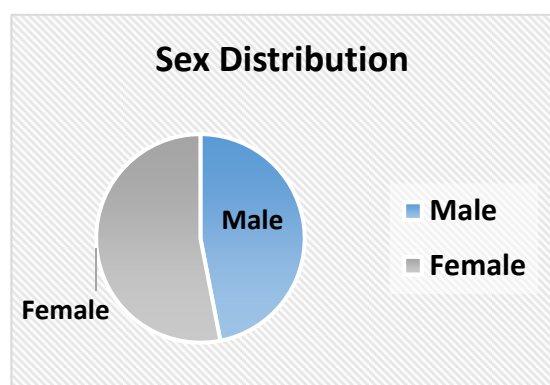


Figure.2

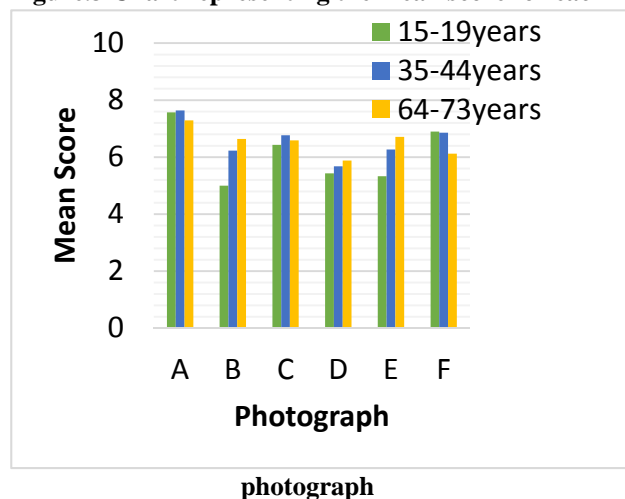
| Gender | 15-19(n=21) | 35-44(n=22) | 64-75(n=17) |
|--------|-------------|-------------|-------------|
| Male | 7(33%) | 9(41%) | 12(71%) |
| Female | 14(67%) | 13(59%) | 5(29%) |

Table.1Data of study participants per group

| Photograph | 15-19years | 35-44years | 64-73years |
|------------|------------|------------|------------|
| A | 7.57 | 7.64 | 7.29 |
| B | 5 | 6.23 | 6.64 |
| C | 6.43 | 6.77 | 6.59 |
| D | 5.43 | 5.68 | 5.88 |
| E | 5.33 | 6.27 | 6.71 |
| F | 6.9 | 6.86 | 6.12 |

Table.2 Mean Scores of each Photograph

Figure.3 Chart representing the mean score for each



DISCUSSION

The three main determinants of the acceptability of a prosthetic treatment are comfort, function, and aesthetics (8-9). Among these, aesthetics is considered to be one of the important factor a patient seeks. Thus, the major goal of dentistry is to re-establish aesthetics and enable patients to feel confident about their smile (10). Similarly, an edentulous patient seeks to have an aesthetically satisfactory denture and to have a pleasant smile that is as close as possible to the original smile and is appropriate for his or her age (11).

One of the important features, predicting the attractiveness of the face is the Smile. The smile line is defined as the line between the curvature of the maxillary anterior teeth and the curvature of the top edge of the bottom lip (12). Even though, many studies have been done related to aesthetic smile, studies related to smile line in complete denture wearers are limited. Hence, this study is aimed to evaluate the impact of aesthetic smile line in complete denture wearers based on degree of teeth exposure.

Matheus Melo Pithon et al, reported that smile line where the teeth were exposed up to cervical third was considered more aesthetic, similarly the same result was obtained in this study. On evaluating the least attractive image B and image D were attributed less score by the age group 15-19years and 35-44years, 63-74 years respectively. These results corroborate those of other studies, which affirm that certain factors, such as age, influence the perception of aesthetic smile (13). Therefore, on rehabilitating an individual’s smile line with complete denture, the dentist should respect the aesthetic characteristics appropriate for the patient’s age, preventing negative aesthetic effects.

CONCLUSION

This study concludes that perception of aesthetic smile line in complete denture wearers varies among different age groups. Complete denture wearers with a smile line with the whole of maxilla up to cervical third of the teeth exposed was considered to be the most attractive smile.

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