Original Article

Perception of Profile among Laypeople, Dental Students and Orthodontic Patients

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ABSTRACT

Objective: To determine whether there are differences in self-awareness and perception of an individual's own profile among various groups.

Materials and Methods: Laypeople, orthodontic patients, and first (D1) and third-year dental (D3) students were surveyed (n = 75 each). The participants answered a questionnaire regarding how they felt about their own profile and teeth. They also chose from among various silhouettes the one that most resembled their own profile. Profile photos of participants were analyzed by two orthodontists who matched the individual to the depicted silhouettes. Agreement between participants and experts was evaluated using the Kappa statistic. Differences among groups in identifying their own profiles and differences among profile types in satisfaction with their appearance were compared using χ^2.

Results: Overall agreement between the individuals' perceptions of their own profiles and evaluation by orthodontists was 53% ($\kappa = .15$). The four groups were different in their ability to recognize their own profile ($P < .05$). D3s were most accurate (64%, $\kappa = .28$), followed by D1s (57%, $\kappa = .10$), orthodontic patients (48%, $\kappa = .19$), and laypeople (43%, $\kappa = .04$). Individuals who considered themselves as having a Class II or III profile were less satisfied with the appearance of their profiles ($P < .05$). Those who considered themselves as having a Class III profile were also less happy with the appearance of their teeth ($P < .05$).

Conclusions: This study suggests that about half the population cannot characterize their own profile. However, subjects who perceived their own profiles as being different from average were more likely to be unhappy with their facial appearance.

KEY WORDS: Perception; Esthetics; Self-awareness; Profile

INTRODUCTION

Facial attractiveness has long been a desirable physical characteristic in all societies for many centuries.[1] Although individual attraction was once thought to be unpredictable and to be "in the eye of the beholder," recent research[2–4] on facial attractiveness has shown that constituents of beauty are not arbitrary. These studies demonstrated high cross-cultural agreement in attractiveness ratings of faces of different backgrounds. It was concluded that people use similar criteria in their judgment since they could agree on which faces are attractive despite different ethnicities.[2–5]

Modern society places a strong emphasis on attractiveness and particularly facial attractiveness.[6,7] It has been shown that people with attractive features are regarded socially as more competent, successful, and likeable.[8–10] Attractive adults and children are judged more favorably and treated more positively than unattractive adults and children, even by those who know them.[10]

One of the objectives of orthodontic treatment is to improve facial esthetics while establishing ideal occlusion. Orthognathic surgery has become a more ac-

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ceptable treatment modality in conjunction with orthodontic treatment as esthetic awareness has been increased by the entertainment media. It has been reported that desire for esthetic improvement is the main reason for orthognathic surgery.[11,12] When treating non-growing patients with skeletal Class II and Class III malocclusions, possible treatment options include camouflage orthodontics and orthognathic surgery. The choice depends on the severity of the skeletal problem present and the facial and dental esthetic improvements anticipated. In some cases, even though ideal occlusion could be achieved with orthodontics alone, an orthodontic-surgical treatment plan is recommended because of an opportunity to improve profile esthetics.

During treatment planning, orthodontists often emphasize profile esthetic outcomes. Orthodontists have a significant influence on patients' decisions regarding which treatment plan to choose. Patients may be persuaded to undergo orthodontic and surgical treatment based on the professional judgment of their clinician. However, a patient's perception of an attractive profile may differ from the clinician's perception.[13–15]

Self-perception of a subject's lip profile was investigated by Hershon and Giddon[16] using a simple profile simulation device. Orthodontic patients and nonpatients were asked to reproduce their own profile, mainly focusing on their lips. It was shown that subjects in both groups underestimated the protrusiveness of their lips. It was suggested that individuals were not able to accurately evaluate their own profiles. In addition, subjects' dissatisfaction with their profiles was significantly correlated with the subjects' perceived magnitude of lip protrusiveness.

Since self-consciousness about dental and facial appearance is an important factor in the decision to seek orthodontic treatment, it would be of special interest to compare clinicians' perceptions of attractiveness with those of patients. Therefore, the purpose of this study was to determine whether there are differences in self-consciousness and perception of an individual's teeth and own profile among laypeople, first-year dental students, third-year dental students, and orthodontic patients.

MATERIALS AND METHODS

Approval to conduct this study was obtained from the Institutional Review Board of Virginia Commonwealth University (VCU). There were four groups of volunteers (n = 75 in each group): laypeople, first-year dental students (freshmen), third-year dental students (juniors), and orthodontic patients. Individuals were at least 18 years old and had no apparent facial deformities, craniofacial abnormalities, or psychological problems. Individuals for the layperson group were recruited from the patient waiting areas in the VCU dental school. They were the relatives of patients and were not under any type of dental treatment. To reduce bias, subjects in first- and third-year dental student groups were asked whether they would be interested in participating after a lecture where most of the class was present. Subjects for the orthodontic patient group were recruited from the orthodontic clinic at the VCU School of Dentistry. Orthodontic patients selected were not scheduled to undergo orthognathic surgical procedures.

After signing a consent form, individuals were given 10 minutes to complete the questionnaire regarding facial and dental appearance. They were asked how conscious they felt they were about their own facial appearance and the appearance of their teeth and how happy they were with their profile and appearance of their teeth. Finally, they were also asked to choose, from among various silhouettes (Figure 1), the one that they thought most resembled their own profile. Self-ratings for facial attractiveness were evaluated on a 1–10 scale, with 1 representing the least attractive and 10 the most attractive. After completion of the questionnaires, profile photographs of the individuals were taken using a digital camera (Olympus C-720). Profile photos were evaluated independently by two orthodontists (experts) to determine whether the subjects were accurate in describing their profile based on the silhouettes provided on the questionnaire.

Differences among groups in identifying their own profiles and differences among profile types regarding consciousness of their appearance and satisfaction with their appearance were compared using χ^2. Agreement between participants and experts was evaluated using the Kappa coefficient. The statistical significance level was set at $P < .05$ for all of the statistical analyses.

RESULTS

Ratings of consciousness and happiness about the profile and teeth are provided in Tables 1 and 2, respectively. When asked how conscious the subjects felt they were about the appearance of their profile, third-year dental students reported being the most conscious (7.93 $\pm$ 1.62), whereas laypeople reported being the least conscious (6.89 $\pm$ 2.60). These two groups were statistically significantly different from each other ($P < .05$, Table 1).

When the subjects were asked how conscious they were about the appearance of their teeth, the mean value for the orthodontic patient group was the highest (8.49 $\pm$ 2.08), while the layperson group reported being the least conscious (7.64 $\pm$ 2.46). Orthodontic pa-

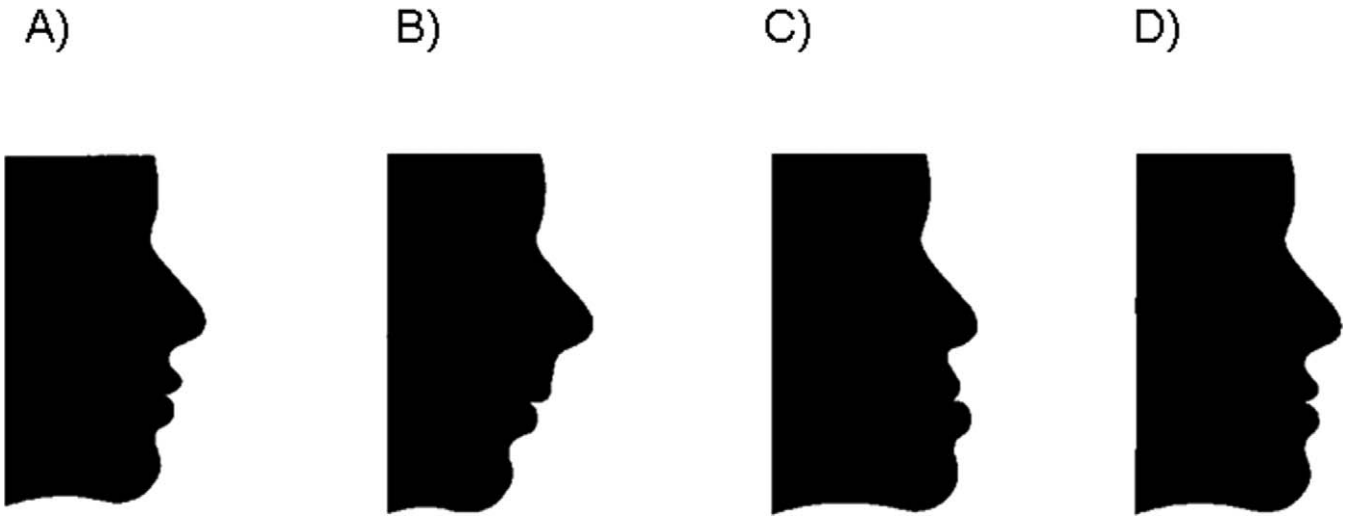

Figure 1. Silhouettes representing (A) Class I, (B) Class II, (C) Class III, and (D) straight profiles.

tients were more conscious about their teeth compared with laypeople ($P < .05$, Table 2).

Statistical analysis of pooled data showed no significant differences between the female and male subjects when the reported consciousness about their own facial profile ($P = .16$) and about the appearance of teeth ($P = .4$) was evaluated.

When the four groups were compared regarding happiness with their profile, there were no statistically significant differences ($P > .05$). Individuals in all four groups were happy on average with their profiles. The mean values for happiness with the profile were 7.43 $\pm$ 1.59, 7.75 $\pm$ 1.99, 7.45 $\pm$ 2.07, and 7.24 $\pm$ 2.02 for the first-year dental student, third-year dental student, orthodontic patient, and layperson groups, respectively.

Regarding happiness with the appearance of their teeth, once again, individuals in all four groups were happy on average with the appearance of their teeth. The mean values for happiness about the teeth were 7.48 $\pm$ 1.71, 7.68 $\pm$ 1.72, 6.85 $\pm$ 2.59, and 6.93 $\pm$ 2.32 for the first-year dental student, third-year dental student, orthodontic patient, and layperson groups, respectively. There were no statistically significant differences among the groups ($P > .05$).

The overall agreement between individuals' perception of their own profiles and evaluation by orthodontists was 53% ($\kappa = .15$). The agreement between the two orthodontists regarding whether a profile was considered Class I, Class II, or Class III was 60% ($\kappa = .37$).

The four groups were different in their ability to perceive their own profile ($P < .05$). Third-year dental students were most accurate in identifying their own profiles (64%, $\kappa = .28$), followed by first-year dental students (57%, $\kappa = .10$), orthodontic patients (48%, $\kappa = .19$), and laypeople (43%, $\kappa = .04$).

Individuals who considered themselves as having a Class II or III profile were less satisfied with the appearance of their profiles ($P < .05$). Those who considered themselves as having a Class III profile were also less happy with the appearance of their teeth ($P < .05$).

DISCUSSION

Third-year dental students reported that they were significantly more conscious of their profile but not of their teeth; one would expect these individuals to be more conscious of their teeth as well. Previous studies

Table 1. Ratings of Consciousness and Happiness About Profile Among the Four Groups

	Level of Consciousness	Level of Happiness
First-year dental students	7.09 $\pm$ 1.77	7.43 $\pm$ 1.59
Third-year dental students	7.93 $\pm$ 1.62*	7.75 $\pm$ 1.99
Orthodontic patients	7.39 $\pm$ 2.39	7.45 $\pm$ 2.07
Laypeople	6.89 $\pm$ 2.60*	7.24 $\pm$ 2.02

* $P < .05$.

Table 2. Ratings of Consciousness and Happiness About Teeth Among the Four Groups

	Level of Consciousness	Level of Happiness
First-year dental students	7.80 $\pm$ 1.68	7.48 $\pm$ 1.71
Third-year dental students	8.47 $\pm$ 1.69	7.68 $\pm$ 1.72
Orthodontic patients	8.49 $\pm$ 2.09*	6.85 $\pm$ 2.59
Laypeople	7.64 $\pm$ 2.46*	6.93 $\pm$ 2.32

* $P < .05$.

have shown that concepts of esthetics are influenced by the level of dental or specialty training.[17,18] This study showed that orthodontic patients were significantly more conscious of their dental esthetic appearance than the other groups were. This is in agreement with previous studies in which increased self-perception has been reported in orthodontically treated groups. Orthodontic patients might have become educated during the initial consultation and might have increased expectations because of the treatment that they were receiving. While it might be expected that orthodontic patients were also less happy with the appearance of their profile or teeth, this was not the case.

Subjects were generally inaccurate in their perceptions of their own profiles. As might be expected, the more accurate judgments of profile were made by third-year dental students (64%), followed by the freshmen (57%). Dental students become more aware of esthetics during their dental education.[17] Therefore, it is not surprising that this group was significantly different in identifying their profile correctly. This result is in agreement with previous studies that showed a significant effect of different levels of education and dental training on the rating of facial attractiveness.[17,19] Although orthodontic patients may become more conscious of their facial profile and esthetics because of the consultation that they receive at the beginning of their treatment, they were accurate only 48% of the time in perceiving their profile accurately. Laypeople showed the least accuracy in identifying their own profiles correctly (43%). This is somewhat expected as individuals in this group do not see themselves from the profile and, unless it is pointed out by a clinician, they may not be aware of their own profile.

It was interesting to note that subjects who perceived their own profiles as being different from average (in other words, individuals who considered themselves as having a Class II or Class III profile) were more likely to be unhappy with their facial appearance. This result was somewhat surprising, as a study by Cochrane et al[14] showed that in general, the public found Class II and Class III profiles to be as attractive as Class I profiles.

The interrater agreement for the identification of profiles was analyzed using the Kappa coefficient of agreement.[20] The .37 interrater value of Kappa indicated only a fair agreement between the two orthodontists in the identification of profiles of subjects in this study. This implies that different clinicians may come up with different diagnoses when using the soft tissue appearance to identify profile characteristics. There was poor agreement in profile identification between the clinicians and the first-year dental student, third-year dental student, and orthodontic patient groups ($\kappa = .15$), suggesting that individuals are not generally aware of their profile. Clinicians and the subjects in all four groups perceived the profile significantly differently. It is important for clinicians to be aware of how patients perceive their own appearance because failure in communication may result in patient dissatisfaction despite well-intentioned treatment planning on the part of the clinician.

CONCLUSIONS

- Subjects with dental education reported increased consciousness of their profile, whereas orthodontic patients reported a higher level of consciousness of their teeth than the individuals in other groups. About half the population cannot characterize their own profile.
- Subjects who perceived their own profiles as being different from average were more likely to be unhappy with their own facial appearance.
- Patients' motives for treatment may not necessarily be related to objectively determined treatment need.

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