Do dental esthetics have any influence on finding a job?

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Introduction: Our objective was to determine whether dental esthetics have any influence on finding a new job.

Methods: Ten patients with orthodontic treatment needs for various types of malocclusions were selected. Smiling facial photographs of all patients were obtained and digitally altered (orthodontic correction of teeth). After the images were obtained, 2 different questionnaires were prepared (survey groups A and B) with the photographs without alteration (showing malocclusion) and altered (with orthodontic correction). Subjects appeared in one questionnaire (survey group) with an ideal smile and also in the other (survey group) with a nonideal smile. The images were evaluated by 100 persons responsible for hiring staff for commercial companies. In each survey group, 4 questions were asked regarding the individuals' likelihood of being hired, honesty, intelligence, and efficiency at work. Analysis of variance for repeated measures was used to determine the differences in the evaluations of patients with ideal and nonideal dental esthetics for the 4 characteristics evaluated. The level of significance adopted was 5%. Results: The photographs of persons with ideal dental esthetics were, on average, evaluated as superior with respect to intelligence and likelihood of being hired than were the photographs of the same subjects with nonideal dental esthetics. For the characteristics of honesty and efficiency, no significant differences were observed in the evaluations between those with ideal and nonideal smiles (P <0.05).

Conclusions: Persons with ideal smiles are considered more intelligent and have a greater chance of finding a job when compared with persons with nonideal smiles. (Am J Orthod Dentofacial Orthop 2014;146:423-9)

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here is a close relationship between physical appearance and social attractiveness.1-5 The face is the part of the body considered most important with regard to attraction and interpersonal communications.6,7 The mouth and the teeth are important elements in esthetic evaluations, since social and mental well-being might be affected if the appearance of the teeth is esthetically unfavorable.8

Many patients who seek orthodontic treatment are motivated by dental esthetics, rather than by improvement in masticatory function.9 The psychological and social gains from orthodontic treatment have begun to be more significant than gains in oral health.10

In the evaluation of facial attractiveness, various factors are considered, such as expression, symmetry, and appearance of the teeth.11-14 Attractive persons are thought to be more capable, intelligent, responsible, and socially well integrated; they have more prestige and are happier and more successful than those who are less attractive.9 Starting with this premise, a question arises: Would dental esthetics have an influence on finding a job? Until now, no study in the literature has been concerned about evaluation of this requisite. Based on this premise, our aim in this study was to determine whether dental esthetics would have an influence on the perceptions of persons responsible for the human resources sectors of their companies regarding likelihood of hiring people, and their honesty, capacity to fulfill tasks, and intelligence, by analyzing photographs of smiling subjects.

MATERIAL AND METHODS

This was a cross-sectional study conducted with persons in the human resource sectors (responsible for...
hiring staff) of commercial companies in the municipalities of Jequié and Vitória da Conquista, Bahia, Brazil. These companies are involved in commercial activities, selling products for personal use (clothing, shoes, and personal hygiene products). Before data collection began, the project was sent for approval by the research ethics committee of Southwest Bahia State University, and it received a favorable report (number 405,925). Before the survey began, all persons who answered the survey questionnaires and those whose images were used in the questionnaires signed the terms of free and informed consent with respect to the study in which they would participate. Those who ceded their images for use in the study knew and agreed to the modifications of their smiles.

The methodology used in this study was based on that of a previous study by Henson et al,10 in which the influence of dental esthetics on the social perceptions of adolescents were evaluated.

To conduct the study, front-view facial photographs (Rebel 60D; Canon, Tokyo, Japan) of 10 smiling patients were used, taken before the orthodontic correction of their malocclusions. The patients had diverse malocclusions (interincisor diastema, maxillary and mandibular tooth crowding, accentuated projection of the incisors, and anterior open bite). For 8 subjects, the photos were duplicated and digitally altered with image manipulation (Photoshop, CS3; Adobe Systems, San Jose, Calif.). The purpose of this manipulation was to perform orthodontic corrections of the teeth (create ideal smiles). These alterations were done only on the patients’ teeth, so that the same facial characteristics as they had before their teeth were corrected remained.

Two patients were used as controls: positive (subject 8, who had a corrected smile in the 2 groups of the study) and negative (subject 2, who had an uncorrected smile in the 2 groups of the study). Their images served to verify the reliability of the evaluators’ responses in the 2 questionnaires.

Before data collection began, a pilot study was conducted with 20 evaluators. Once these data had been obtained, the sample calculation was made; it demonstrated the need for a sample of between 80 and 140 evaluators (considering a test power of 80% and a maximum error of 5%, alpha = 0.05).

Thus, the survey was conducted with 100 adults who were responsible for hiring personnel to work in commercial and business activities. As inclusion criteria, these people had to have a degree in business administration and be postgraduates responsible for recruiting and hiring personnel in their companies (sector of human resources) in the area of sales of products for personal use; they participated in the survey voluntarily and signed the terms of free and informed consent.

After obtaining the images, 2 different questionnaires were prepared (survey groups A and B) using a slide presentation program (Power Point 2010; Microsoft, São Paulo, São Paulo, Brazil) with the photographs without alteration (with malocclusion) and altered (with orthodontic correction). Each questionnaire contained the photos of all subjects, some with ideal smiles and others with nonideal smiles. Subjects appeared in one questionnaire (survey group) with an ideal smile and in the other (survey group) with a nonideal smile. The images of those who served as controls (subjects 2 and 8) were used only as uncorrected and corrected smiles, respectively, in the 2 questionnaires, to evaluate the reliability of the responses, as previously mentioned (Fig 1; Table I).

Each evaluator received 1 of the 2 questionnaires (survey group A or B), which were randomly distributed. Once the evaluators had the questionnaires, they were instructed on how to fill them out. The evaluators did not know of the existence of the other questionnaire with alterations in the positions of the teeth (corrected malocclusions). There was a part in the questionnaire for identifying evaluator demographics, asking for information about age, sex, and ethnicity (white, black, and Asiatic).

The photographs in the questionnaires were presented in high resolution on a 42-in monitor placed at a distance of 50 cm from the evaluator. The images were presented in the original size, as a person would present himself or herself, facing each other in an interview situation. The images were accompanied by the following questions. (1) Would you hire this person? (2) Does this person appear to be honest? (3) Does this person appear to be intelligent? (4) Does this person appear to accomplish his or her tasks on time? Each question was accompanied by a visual analog scale from 0 to 100 mm. This scale had a sliding bar, digitally transferred along the scale, marking 0 for complete disagreement, 50 for neutral, and 100 for complete agreement. The corresponding numeric value was saved in Power Point 2010 (Microsoft, Redmond, Wash) for later tabulation of the data.

As previously described, 4 questions were asked for each photo, and since there were 10 photos, the questionnaire was composed of 40 questions. At no time were the evaluators informed that the study was related to dental appearance.

**Statistical analysis**

The frequencies of the evaluators’ characteristics were compared by means of the chi-square test. The median of age and the evaluations of the photographs of patients 2 and 8, used as negative and positive controls, respectively, were compared between survey groups A
and B with the Mann-Whitney test. Analysis of variance for repeated measures was used to determine the difference in the evaluations of patients with ideal and nonideal dental esthetics for the 4 characteristics evaluated (likelihood of being hired, honesty, intelligence, and efficiency), in addition to evaluating the effect of the
evaluator’s characteristics, such as sex, age group, and ethnicity, on the evaluations of the patients. The level of significance adopted was 5%. All analyses were performed with the SPSS statistical software program (version 15.0 for Windows; SPSS, Chicago, Ill).

RESULTS

Table I shows the demographic data of the evaluators according to the survey group they were assigned to evaluate. Age differed between the evaluator groups, with the evaluators of survey group B having a significantly higher median. There was significant difference with regard to age group, sex, and ethnicity in the distribution of the evaluators who responded to survey groups A and B. In general, the median age ± the interquartile interval of the evaluators was 33.0 ± 20 years; most were female (54.0%) and white (67.0%). The image of patient 2 with a nonideal smile, used as the negative control, was evaluated identically in both groups with respect to the judgments about likelihood of being hired, intelligence, and efficiency (Fig 2). The image of patient 8 with an ideal smile, used as the positive control, was also evaluated identically in both groups with respect to the judgments about honesty and efficiency, no significant differences were observed in the evaluations between ideal and nonideal smiles.

As detailed in Table III, the photographs of persons with ideal dental esthetics were, on average, considered superior with regard to assessing hiring and intelligence than the photographs of the same persons with nonideal dental esthetics. For the evaluation of intelligence, the main effect was qualified by significant interactions: evaluation * age group, $P = 0.019$; evaluation * sex * age group, $P = 0.040$. In the case of the first interaction, younger evaluators tended to evaluate persons with an ideal smile as more intelligent, whereas older evaluators evaluated those with nonideal smiles as more intelligent. When the second interaction was evaluated, it was verified that for the intelligence of the persons with a nonideal smile, the male evaluators who attributed the highest scores were the younger ones, and the female evaluators who attributed the highest scores were the older ones. For the characteristics of honesty and efficiency, no significant differences were observed in the evaluations between ideal and nonideal smiles.

DISCUSSION

Physical appearance has an influence on a person’s social integration, quality of life, and self-esteem. The esthetics of the face contributes to physical attractiveness and is important in a person’s social life. The eyes are the first most observed characteristic, followed by the smile. In addition to this, dental esthetics has an important influence on personal well-being and social interactions, and in helping to minimize psychosocial problems.

In this study, we proposed to determine whether dental esthetics would have any influence on getting a new job. Our methodology was based on that used by Henson et al, when they evaluated the influence of dental esthetics on the perceptions of adolescents with regard to athletic performance, popularity, leadership capability, and academic performance. The photographs of the adolescents with an ideal smile were evaluated as superior by their peers with regard to athletic performance, popularity, and leadership capability, in comparison with the same adolescents with a nonideal smile. These results indicated that orthodontic treatment not only results in esthetic gains to the patient, but also might provide social benefits to these adolescents.

In our methodology, 2 survey groups (A and B) were used; each group received images of persons with orthodontically treated teeth and the same persons with a
malocclusion when smiling. Once survey group included the photo of a person with treated teeth, and the other survey group included the same person appearing with a malocclusion. Thus, because in each survey that face appeared only once, the evaluators were unable to ascertain that the focus of the study was to evaluate the influence of malocclusion on their perceptions. If the images had been presented all together, the evaluators would have been able to perceive that the differences between the images were focused on the smile. With the purpose of evaluating the reliability of the responses among the evaluators of the 2 survey groups, positive and negative controls were inserted, which consisted of images of a smile with treated teeth and a smile with a malocclusion; these appeared in the identical manner in both surveys.10

Some authors have evaluated the influence of dental esthetics on a person’s life. The aim of the study of Eli et al8 was to evaluate, by means of photographs, the first impression that persons gained when visualizing subjects with intact and nonintact dentitions, with regard to esthetic, social, and professional aspects. The results showed that for all requisites evaluated, those who had an intact dentition achieved the best scores. To prevent bias in the research, the participants were informed that it was a psychological research to analyze how a person forms an opinion about another when they have only just met. The data obtained by these authors corroborate our findings of this study, in which the participants did not know that it was related to the esthetics of the smile and could suppose...
that the focus was a comparison of sex, ethnicity, or age.

According to the study of Newton et al., the evaluation of photographs of persons without any type of dental lesion obtained better scores with regard to social competence and intellectual and psychological capacity. It was possible that without information about a subject, some persons use dental appearance to make judgments about the personal characteristics of others.

Shaw et al. evaluated the influence of dentofacial appearance for 10 requisites proposed with regard to the social characteristics of the persons represented. The results showed that when the subjects had aligned incisors, they were considered more amiable, popular, and intelligent. The ones considered more honest were those with prominent incisors, indicating that dentofacial appearance is not something primordial for evaluating honesty, thus corroborating the results of our study.

In this study, patients with an ideal smile were better evaluated by employers in the requisites of hiring and intelligence when compared with patients with nonideal smiles. These results suggest that a more beautiful smile would make people seem more intelligent, indicating that a person who appears to be more intelligent would have a better chance of being selected for a job. Regarding the aspects of honesty and efficiency, there were no significant differences in the evaluations between orthodontically treated subjects and those with malocclusions. This shows that questions related to character and ability must not be measured only by means of an image.

Table III. Differences in the evaluations between images with ideal and nonideal smiles

<table>
<thead>
<tr>
<th>Image of smile</th>
<th>Mean</th>
<th>SD</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonideal</td>
<td>5.20</td>
<td>2.26</td>
<td>4.75-5.64</td>
<td></td>
</tr>
<tr>
<td>Ideal</td>
<td>5.64</td>
<td>2.27</td>
<td>5.19-6.08</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>0.44</td>
<td>2.11</td>
<td>0.22-0.86</td>
<td>0.040</td>
</tr>
<tr>
<td>Honesty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonideal</td>
<td>6.72</td>
<td>1.67</td>
<td>6.39-7.05</td>
<td></td>
</tr>
<tr>
<td>Ideal</td>
<td>6.72</td>
<td>1.57</td>
<td>6.40-7.03</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>0.01</td>
<td>1.24</td>
<td>-0.25 to 0.24</td>
<td>0.709</td>
</tr>
<tr>
<td>Intelligence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonideal</td>
<td>6.50</td>
<td>1.57</td>
<td>6.18-6.81</td>
<td></td>
</tr>
<tr>
<td>Ideal</td>
<td>6.64</td>
<td>1.58</td>
<td>6.33-6.96</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>0.15</td>
<td>1.06</td>
<td>-0.62 to 0.36</td>
<td>0.038</td>
</tr>
<tr>
<td>Efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonideal</td>
<td>6.34</td>
<td>1.49</td>
<td>6.04-6.64</td>
<td></td>
</tr>
<tr>
<td>Ideal</td>
<td>6.35</td>
<td>1.40</td>
<td>6.07-6.63</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>0.01</td>
<td>1.12</td>
<td>-0.21 to 0.23</td>
<td>0.555</td>
</tr>
</tbody>
</table>

95% CI, Interval of confidence of 95% of the mean.

In this study, it was also verified that younger evaluators tended to evaluate persons with an ideal smile as more intelligent, whereas older evaluators evaluated those with a nonideal smile as more intelligent. This result suggests that younger persons are more influenced by the media, which dictates a certain standard of beauty and can even influence the interviewer’s opinion about a person’s intelligence.

According to Pithon et al., younger persons are more critical when evaluating esthetics. In view of this situation, it is necessary to conduct studies with groups of evaluators in different age ranges.

With the data from this study, it was possible to note the different scores obtained for persons with ideal and nonideal smiles, thus allowing one to perceive the influence of an esthetically pleasing smile when seeking a job and even on the person’s life.

CONCLUSIONS

With the results obtained, we concluded the following.

1. Persons with ideal smiles are considered more intelligent and have a greater chance of finding a job when compared with persons with nonideal smiles.
2. The demand for orthodontic treatment suggests that patients desire improvement in the esthetics of their smile, which might be reflected as greater social benefits.

REFERENCES