

Can a New Smile Make You Look More Intelligent and Successful?

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One of the intriguing findings in psychological research is the existence of a physical attractiveness stereotype. Researchers have found that people believe that beautiful individuals are happier, sexually warmer, more outgoing, more intelligent, and more successful than their less attractive counterparts [1–3]. Research on cosmetic surgery has shown this effect in its strongest form. One study used photographs of women before and after cosmetic surgery and found that the pictured women were perceived as more physically attractive, kinder, more sensitive, sexually warmer, more responsive, and more likable after surgery than before it [4].

Although the physical attractiveness stereotype has been demonstrated with overall attractiveness, the role teeth play in perceptions of overall attractiveness has never been established. It has never been ascertained whether appealing teeth alone can influence perceptions of one's personality. This research study investigates these two questions. (The American Academy of Cosmetic Dentistry commissioned Beall Research & Training, Inc. to conduct this study to ascertain what impact attractive teeth have on perceptions of an individual's appearance and personality attributes.)

Research design

This research used a between-subject's design in which one half of respondents viewed one set of pictures (Set A) and the other half viewed another set of pictures (Set B) (Table 1). Sets A and B comprised pictures of individuals in which one half of all photos were of a person with a "before" smile and the other half were with people with a smile "after" cosmetic dentistry. No respondent ever saw the same person with a "before" and "after" smile; however, all respondents viewed the same set of eight individuals.

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Table 1
Picture sets used in study

Picture set A	Picture set B	Change
Female pictures		
Maribel (<i>before smile</i>)	Maribel (<i>after smile</i>)	Major
Stephanie (<i>after smile</i>)	Stephanie (<i>before smile</i>)	Major
Kathy (<i>after smile</i>)	Kathy (<i>before smile</i>)	Moderate
Shelley (<i>before smile</i>)	Shelley (<i>after smile</i>)	Minor
Male pictures		
Jim (<i>before smile</i>)	Jim (<i>after smile</i>)	Major
Mike (<i>after smile</i>)	Mike (<i>before smile</i>)	Major
Milt (<i>before smile</i>)	Milt (<i>after smile</i>)	Moderate
Bob (<i>after smile</i>)	Bob (<i>before smile</i>)	Minor

Fig. 1 contains one picture set that was shown. (To see all pictures used in this study, please visit www.aacd.com.) One half of the pictures were of men and the other half were of women. Each picture was classified in terms of the degree of change between the “before” and “after” smile. Four of the photos involved patients who underwent major changes, two underwent moderate changes, and two showed minor changes. After seeing each picture, respondents rated each person on the following attributes:

- Attractive
- Intelligent
- Happy
- Successful in their career
- Friendly
- Interesting
- Kind
- Wealthy
- Popular with the opposite sex
- Sensitive to other people



Fig. 1. Picture example (Bob). One half of respondents saw the picture on the left and the other half of respondents saw the picture on the right. (Courtesy of American Academy of Cosmetic Dentistry, Madison, WI; with permission.)

Respondents used a 1 to 10 scale, in which “1” represented “not at all” and “10” represented “extremely.” A rating of “10” on the first attribute would indicate that the respondent thought the pictured person was “extremely attractive.” Photos and ratings were randomized to eliminate order effects. All photos were randomized for each respondent along with the order of the rated attributes.

We conducted this study with a national sample of the US population. Completion quotas were set for age groups, income groups, geographic region and gender to represent the US population. The percentage of respondents in each quota category is shown at the end of this document along with the percentage of individuals for that category of the US population.

We conducted this study over the Internet. Five hundred twenty-eight respondents completed the survey. This sample size yields a confidence interval of $\pm 4\%$, which means that the true answer for the US population is $\pm 4\%$.

Statistical analyses

All statistical analyses were conducted on the mean ratings, which are shown in Tables 2 and 3. We conducted a paired T-test, which is a statistical test of significance that is designed to establish if a difference exists between sample means. In this research, that result is the difference between the mean rating of people with “before” smiles and the mean rating of people with “after” smiles. Statistically speaking, the T-test is the ratio of the variance that occurs between the sample means to the variance occurring within the sample groups. A large T-value occurs when the variance between groups is larger than the variance within groups. Large T-values indicate a significant difference between the sample means.

Table 2
T-statistics for each attribute

Attribute	Rating of “before” smile ^a	Rating of “after” smile ^a	T-statistic	Significance
Attractive	4.63	5.89	25.81	<.0001
Intelligent	5.85	6.51	16.11	<.0001
Happy	6.22	6.82	13.59	<.0001
Successful in their career	5.76	6.69	20.87	<.0001
Friendly	6.26	6.75	11.94	<.0001
Interesting	5.43	6.12	16.34	<.0001
Kind	5.98	6.40	10.37	<.0001
Wealthy	4.93	5.89	20.27	<.0001
Popular with the opposite sex	5.00	6.18	23.61	<.0001
Sensitive to other people	5.65	6.10	10.97	<.0001

^a Composite mean.

Table 3
T-statistics arrayed by strongest effects

Attribute	Rating of “before” smile ^a	Rating of “after” smile ^a	T-statistic	Significance
Attractive	4.63	5.89	25.81	<.0001
Popular with the opposite sex	5.00	6.18	23.61	<.0001
Successful in their career	5.76	6.69	20.87	<.0001
Wealthy	4.93	5.89	20.27	<.0001
Interesting	5.43	6.12	16.34	<.0001
Intelligent	5.85	6.51	16.11	<.0001
Happy	6.22	6.82	13.59	<.0001
Friendly	6.26	6.75	11.94	<.0001
Sensitive to other people	5.65	6.10	10.97	<.0001
Kind	5.98	6.40	10.37	<.0001

^a Composite mean.

We conducted a paired T-test on each attribute individually. We looked at the mean rating for the “before” smile and the “after” smile and determined if this difference was statistically significant. Because each respondent rated eight different pictures, we created a composite mean of their ratings for the “before” smile pictures and the “after” smile pictures. The T-test was conducted on these composite means.

Major results

The results of the T-tests are shown in [Table 2](#). This statistical analysis demonstrated that there is a major effect of a smile on perceptions of all major attributes. In each case, people are viewed as more attractive, intelligent, happy, successful in their career, friendly, interesting, kind, wealthy, and popular with the opposite sex with smiles that have been altered by cosmetic dentistry versus their original smiles. [Table 2](#) contains the T-statistic for each attribute.

These attributes also can be arrayed in terms of the strongest effects—the largest T-statistics. [Table 3](#) contains the information from [Table 2](#) as ranked by the size of the T-statistic. The attributes of being attractive, popular with the opposite sex, successful in their career, and wealthy had the largest T-statistics. These attributes had a higher mean for the “after” smile, however, and were all statistically significantly different.

Type of change

We also looked at the amount of change between the “before” and “after” smile and classified the changes as major, moderate, and minor. These

classifications were observational and were not validated in any way. They were included because we wanted to show a range of changes because it is likely that cosmetic dentistry is done for various smiles in actual practice. The data in Table 4 show the mean ratings for the “before” and “after” smile for each type of change.

As the data show, the major changes showed the largest mean differences between the “before” and “after” smiles. These differences ranged from 0.6 to 1.9. Moderate changes showed a mean difference that ranged from 0.3 to 0.8. Not surprisingly, minor changes showed the smallest mean differences, which ranged from 0.2 to 0.6 (see Table 4).

Table 4
Ratings for major, moderate, and minor changes in smile

Attributes	“Before smile” mean (n = 264)	“After smile” mean (n = 264)	Difference
Major changes			
Attractive	4.5	6.4	1.9
Intelligent	5.7	6.7	1.0
Happy	6.2	7.0	0.8
Successful in their career	5.5	6.8	1.3
Friendly	6.3	7.0	0.7
Interesting	5.4	6.5	1.1
Kind	6.0	6.6	0.6
Wealthy	4.6	6.0	1.4
Popular with the opposite sex	5.0	6.7	1.7
Sensitive to other people	5.7	6.3	0.6
Moderate changes			
Attractive	4.6	5.3	0.7
Intelligent	5.9	6.3	0.4
Happy	6.2	6.7	0.5
Successful in their career	5.7	6.4	0.7
Friendly	6.4	6.8	0.4
Interesting	5.4	5.9	0.5
Kind	6.1	6.4	0.3
Wealthy	4.8	5.4	0.6
Popular with the opposite sex	4.9	5.7	0.8
Sensitive to other people	5.8	6.1	0.3
Minor changes			
Attractive	4.8	5.4	0.6
Intelligent	6.1	6.4	0.3
Happy	6.2	6.4	0.2
Successful in their career	6.4	6.9	0.5
Friendly	6.1	6.3	0.2
Interesting	5.5	5.7	0.2
Kind	5.8	6.0	0.2
Wealthy	5.7	6.2	0.5
Popular with the opposite sex	5.1	5.6	0.5
Sensitive to other people	5.4	5.7	0.3

In general, the largest differences between the “before” and “after” smile for each type of change occurred for the attributes of being attractive, successful in their career, wealthy, and popular with the opposite sex.

Gender of pictured person

Table 5 shows the ratings for “before” and “after” smile pictures of men and women. The difference in ratings for male pictures ranged from 0.4 to 1.2, with the largest differences occurring for attributes of being attractive, popular with the opposite sex, and successful in their career. For women, the difference ranged from 0.4 to 1.3, with the largest differences occurring for attributes of being attractive, popular with the opposite sex, and wealthy. These tables clearly demonstrate that the effect of cosmetic dentistry is seen with male and female pictures.

Demographics

This study imposed strict quotas for geographic region, age, household income, and gender. Table 6 shows the percentage of respondents in each category. The final respondents are representative of the US population in terms of region, age, income, and gender.

Table 5
Ratings for male and female pictures

Attributes	“Before smile” mean (n = 264)	“After smile” mean (n = 264)	Difference
Male pictures			
Attractive	4.7	5.9	1.2
Intelligent	5.9	6.5	0.6
Happy	6.2	6.8	0.6
Successful in their career	5.7	6.7	1.0
Friendly	6.2	6.7	0.5
Interesting	5.5	6.2	0.7
Kind	6.0	6.4	0.4
Wealthy	5.1	6.0	0.9
Popular with the opposite sex	5.1	6.2	1.1
Sensitive to other people	5.7	6.1	0.4
Female pictures			
Attractive	4.5	5.8	1.3
Intelligent	5.8	6.6	0.8
Happy	6.3	6.9	0.6
Successful in their career	5.8	6.7	0.9
Friendly	6.3	6.8	0.5
Interesting	5.4	6.1	0.7
Kind	6.0	6.4	0.4
Wealthy	4.8	5.8	1.0
Popular with the opposite sex	4.9	6.1	1.2
Sensitive to other people	5.6	6.1	0.5

Table 6
Demographics of study

N = 528	Sample percentage (%)	US population percentage (%)
Region		
Northeast	18	19
Midwest	22	22
South	37	36
West	23	23
Age		
18–24 years old	12	12
25–34 years old	18	18
35–44 years old	21	20
45–54 years old	20	19
55–64 years old	15	14
65 or older	16	16
Household income		
<\$20,000 per year	23	22
\$20,000–\$49,999 per year	33	33
\$50,000–\$74,999 per year	18	18
\$75,000–\$99,999 per year	11	11
≥\$100,000 per year	16	16
Gender		
Male	52	49
Female	49	51

Data from US Census Bureau: Population Estimates GCT-T1: 2005 Population Estimates; US Census Bureau/2004 American Community Survey; US Census: Annual Demographic Survey HINC-01: Selected Characteristics of Households by Total Money Income 2004; US Census Bureau/2004 American Community Survey. Available at: <http://www.factfinder.census.gov>.

Discussion

The data from this study clearly demonstrate that a smile has a tremendous impact on perceptions of one's attractiveness and one's personality. Previous psychological research has shown that attractive people are perceived as more successful, intelligent, and friendly. This research extends these findings by demonstrating that the teeth alone can have an impact on overall attractiveness and perceptions of personality attributes.

The strongest effect of a smile is for attractiveness and being popular with the opposite sex. Popularity with the other gender is likely a proxy measure of attractiveness. Similarly strong effects occur for perceptions of being successful in one's career and being wealthy. These measures are somewhat similar, and it is possible that people believe that when one is successful, one tends to be wealthy. Other strong effects occur for being interesting, intelligent, happy, friendly, sensitive to others, and kind. For each of these attributes, people with smiles altered by cosmetic dentistry were regarded as having more of the attribute—as being more interesting, intelligent, and happy—than people with their original smiles.

These effects were observed for male and female pictures. Not surprisingly, the impact of a smile was less pronounced for minor changes in the

“before” and “after” smile than for moderate and major changes. It is noticeable, however, that the mean rating was higher for all attributes on the “after” smile than for the “before” smile, even for minor changes.

So how true are these stereotypes? Research has demonstrated that attractive people are somewhat more relaxed and outgoing and have more social finesse than less attractive individuals [2,5]. In one research study, men talked with several women for 5 minutes over the phone and then rated each woman. The women who were most attractive were rated as more socially skillful and likable.

What about being successful and wealthy? In a national study of Canadians, researchers rated individuals on a 1 to 5 attractiveness scale. They found that for each additional scale of attractiveness, people earned an additional \$1988 annually [6]. This finding has been replicated in the United States with MBA students [7]. Researchers demonstrated that for each additional scale unit of attractiveness, the men earned an additional \$2600 per month and the women earned an additional \$2150. Both of these studies were conducted in the 1990s, so one can imagine what the dollar amounts would be now.

It is possible that there is a self-fulfilling prophecy at work. Because people expect attractive individuals to be more intelligent, successful, and likable, they treat them in ways that engender these behaviors. Expectations for others have been shown to have a tremendous impact on how we treat people and how they behave in return, which leads to a self-fulfilling prophecy [8]. The more the behaviors are confirmed, the more we tend to believe in our expectations. It is also possible that because people treat attractive people in certain ways, attractive individuals begin to develop more social self-confidence and greater self-esteem than their unattractive counterparts.

The results of this study extend the attractiveness research and demonstrate that one’s smile is an important part of the physical attractiveness stereotype. One’s smile clearly plays a significant role in the perception that others have of our appearance and our personality.

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