At First Glance: Social Meanings of Dental Appearance

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Abstract

Objectives: *An important factor in social interaction is physical appearance. Major elements in the evaluation of physical appearance are the mouth and teeth. The purpose of this study was to evaluate the effect of tooth appearance on the development of a first impression of the other person, with regard to the sex of both the respondent and the target.* ***Methods:*** *Eight facial photographs of individuals with intact upper teeth were manipulated: one set was left untouched and the other was professionally altered so that the front anterior teeth appeared decayed. The photographs were randomly aligned in sets of eight, each set consisting of four individuals with an original, intact dentition and four other individuals with a "decayed" dentition. The sets of photographs were then presented to 115 respondents (65 males and 50 females). Evaluations were made according to three categories of traits—esthetic, social, and professional.* ***Results:*** *For all three evaluation categories, the difference in scores between decayed and intact dentition given to targets were significantly higher when participants of one sex evaluated targets of the opposite sex, as compared to evaluating targets of their own sex.* ***Conclusions:*** *The effect of tooth appearance on the physical attractiveness stereotype is more evident when males evaluate females and vice versa, rather than when evaluating their own sex. [J Public Health Dent 2001;61(3):150-54]*

Key Words: tooth/dental appearance, social meaning, first impression.

In a growing body of research literature, it has been suggested that individual physical appearance systematically affects social attitudes and actions. Initial research regarding beauty (1) suggested the existence of a physical attractiveness stereotype, which is compatible with the stereotype that "what is beautiful is good." Dion et al. (1) have shown that physically attractive persons are assumed to possess more socially desirable personalities, and are happier and more successful than those who are less attractive. Furthermore, not only are attractive people preferred as potential friends (2), but physical attractiveness also influences the way in which they and their performance are evaluated by others (3).

Since the early 1970s, research concerning beauty and its effect on a person's perception has expanded significantly. For example, Miyake and Zuckerman (4) have shown that greater physical attractiveness is related to stronger belief that the target shares one's behavior, to the choice of targets as compared to others, and to the affiliation with targets. Furthermore, the effect of physical attractiveness may vary between sexes, e.g., that being perceived as physically attractive creates positive impressions of achievement-related traits for men, but negative impressions for women (5).

Undoubtedly, the face influences judgment concerning overall attractiveness. For example, the use of makeup can change a woman's overall attractiveness more than one standard deviation on a physical attractiveness scale (6). In addition, faces significantly influence ratings of intelligence, sociability, and morality (7), and faces judged as pleasant looking receive higher positive trait evaluations than those judged as unpleasant (8). Thus, it is not surprising that a facial disfigurement has a significant negative effect on the chances of being selected for a job (9) and that facial attractiveness is important in situations such as education, relationships, and employment (10).

Various factors affecting appearance and esthetics in oral health have been reviewed (11). Facial attractiveness is usually positively associated with widely spaced eyes, a small nose (8), and straight teeth (12). Most of the research regarding dental-facial attractiveness refers to orthodontic treatment. Tedesco et al. (13,14) developed a dental-facial attractiveness scale, which has been used in numerous studies. The data presented by Tedesco et al. (14) suggest that average ratings of dental-facial attractiveness are highly similar among adolescents of different race and sex, suggesting the existence of relative standards. The dentofacial appearance was significantly related to esthetic judgments of children and college students in the United States (15) and teenagers in the Netherlands (16), and to the social attractiveness of young adults in Finland (17).

Perception of differential attractiveness occurs effortlessly or automatically with the initial encoding of sensory data, and physical attractiveness implicates sex-stereotype memory frames at the perceptual end of the social information-processing spectrum. It has been claimed that individuals can differentiate between levels of attractiveness of both males and females on the basis of cue information contained in a single brief glance at a target (18).

Thus, appearance is an important factor in social interaction and success and the mouth and teeth are major elements in these evaluations. In the

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research of social cognition, a so-called "halo effect" has to be considered, which reflects the tendency of subjects to be influenced by a value of an already known, but objectively irrelevant, attribute (e.g., sex). For example, Landy and Sigall (3) found that essays attributed to a female student were judged by male students to be of a higher quality when the stimulus material included a photograph showing the author to be physically attractive, rather than unattractive. Furthermore, physical attractiveness-based halo effects have been found to be greater for female than for male targets (19).

Both the sex of the target and the sex of the judge appear to affect the esthetic evaluation. For example, in the study by Kerosuo et al. (17), female test faces were judged on average more favorably than male faces, while in the study of Carlsson et al. (20) more women than men placed greater importance on dental appearance.

The purpose of the present study was to evaluate the effect of tooth appearance on the development of a first impression of the other person regarding esthetics, social skills, and professional skills with regard to the sex of both the respondent and the target.

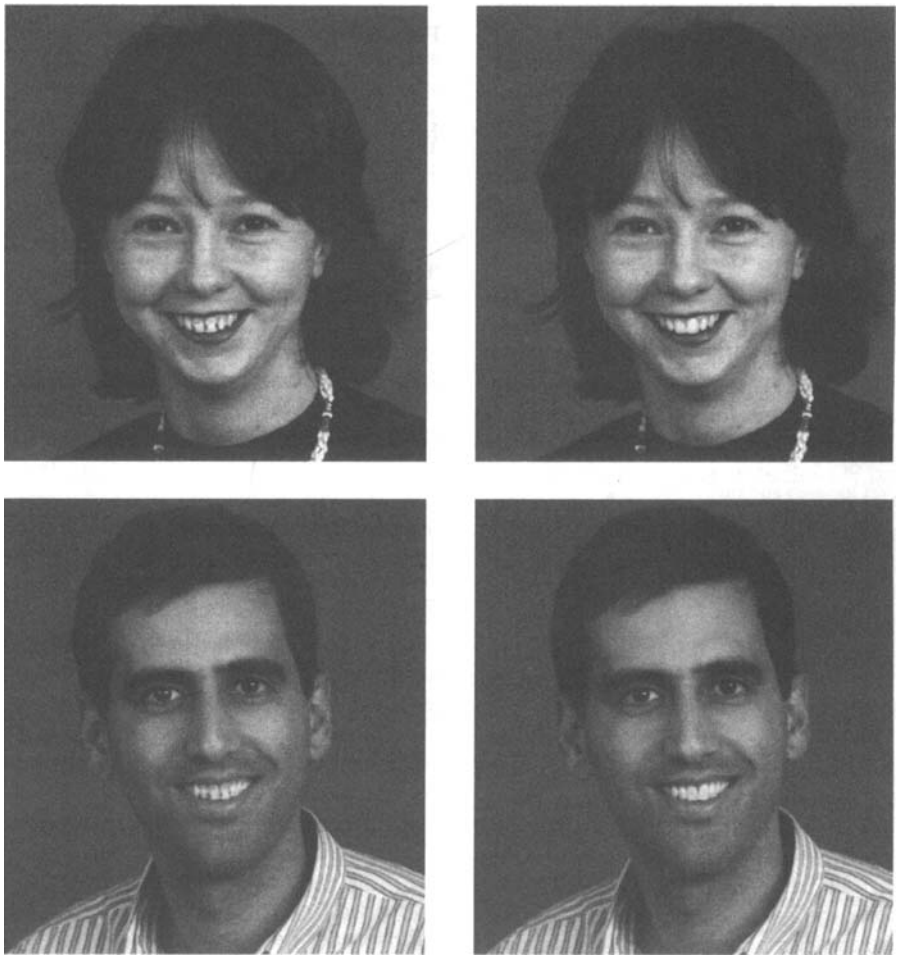
Methods

Respondents. The respondents were relatively homogeneous on race, age, and education. The group included 115 law students (65 male and 50 female) at Tel Aviv University. All respondents were Caucasians. Their average age was 27.24 years (SD=5.30).

Materials. *Targets.* Ten 12 x 15 cm facial photographs of 30–40-year-olds (five male and five female) with intact maxillary teeth were professionally taken, in which the photographed individuals are smiling and showing their upper teeth (no glasses, mustache, beard, or baldness). All targets were Caucasians with no apparent ethnic origin. Initially, the photographs were presented to 10 individual judges (other than the one who participated in the final study), who were requested to rate them according to their general attractiveness. Eight photographs (four men and four women), presenting a similar degree of attractiveness, were selected as targets for the study.

All eight photographs were duplicated. One set was left untouched with the original intact dentition, and the other was professionally altered so that the front anterior teeth appeared decayed (Figure 1). The photographs were randomly aligned in two groups of eight. Each group consisted of four photographs (two men and two women) with an original, intact dentition and four (two other men and two other women) with "decayed" dentition. The photographs (in sets of eight, as explained above) were randomly presented to the respondents who were requested to complete an evaluation questionnaire.

FIGURE 1
Photographs of Male and Female Targets with Intact Dentition and Following Manipulation to Present Anterior Teeth as Decayed
[Note that each respondent received only one photo of each target, with either an intact or a "decayed" dentition.]



Questionnaire. The questionnaire used in the present study was developed as a tool to judge general human traits. Initially, 20 individuals were requested to freely indicate traits that in their opinion characterize individuals. The most common 14 traits were selected to be included in the study. A factor analysis, using varimax rotation performed on the responses of the 115 respondents, revealed three categories of traits:

1. Esthetic: clean/dirty, esthetic/nonesthetic, beautiful/ugly.
2. Professional: industrious/lazy, initiative/noninitiative, successful/unsuccessful, educated/uneducated, intelligent/unintelligent, has management skills/lacks management skills.
3. Social: interesting/dull, truthful/liar, pleasant/unpleasant, considerate/inconsiderate, likes people/hates people.

The rating of each trait was on an Osgood 6-point subscale (for example: ranging from 1=clean to 6=dirty). Reliability scales were calculated using data from 115 respondents according to trait categories (esthetic, social, professional), sex of target, and two types

of dentition (intact or decayed) (Table 1). Reliability proved to be adequate for all scales (Cronbach alpha range=0.71–0.88).

Procedure. The photographs were presented to respondents in a nondental setting (Law Faculty, Tel Aviv University). To avoid bias, the researcher (IK) did not present herself as a dental student and explained that the study referred to psychological issues. Participants were told that the study examines how people form an opinion of a person they have just met.

Participants were asked to inspect each photograph for 20–30 seconds and to complete the evaluation questionnaire regarding the photographed individual. A separate questionnaire was completed for each photograph.

Analysis of Data. Initially, mean and SD values were calculated regarding scores given by respondents to targets. Following calculations of the means, a dependent variable was constructed by calculating the difference between the score given to a target with decayed dentition and the score given to the same target with intact dentition.

Finally, a 2 x 2 (sex of respondent and sex of target) within-between ANOVA was performed for each of the three evaluation categories. Within-ANOVA represents a comparison between two measures taken from the same respondent, e.g., the comparison between scores for female targets versus scores for male targets, when each respondent judged both male and female targets. Between-ANOVA represents a comparison between two groups of respondents, e.g., the comparison of judgments made by male respondents and those made by female respondents. Examination of the source of interactions, when significant, was carried out by using an *a posteriori* Tukey/B test, which is one of several tests (e.g., Bonferroni, LSD, Duncan, and Scheffe) designed for comparing all possible pairs of group means after a significant interaction effect was found, yet avoiding the problem of multiple tests and inflation of a type I error. The test takes into account the number of groups in the design and the order of these means. Thus, the closer the means of two groups and the lower the number of groups, the higher the probability of finding the specific test significant (21).

TABLE 1
Reliability of Evaluation Scales*

Target's Sex	Category	Dentition Type: Decayed	Dentition Type: Intact
Female	Esthetic	.73†	.71
	Social	.82	.88
	Professional	.83	.88
Male	Esthetic	.76	.84
	Social	.78	.82
	Professional	.87	.88

*Evaluation scales as explained in Methods.
†Reliability expressed in Cronbah's alpha.

TABLE 2
Means (± Standard Deviation) of Scores Given to Targets

Respondent's Sex	Category	Target's Sex: Female: Normal	Target's Sex: Female: Decayed	Target's Sex: Male: Normal	Target's Sex: Male: Decayed
Female	Esthetic	4.22±.77	3.33±.94	4.38±.88	3.09±.81
	Social	4.36±.73	4.13±.77	4.41±.69	3.77±.74
	Professional	4.25±.67	4.00±.68	4.38±.73	3.74±.76
Male	Esthetic	4.49±.67	3.19±.87	3.96±.85	3.23±.81
	Social	4.46±.77	3.88±.67	4.10±.64	3.72±.54
	Professional	4.45±.69	3.79±.69	4.16±.61	3.80±.59

TABLE 3
Difference Between Scores Given to Target with Decayed Dentition and Scores Given to Same Target with Intact Dentition (Mean±Standard Deviation)

Respondent's Sex	Category	Target's Sex: Female	Target's Sex: Male
Female	Esthetic	.89±1.18	1.28±1.27
	Social	.24±.73	.64±.79
	Professional	.24±.71	.64±.86
Male	Esthetic	1.30±1.17	.73±1.24
	Social	.60±.95	.39±.66
	Professional	.64±1.06	.37±.83

Results

Mean and SD values regarding scores given by respondents to targets are presented in Table 2. Difference between the scores given to a target with decayed dentition and the scores given to the same target with intact dentition are presented in Table 3. The difference scores were positive for all variables. That is, respondents consistently rated targets with intact dentition more positively than the same targets with decayed dentition.

The ANOVA tests yielded significant interactions for each of the three evaluation categories: esthetic, $F_{(1,111)}=11.17$ ($P<.01$); professional, $F_{(1,110)}=10.36$ ($P<.01$); and social, $F_{(1,109)}=10.61$ ($P<.01$). Examination of the source of the interactions showed

that for all three trait categories, the difference in scores between decayed and intact dentition was significantly higher when participants of one sex evaluated targets of the opposite sex, compared to evaluating targets of their own sex. For example, the difference in the professional evaluation of female targets by female judges was 0.24, while the difference in the professional evaluation of male targets by female judges was 0.64 (Table 3). Both sexes were affected more by the dental appearance when the evaluated target was of the opposite sex.

Discussion

Many studies confirm that people whose photographs are rated as attractive are evaluated more positively on various traits than those who are perceived as less attractive. A meta-analysis of studies on the appearance and person perception conducted by Eagly et al. (22) suggests the presence of a "beautiful is good" stereotype.

In the present study, this stereotype was examined with reference to the appearance of teeth. As expected, individuals with normal dentition were consistently scored as being more esthetic and more successful socially and professionally than individuals whose appearance was altered to show decayed teeth. This confirms the findings of Locher et al. (18), who found that the subjects' evaluation of the target's job suitability differed significantly as a function of level of attractiveness.

Apparently, the physical attractiveness stereotype continues to exist (3-5,7,10). Even if perception, which binds physical attractiveness with social and professional success, originates in the improved behavioral skills of the attractive individual (23,24), appearance does play a major role in daily life. In an early study, Linn (25) indicated a high public awareness that dental appearance may be important, but did not detect differences between the sensitivities of men and women. However, a more recent study (20) found that more women than men placed importance on appearance.

In the present study, the effect of dental appearance on the evaluation of the target was most prominent when respondents of both sexes referred to targets of the opposite sex. This contradicts the notions that physical attractiveness, as an evaluate cue in perception of a person, operates differently for males and females. Bar-Tal and Saxe (19) argue that the positive stereotype for physically attractive males is sometimes not used, or is less strong, than for attractive women. The results obtained in our study do not support this notion. Namely, the effect of tooth appearance on the physical attractiveness stereotype was stronger, both when men evaluated women and when women evaluated men, than when subjects evaluated targets of their own sex. Similarly, McKelvie (26) has shown that the negative relationship between age and attractiveness disappears when women judged female faces. The reason may be in the differences that occur in the cultural roles of men and women in society in the last decades or in the specific erogenic role of the oral cavity that consciously or unconsciously activates sexual contexts.

Although the basic norms of dental esthetic values may change among races and cultures (27), dental appearance involves important social meanings. The esthetic appearance of teeth has an immediate effect on the way we form an opinion of another person based on a first impression. These opinions may be important because we occasionally have to make an instant decision regarding a person we just met. Furthermore, a person's physical and social characteristics, including the face and/or body, can sometimes be changed to create a favorable impression in others (28). The dental profession plays a major part in this respect. Therefore, it is important to improve our understanding of the impact of dental appearance on the social and professional evaluation of the other person.

Apparently, dental appearance has a significant effect on the way we create a first impression of the other person. The results presented refer to a specific group of respondents (young educated adults in a Western society) and are not necessarily representative of other populations and other cultural contexts. Moreover, first impression created by a live encounter with another person is clearly different from evaluation of a person on the basis of photographs. Other factors—such as voice, smell, and body language—can have a significant effect on the created impression. Nevertheless, the data suggest that there are differences between the sexes regarding the effect dental appearance has on their evaluation of the other person. Although there seems to be a basic agreement concerning factors affecting facial and dental attractiveness, it has recently been suggested that the significance of dental appearance varies among different groups (dentists, dental technicians, and nondental subjects) (20). Our study suggests that it also may be affected by the sex of both parties participating in the encounter. Further research in this respect should include the evaluation of different dental defects (e.g., tooth size, diastema) by different social groups (e.g., dentists, salespeople) in different cultural contexts and different social situations.

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