

Dental esthetic and the likelihood of finding a job in Saudi Arabia. A cross-sectional study

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ABSTRACT

Background: Person's physical, dental appearance, and sexual identity are the characteristics most obvious to others. Prior researches suggest that visible sign of unhealthy dental status may lead to an individual's social or professional exclusion, so the aim of the study was to measure the influence of dental appearance on hiring managers' perception of intelligence, honesty and efficiency of job applicants in Saudi Arabia, and the likelihood of employment opportunity. **Materials and Methods:** This cross-sectional study comprised 280 hiring managers. All participants were assigned randomly into two groups and received a survey with 10 different images for hypothetical job applicants. The images were digitally manipulated to have the Saudi national dress and to represent different dental conditions. The photos in both surveys were the opposite with no repetition except for 3 for reliability. Each evaluator randomly received one survey without knowing of the other. Participants were asked questions about their perception of honesty, intelligence, efficiency, and potential employability of the provided applicants' photos. **Results:** There was no statistically significant difference in demographics data between the hiring managers assigned to both groups. Hypothetical job applicants with smiles affected by malocclusion were perceived to be less intelligent with P value = 0.0001, but there was no altered perception for honesty and efficiency. Moreover, applicants with caries were perceived to be less honest, intelligent, and efficient by the hiring managers with P value of 0.0007, 0.0011 and 0.0138, respectively. Applicants with dental imperfections compared to normal smile were 52% less likely to be employed. **Conclusion:** Dental appearance might alter people perception about the character of the affected person, and it might influence the judgment of future employers when screening for candidates; as a result, we recommend more educational programs for the public and hiring managers.

Keywords: Dental, esthetics, intelligence, perception

Introduction

In any social interaction, person's physical appearance and sexual identity are the personal characteristics most obvious and accessible to others. A number of implications of a person's physical attractiveness were found on different aspects of social interaction^[1-3] Dion, Berscheid and Walster, 1972 suggested

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that "good-looking" people have higher strength and better chance.^[1,4] Physically attractive people are perceived to be more intelligent and more qualified at job interviews.^[5] Higher salary and more prestigious jobs are believed to be for those attractive individuals.^[5,6]

The face is the most important part in the body that plays a major role in terms of attraction and social communication.^[7] The appearance of the mouth and the teeth are essential elements in esthetic evaluation, and the social and mental well-being may

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be affected if the oral esthetic is unpleasing.^[8,9] In both social and professional circumstances, dental appearance is often the first quality to be assessed by an onlooker. Any visible sign of unhealthy dental status may influence the observer and such an appearance may lead to an individual's social exclusion. For example, loss of employment opportunities or loss of educational opportunities.^[5,10] Overall, individuals with poor dental appearance are more common to receive initial negative perception.^[5,10,11]

Human being's perceptual system is able to automatically and effortlessly detect cue information associated with attractiveness by a single brief glance at another person.^[12] This process starts by initial encoding of sensory data; ending by the physical attractiveness which is included in sex-serotype memory frames of the social information processing spectrum.^[9,12] For example, a "blemished" person feels odd, not because he/she is not beautiful in the ideal sense, but he/she believes that reaching a minimum standard of acceptability is difficult.^[13]

Methodology

Prior to the conduction of this cross-sectional study it was independently reviewed and approved by the ethics committee at King Abdullah International Medical Research Center (KAIMRC), (IRB/RSS18/004/R) (29/07/2018).

Sample size calculation was carried out by online Raosoft® sample size calculator. The number of the Saudi population working in the collective and social serves is 399,827 employees from both genders according to the General Authority for Statistics in Saudi Arabia 2018. Therefore, for sample size determination, when the confidence level is 95% and confidence interval is 6, the sample size needed is 267.

This cross-sectional study was carried out through an IPAD based survey. It included only managers responsible for hiring employees from different companies or institutions (sector of human resources) in Saudi Arabia to measure the influence of dental appearance upon perception and the chance of finding a new job. Data was collected over a period of 1 week from 29th July to 4th August 2018. 280 participants met the inclusion criteria and were consented to participate in this study.

The method used was based on a previous study done by *Pitbon et al.* in 2014 which relied on a study done by *Henson et al.* in 2011.^[6,8] In both studies, they measured the influence of dental esthetics on social perceptions. *Pitbon et al.* was asked for his consent on the used photos and for their digital manipulation.^[8] Therefore, each image was manipulated using (Adobe Photoshop cc2018) to have the Saudi national dress and to represent different dental conditions in order to fit the current study. This resulted in creating photos of seven adult females and three adult males with either their original smile, carious teeth or having a malocclusion [Figure 1]. Following this, two surveys were built in which each corresponding photo in the two surveys were

the opposite; for example, if carious smile in A, then normal smile in B with no repetition of the photos in both surveys except for 3 photos for reliability. Each evaluator randomly received one survey without knowing the existence of the other. Participants were asked to provide certain demographics for this study regarding their age, gender, nationality, level of education, position, sector and their years of experience. Then four questions were asked about their perception on honesty, intelligence, efficiency, and potential employability for each photo of provided applicants. The question specifically stated; 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? The participants rated the answer of the four questions based on a scale from 0 to 10 reflecting their perception regarding the effect of dental esthetic on each of the studied criteria.

Demographics data for both groups (A and B) surveys were summarized and analyzed using Chi-square for categorical data, and independent T-Test for continuous data. Mann-Whitney test was used to compare median of age and evaluations of photos used as negative and positive controls in survey A and B. Repeated measures analysis was used to determine the differences recorded for original and altered photos when evaluated for the 4 decided criteria (likelihood of being hired, honesty, intelligence, and efficiency). *P* value of < 0.05 was considered significant. All analyses were performed using SAS 9.4.

Results

Table 1 shows the demographic data of the evaluators according to the survey group they were assigned to evaluate. There was no significant difference with regard to age, sex, nationality, level of education, position, sector, and years of experience in the distribution of the evaluators who responded to survey groups A and B. In general, the mean age of the evaluators was 31.97 years; most were male (53.57%) and Saudi (96.42%).

The image of the hypothetical job applicant 8 with a normal smile, used as a control, was evaluated similarly by the hiring managers with no significant difference in both groups with respect to the judgments about honesty, intelligence, efficiency and hiring [Figure 2].

Hypothetical job applicants with smiles affected by malocclusion were perceived to be less intelligent (*P*-value of < 0.0001), but there was no altered perception for honesty and efficiency [Figure 3a]. Otherwise, hypothetical job applicants with smiles affected by caries were perceived to be less honest, less intelligent, and less efficient by the hiring managers with *P* value of 0.0007, 0.0011, and 0.0138, respectively [Figure 3b].

Hypothetical job applicants with dental imperfections (malocclusion and caries) were 52% less likely to be employed collectively compared to applicants with normal smile, by calculating the odd ration [Table 2].



Figure 1: Images of hypothetical job applicants in both groups (A and B) surveys

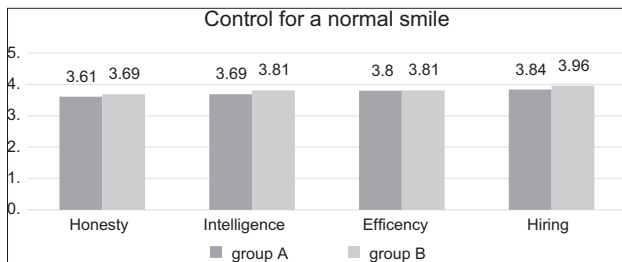


Figure 2: Comparison of the evaluations between survey groups A and B for the characteristics perceived with regard to the control image

Discussion

Onlooker’s perception of others’ intellect, character, socioeconomic, and mental status might be highly influenced by their facial appearance.^[10,11] Dental appearance is often the

first aspect to be assessed by an observer in both social and professional circumstances.^[14-16] Based on a previous study by Python *et al.* our study have evaluated whether dental esthetics have any effect on the likelihood of getting a new job in Saudi Arabia.^[8] As the results stated, the hypothetical job applicants with smiles affected by malocclusion were perceived to be less intelligent. On the other hand, applicants with smiles affected by caries were perceived to be less honest, less intelligent, and less efficient by the hiring managers. These results might be an indication that dental treatment not only results in better health and aesthetic but can also improves one’s social acceptance. As seen in figure there was no significant difference between the hiring managers assigned to survey groups A and B with respect to demographic data. This might support that the resulted data were not significantly affected by a certain group of age, sex, nationality, level of education, position, sector, and years of experience.

Table 1: Demographics data of participating hiring managers

Variables	Group A (n=140)	Group B (n=140)	Overall (n=280)	P
Age mean±S.D.	31.16±7.33	32.78±8.40	31.97±7.91	0.1532
Gender n (%)				
Male	59.29	47.86	53.57	0.0721
Female	40.71	52.14	46.43	
Nationality n (%)				
Saudi	97.86	94.96	96.42	0.2172
Non-Saudi	2.14	5.04	3.58	
Level of Education n (%)				
High school	2.86	5.00	3.93	0.7439
Diploma	10.00	9.29	9.64	
Bachelor degree	65.00	65.71	65.36	
Master degree	15.71	16.43	16.07	
More than a master degree	6.43	3.57	5.00	
Position n (%)				
Human resources employee	59.29	67.14	63.21	0.3452
Manager	27.14	20.00	23.57	
Others	13.57	12.86	13.21	
Sector n (%)				
Educational	11.43	15.00	13.21	0.1705
Banking	5.71	12.14	8.93	
Health	37.86	27.14	32.50	
Services	13.57	13.57	13.57	
Engineering	5.00	1.43	3.21	
Business	13.57	13.57	13.57	
Industrial	2.14	4.29	3.21	
Others	10.71	12.86	11.79	
Years of Experience mean±S.D.	8.33±5.84	9.17±8.28	8.76±7.21	0.8215

Table 2: Effect of dental imperfections on hypothetical candidates' likelihood of being hired

		Percentage
Malocclusion		
Yes	254	30
No	586	70
Caries		%
Yes	213	30
No	487	70
Normal		%
Yes	596	47
No	664	53

This study's methodology included 2 survey groups (A and B); each group received images of hypothetical job applicants with dental malocclusion, carious smile, or normal smile. The applicant image will appear only once because whenever survey group A included a photo of a person with a normal smile, survey group B will include the same person appearing with a malocclusion or carious smile. Thus, the hiring managers will not be able to understand that the aim of the study. However, three pictures were standardized between both survey groups

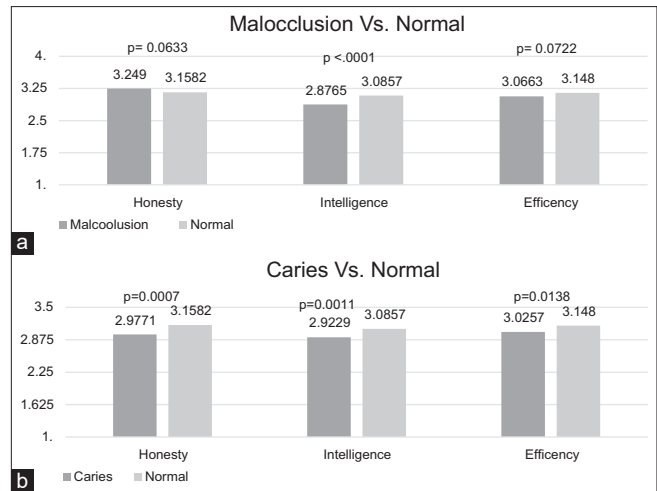


Figure 3: (a and b) Managers' perception of applicants' honesty, intelligence and efficiency

in order to evaluate the reliability of the responses of the hiring managers.

The objective of an earlier study by Kershaw *et al.* was to determine the relationship between teeth color and a person's health and social perceptions by the use of photographs.^[17] The images were rated on four personality traits: social competence (SC), intellectual ability (IA), psychological adjustment (PA), and relationship satisfaction (RS). The results showed that decayed dental appearance perceived more negative judgments, while whitened teeth perceived more positive appraisals over the four personality categories. As done in this study, Kershaw *et al.* have also initially masked the study objectives.^[17] However, later on the objectives were explained in order to avoid bias. Consequently, their study has showed strong agreement to ours regarding its methodology and results. All in all, it is likely that a person's dental appearance might be used to judge their personal characteristics without the need of information about the evaluated subjects. To support this theory a survey was conducted on behalf of the American Academy of Cosmetic Dentistry.^[18] Which concluded that when rating photographs of strangers, an increased favorable perception of attractiveness, wealth, intelligent, happiness, kindness, and sensitivity after cosmetic dentistry was done (without specification of the cosmetic). With this in mind, it is more likely that the number of dental patients requesting cosmetic procedures will start to increase.

Phithon *et al.* have evaluated the influence of dental malocclusion in regard to individuals' likelihood of being hired, honesty, intelligence, and efficiency at work.^[8] The results showed that people with an ideal dental smile were evaluated as superior in respect of intelligence and likelihood of being hired than a person with dental malocclusion. In regard to honesty and efficiency, there were no significant differences observed in the evaluations between those with an ideal smile or a malocclusion. In this study, patients with an ideal smile were better evaluated by hiring managers in the requisites of intelligent when compared with patients with dental malocclusion. These results indicate

that intelligence might be judged by the smile. Thus, a job applicant who appears to be more intelligent would have a better opportunity of being chosen for a job. Regarding the aspects of honesty and efficiency, there were no significant differences in the evaluations between hypothetical job applicants with and without dental malocclusion. Even it was reported that the malocclusion severity threshold for low socioeconomic population as higher as compared to others.^[19]

The dental feel significantly affects the social and the professional existence of the person. It has been seen that those with moderate to extreme malocclusion may have low confidence, so projects ought to be started which can focus on their issues and helps prevention of mental and professional problems.

Conclusion

In spite of this, character, efficiency, and qualifications for a certain job should not be evaluated only by means of image. Honesty, intelligence, and efficiency are traits that should be judged according to a background which could either support or oppose the given trait. Above all, this study concludes the presence of this ethical dilemma. Assuming that, dental appearance may play an important role influencing the judgment of future employers when screening for candidate which may lead to job disparities. To that end, mitigation measures that involve both education of hiring managers and population awareness are needed to overcome such problem and raise awareness about the importance of dental health.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and

due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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