The Perspective of Dental Aesthetics in Finding a Job as a Dentist: A Cross-Sectional Study

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ABSTRACT

This study aimed to determine the influence of dental aesthetics in finding a job as a dentist and the employer's willingness to interact in personal and professional setting. Ten dental students' smiling photographs were taken prior to the correction of their dental aesthetic problems. The images were digitally altered to an ideal smile. Two different questionnaires were prepared (Groups A and B) with the images with or without alteration (ideal and non-ideal smile). The images with an ideal smile and non-ideal smile were randomly allocated in each group and assessed by 84 private dental practitioners who has the authority of hiring another dentist in their practice. Four questions were asked on the likelihood of being hired, friendliness, intelligence, and good clinical skills. In general, the students with ideal smile were more likely to be hired ($p < 0.05$) except for those presented with buccally erupted canine and mild median diastema. Students with ideal smile scored higher in terms of friendliness and intelligence than the non-ideal smile. Most of them did not correlate a smile to an individual's clinical skills and manual dexterity ($p > 0.05$). In conclusion, individuals with an ideal smile was graded more friendly and intelligent thus increases the employer's willingness to interact personally and is more likely to be hired in contrast to a person with a non-ideal smile. Therefore, an aesthetically pleasing smile is one of the factors affecting the chances of a dentist to be hired and improve their personal interaction with people.

Keywords: Dental aesthetics; dentists; employment, job application; smiling

INTRODUCTION

Partnership and associateship in dental practices have become more prevalent in recent years. The increasing number of dentists graduating from local and overseas dental schools have resulted in the unbridled growth of private practice relationships (Davda *et al.*, 2020). This has risen to a question of what makes someone hire

another dentist or associate. Various factors are considered in hiring a dentist, especially in the private sector.

The face is the most important part of the body and is strongly related to attraction and interpersonal communication (Tatarunaite *et al.*, 2005; Meyer-Marcotty & Stellzig-Eisenhauer, 2009). Therefore, someone that is attractive is thought to have a good physical appearance and social attractiveness (Bale & Archer, 2013; Hutson, 2013; Montemurro & Gillen, 2013). People who are more attractive are well known to be more successful as they are capable, intelligent, responsible, socially well-integrated, and are found to be more prestigious and happier (Eli *et al.*, 2001). As part of an aesthetic face, the smile is an important feature in a person's social life and contributes to physical attractiveness (Palomares *et al.*, 2012). An ideal aesthetic smile is described as a set of dentitions that has a good alignment of maxillary incisal edges and premolar tips in relation to the lip curvature (Parekh *et al.*, 2006). Some studies reported that dental aesthetics influenced the chance of finding a job and affected people perception of their characters (Pithon *et al.*, 2014; Almedlej *et al.*, 2020).

Diastema, tooth size discrepancy, discolouration, staining, fractured tooth, endodontic treatment, and smile enhancement are the main reasons for patients seeking aesthetic dental treatment (Prabhu *et al.*, 2015). Most patients with these aesthetic motivations seek orthodontic treatment to achieve dental aesthetics (Davis *et al.*, 1998). In addition, most parents requested orthodontic treatment for their children to improve their overall appearance (Marques *et al.*, 2009). Some studies reported that alteration in dental aesthetics has brought strong psychosocial impact particularly the emotional state of an individual, as more than 40% of the participants with malocclusion felt less confident with themselves (Onyeaso *et al.*, 2005; Khan & Fida, 2008). Apart from orthodontic treatment, some restorative or prosthodontic treatments include composite resin restorations, porcelain laminate veneers, bleaching, resin infiltration, or full coverage crowns are able to be recommended to manage various clinical aesthetic problems, which subsequently improves the dental aesthetics and smiles (Croll, 1987; Chaves *et al.*, 2014). A good dentist must not only have the knowledge to carry out their clinical duties but also to project a series of other intrinsic qualities including confidence, good interpersonal skills, ability to pay attention to detail, a good sense of coordination and manual dexterity. Therefore, facial appearance plays an important role in a variety of judgements and decisions that have occupational outcomes, hiring decisions, even election results (Little & Roberts, 2012), and a moderate impact on oral health-related quality of life (Larsson *et al.*, 2021).

Patients' trust in their general practitioners supports the delivery of effective clinical encounters. These include open communication of information between the doctor and the patient, with subsequent encouragement of the patient's enablement and improved adherence to advice, and the improvement of health outcomes and better patient perceptions of healthcare. In medical practices, most patients would not take health tips from a 5ft 300lb obese man (Croker *et al.*, 2013). Therefore, physical appearance is crucial to improving the doctor-patient relationship. In addition, people have a natural ability to distinguish between the beautiful and the ugly. Even children paid greater attention to people with a more attractive face than people of less attractive appearance (Langlois *et al.*, 1994). Adolescents and adults with malocclusion and jaw abnormalities may come up against discrimination in various environments (Phillips *et al.*, 1998). Therefore, it is important to know the influences of dental aesthetics in finding a job because of the increasing number of dental graduates and dental business competition amongst private practitioners.

The purpose of this study was to assess the perspective of dental aesthetics amongst individuals who have the authority in hiring dental surgeons and their willingness to interact in personal and professional settings. The null hypothesis was there was no influence of dental aesthetics in finding a job as a dentist and no difference pertaining to their willingness to interact in personal and professional settings.

MATERIALS AND METHODS

This was a cross-sectional study conducted among private dental practitioners in the Klang Valley, Malaysia who are responsible for hiring personnel to work. Ethics approval was obtained from the Research Ethics Committee of the university [Ref. no.: 600-RMI (5/1/6)] and conducted in full accordance with the World Medical Association Declaration of Helsinki. The methodology of the present study was adopted from the previous studies (Pithon et al., 2014; Henson et al., 2011). Ten smiling views of facial profile images (Nikon D750, Tokyo, Japan) of the students from the Universiti Teknologi MARA were taken prior to the orthodontic, prosthodontic, or restorative correction of their aesthetics or malocclusion including median diastema, maxillary and mandibular crowding, gummy smile, tooth discolouration, fluorosis, and tooth fracture. Eight students' photos were duplicated and digitally altered with image manipulation software (Photoshop, CS5; Adobe System, San Valentin). Digital manipulation was aimed to create an ideal smile. Alterations were performed on their teeth without alteration of other facial parts to ensure their facial characteristics remained unchanged. Two students were used as the control: positive (student 9, ideal smile) and negative (student 6, non-ideal smile) in both questionnaires. These two images served to verify the reliability of the participants' responses in Groups A and B. The informed consent of the 10 dental students and participants (general dental practitioners) were obtained prior to the study. A pilot study was conducted on 20 participants.

Subsequently, the sample calculation was performed using Cochran's formula and a sample size of 101 (considering the alpha level of 1.96, standard deviation = 1.167 and acceptable margin of error = 2.1) was estimated.

Preparation of Questionnaire

The first part of the questionnaire was the participants' demographic profile including age, sex, ethnicity, clinic's location, and method of their practice (solo or group). After image alteration was applied, two sets of online questionnaires were prepared (Groups A and B) using SurveyMonkey® with the photographs without alteration (non-ideal smile) and with alteration (ideal smile). The questionnaire was improved and finalised after the pilot study. Each questionnaire contained photos of all students either with an ideal or non-ideal smile. Two students served as positive and negative control (students 9 and 6, respectively), to evaluate the reliability of the responses. The other students presented with mild crowding (student 1), gummy smile (student 2), severe crowding (student 3), mild median diastema (student 4), moderate crowding (student 5), moderate median diastema (student 7), moderate crowding (student 8), tooth fracture and discolouration (student 10). While student 9 presented with an ideal smile and student 6 presented with dental fluorosis in both questionnaires (Figs. 1 and 2). The authors (AHR and NSA) visited the private dental clinics in the Klang Valley and the photographs in the questionnaires were presented in high resolution on the monitor of a tablet and placed at a distance that enables evaluation by the participants. The images were presented in the original size, as a person would present himself or herself, facing each other in an interview situation. Each participant received one of the questionnaires which were distributed randomly. The participants were blinded and were not aware of the existence of the other questionnaire to reduce bias. All images were accompanied by the following questions:

1. Would you hire this person?
2. Does this person appear to be friendly and approachable?
3. Does this person appear to be intelligent?
4. Does this person appear to be skilful and good in manual dexterity?

Each question was accompanied by a visual analogue scale (VAS) from 1 to 5 (1 = complete disagreed; 2 = disagreed; 3 = neutral; 4 = agreed; 5 = completely agreed).

Statistical Analysis

The demographic data were described using descriptive analysis. The scale of VAS 1, 2, and 3 was grouped as "no", while VAS 4 and 5 were regarded as "yes". Chi-square tests were used for group comparison by utilising a statistical software program (SPSS Statistics 21, IBM, Chicago, IL, USA). A p-value of < 0.05 was considered to have a significant difference between the groups.
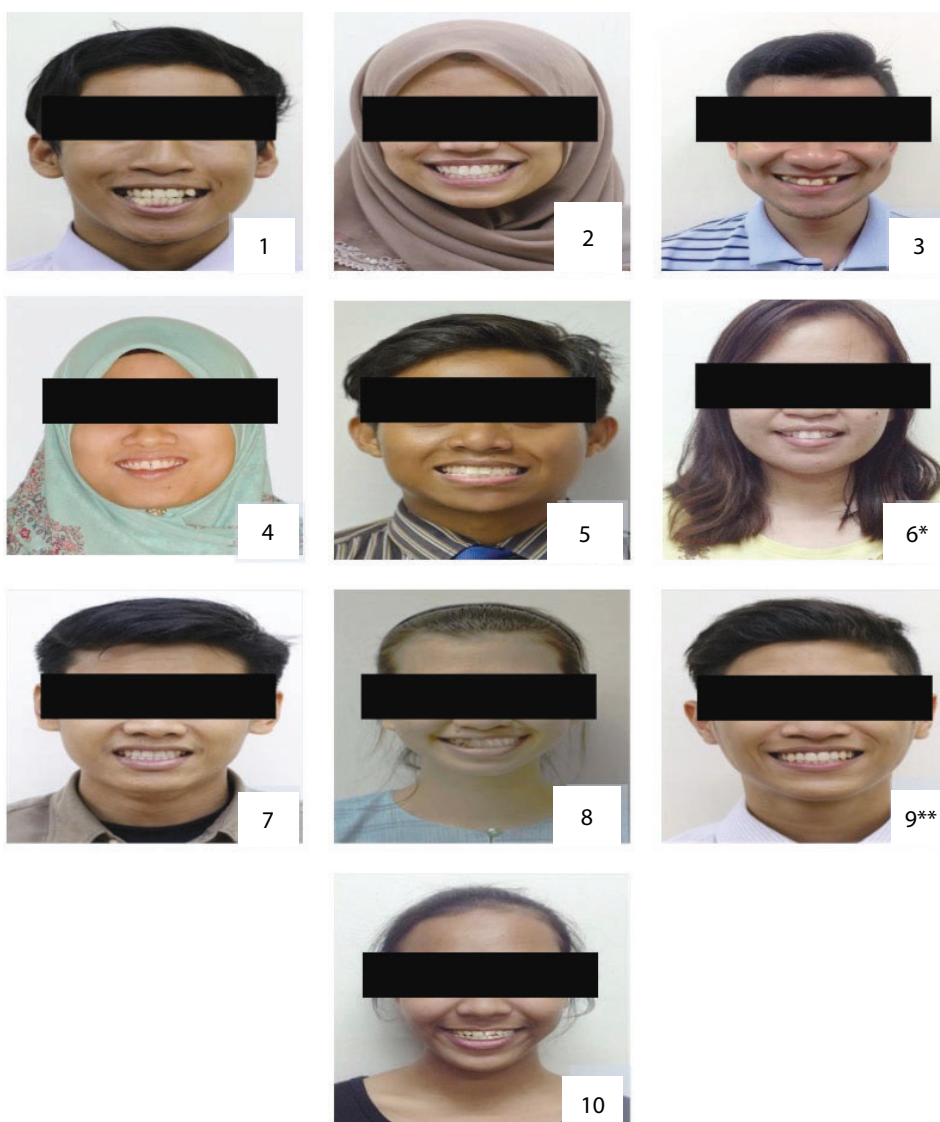

Fig. 1 Images used in the Group A.

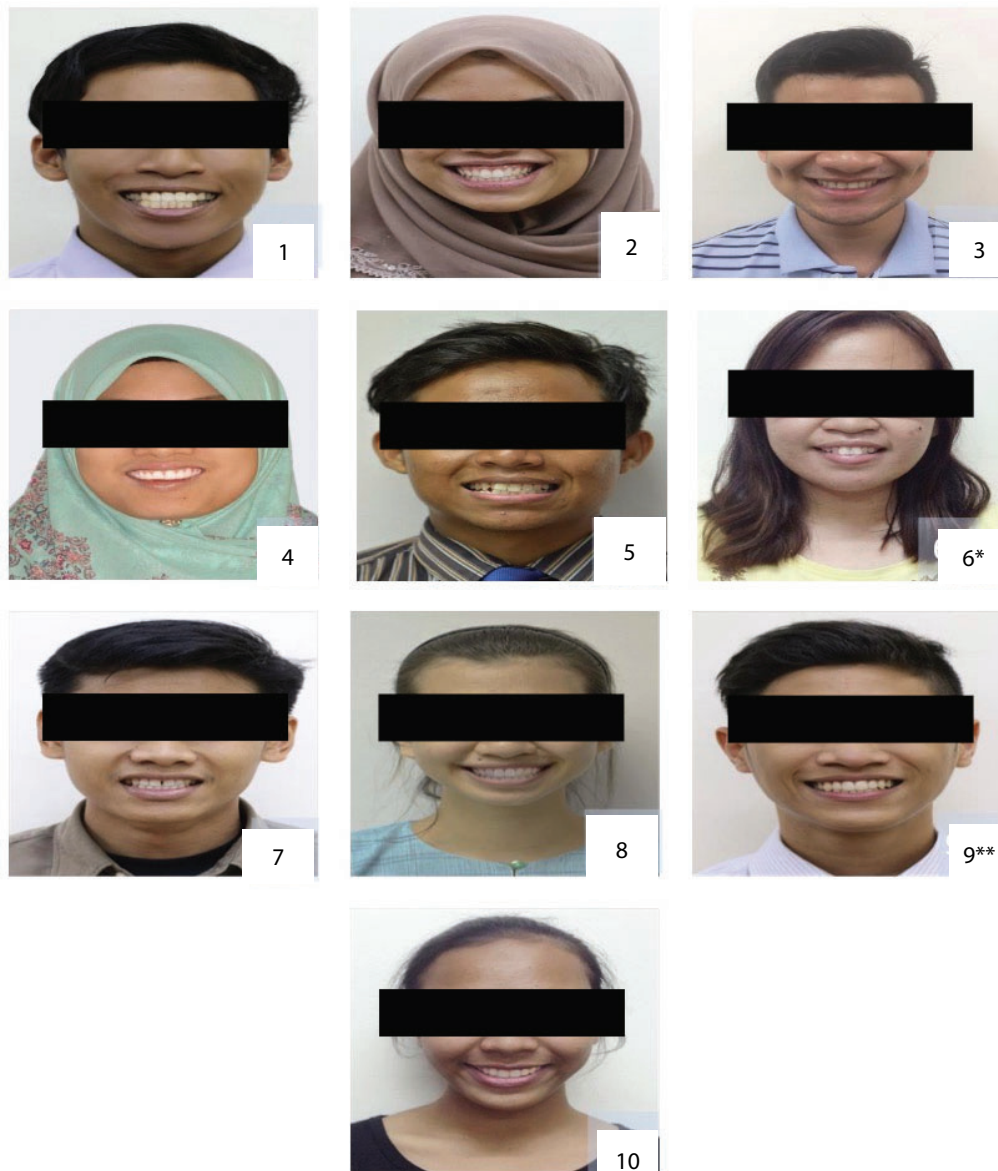Note: *Negative control; **positive control.

Fig. 2 Images used in the Group B.

Note: * Negative control; **positive control.

RESULTS

A total of 92 participants (41 from Group A and 51 from Group B) were recruited for this study. However, eight participants had to be dropped as they did not answer the questionnaires completely. Therefore, there were only 84 participants (41 from Group A and 43 from Group B) that were included in the data analysis.

Table 1 shows that the number of female participants were higher than males in both groups (Group A = 63.4% and Group B = 62.8%). Most participants were Malay (Group A = 65.9%; Group B = 62.8%), followed by Chinese (Group A = 22.0%; Group B = 27.9%) and Indian (Group A = 12.2%; Group B = 7.0%), respectively. In Group A, majority were solo practitioners (95.1%). However, there was equal distribution between solo (53.5%) and group practices (46.5%) in Group B.

Table 1 Distribution of participant demographics

Participant demographics	Group A (*n* = 41)	Group B (*n* = 43)
	Percentage	
Age group (year-old)		
25–34	24.39	37.21
35–44	43.90	46.51
45 and above	31.71	16.28
Sex		
Male	36.58	37.21
Female	63.42	62.79
Practice		
Solo	95.12	53.49
Groups	4.88	46.51
Ethnicity		
Malay	65.85	62.79
Chinese	21.95	27.91
Indian	12.20	6.97
Others	00.00	2.33

Student 6 was used as a negative control and presented with a non-ideal smile in both questionnaire groups. Judgements on the likelihood to be hired, friendliness, intelligence, skilful and good manual dexterity were identical in both questionnaires ($p > 0.05$) (Fig. 3). The positive control (student 9) presented with an ideal smile in both questionnaires and scored almost the same judgement in all aspects ($p > 0.05$) (Fig. 4). These indicated that both controls showed identical results for both groups. In general, the negative control scored lower VAS compared with the positive control for all the characteristics.

The remaining images appeared with a variety of aesthetic problems. Among all, tooth fracture and discolouration (student 10) had the lowest scores to be hired (0%),
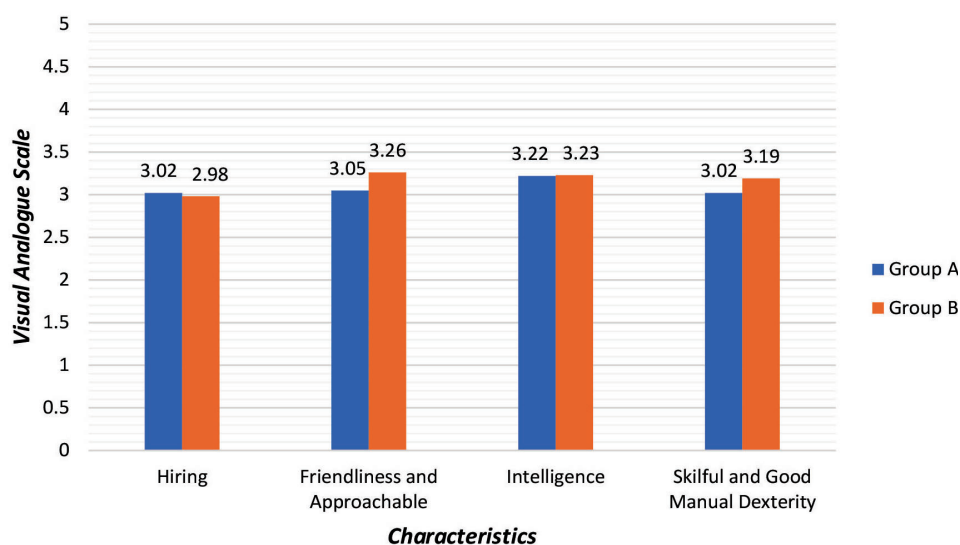
Fig. 3 Comparison of the negative control image between Groups A and B.
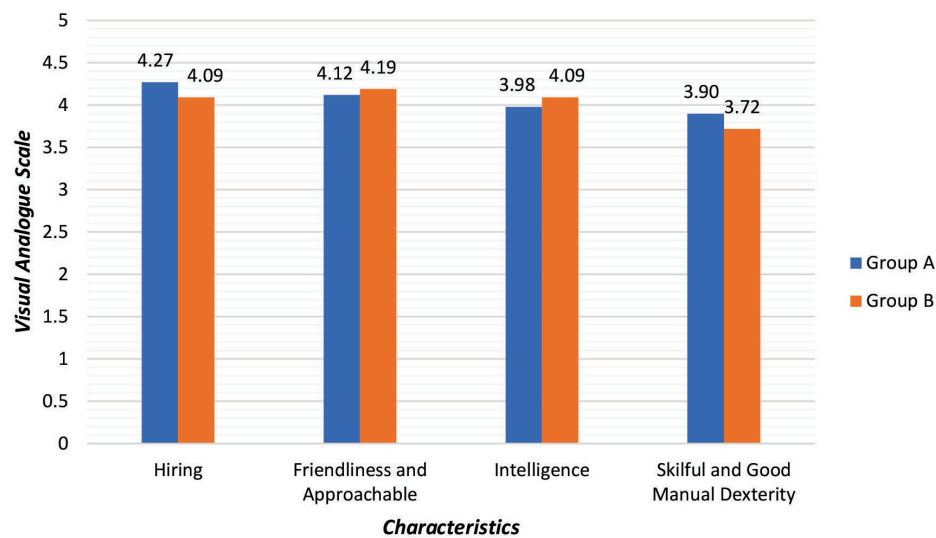
Fig. 4 Comparison of the positive control image between Groups A and B.

friendly (0%), intelligent (2.4%), skilfulness or manual dexterity (2.4%) than the others. For students with crowded dentition, student 5 (severe crowding) scored the least to be hired (11.6%), easily approachable (25.6%), intelligent (23.3%) and good with manual dexterity (7%) than the students 3 and 8.

Table 2 shows that there was a significant association between the ideal smile of student 2 ($p = 0.001$), 3 ($p = 0.001$), 5 ($p = 0.001$), 7 ($p = 0.015$), 8 ($p = 0.015$), and 10 ($p = 0.001$) with chances to be hired. Whereas for students 1 and 4, there were no significant association between their opportunity to be hired to their smiles ($p > 0.05$). All students with an ideal smile except student 4 ($p = 0.76$) were significantly more friendly and easily approachable. All students with an ideal smile except student 2 ($p = 0.061$) appeared to be more intelligent than their non-ideal smile ($p < 0.05$). Students 5 ($p = 0.001$) and 7 ($p = 0.002$) with an ideal smile scored significantly higher for their skills and manual dexterity compared with their non-ideal smile images.

DISCUSSION

This cross-sectional study was conducted to determine the influence of dental aesthetics in finding a job as a dentist. Additionally, to explore the influences of dental aesthetics on others' perception and willingness to interact in a personal and professional setting. Dental aesthetics appeared to affect the chance to be hired, perception in friendliness, intelligence, and being skilful, thus rejecting the null hypothesis.

All participants were well-informed that this was a psychological research to provide their perception towards people that they have only met without considering their background and other factors including academic performance and attitude. The questionnaires were run in a parallel survey and 84 participants were included for data analysis. Due to the time limitation and compliance of the participants, the required sample size (101 participants) was not achieved. However, the low variability of the results and low risk of bias of the

Table 2 Differences in the evaluations between students with ideal and non-ideal smiles

Characteristics	Student 1			Student 2			Student 3			Student 4			Student 5			Student 7			Student 8			Student 10		
	Non-ideal	Ideal	p	Non-ideal	Ideal	p	Non-ideal	Ideal	p	Non-ideal	Ideal	p	Non-ideal	Ideal	p	Non-ideal	Ideal	p	Non-ideal	Ideal	p	Non-ideal	Ideal	p
Hiring (%)																								
Yes	31.7	48.8	0.515	53.5	78.0	0.001*	17.1	58.1	0.001*	36.6	51.2	0.118	11.6	87.8	0.001*	30.2	87.8	0.015*	14.6	81.4	0.015*	0.0	81.4	0.001*
No	68.3	51.2		46.5	22.0		82.9	41.9		63.4	48.8		88.4	12.2		69.8	12.2		85.4	18.6		100.0	18.6	
Friendliness and approachable (%)																								
Yes	31.7	55.8	0.017*	60.5	68.3	0.029*	29.3	60.5	0.031*	48.8	46.5	0.760	25.6	80.5	0.002*	32.6	56.1	0.003*	26.8	83.7	0.021*	0.0	86.0	0.001*
No	68.3	44.2		39.5	31.7		70.7	39.5		51.2	53.5		74.4	19.5		67.4	43.9		73.2	16.3		100.0	14.0	
Intelligence (%)																								
Yes	29.3	55.8	0.012*	58.1	63.4	0.061	26.8	55.8	0.001*	31.7	29.3	0.029*	23.3	68.3	0.029*	23.3	68.3	0.029*	22.0	62.8	0.001*	2.4	69.8	0.001*
No	70.7	44.2		41.9	36.6		73.2	44.2		68.3	70.7		76.7	31.7		76.7	31.7		78.0	37.2		97.6	30.2	
Skillful and good manual dexterity (%)																								
Yes	17.1	34.9	0.121	32.6	63.4	0.576	24.4	20.9	0.141	24.4	14.0	0.520	7.0	78.0	0.001*	18.6	68.3	0.002*	12.2	37.2	0.127	2.4	46.5	0.760
No	82.9	65.1		67.4	36.6		75.6	79.1		75.6	86.0		93.7	22.0		81.4	31.7		87.8	62.8		97.6	53.5	

Note: *Significant at $p < 0.05$, Chi-square test.

study could reassure the null hypotheses to be rejected (Higgins *et al.*, 2019). In addition, two control images were used to assess the reliability of the results. The consistent results for both controls confirm the reliability of the study, which is also in agreement with Pithon *et al.* (2014) who studied the influence of dental aesthetics on the perceptions of the persons responsible for the human resources sectors regarding the likelihood of hiring people, and their honesty, capacity to fulfil tasks, and intelligence.

Female participants were more than the males because the number of female dentists was more than male dentists in Malaysia (Cheong *et al.*, 2007). Furthermore, Malay dentists showed the highest participation followed by Chinese and Indian. The pattern reflects the 32.7 million Malaysian population, which consists of 69.6% Bumiputera, 22.6% Chinese, 6.8% Indian, and 1.0% others (Department of Statistics Malaysia, 2011).

Student 10 presented with the tooth fracture and discolouration for her non-ideal smile, was the least likely to be hired, friendly, intelligent and skilful. In the authors' opinion, a dentist with this appearance is unacceptable because aesthetic dentistry was the most preferred discipline among the final year dental students (Halawany *et al.*, 2017) and one's appearance of fractured or discoloured teeth is a constant trigger of snap judgements. Shah *et al.* (2014) reported that a high number of dissatisfaction among patients especially on the tooth discolouration, increased in overjet and unaesthetic fillings. The effect on self-perception will affect the personality of a person and eventually affect the people surrounding them. Therefore, tooth fracture and discolouration appeared to be less likely considered in all aspects.

The severity of crowding appeared to have a negative effect with less opportunities to being hired. Students with moderate or severe crowding were deemed less friendly, less intelligent and unskilful compared to those with mild crowding. Tooth colour and poor tooth alignment were the main reasons for dental appearance dissatisfaction (Samorodnitzky-Naveh *et al.*, 2007). Newton *et al.* (2003) found that the alignment of the teeth is a catalyst for assumptions regarding success, popularity, intelligence and general health. Subjects with an ideal smile were consistently rated higher for their athletic, social, leadership and academic abilities compared to the non-ideal smile (Henson *et al.*, 2011). In addition, the prevalence of malocclusion was high and negatively affected the oral health-related quality of life (Guimarães *et al.*, 2018). Therefore, teenagers who have undergone orthodontic treatment could improve their quality of life, followed by getting a job, and finding a romantic partner easier (Marques *et al.*, 2009). These findings are consistent with the present study.

There were significant relationships between chances of being hired and the ideal smile for most of the students ($p < 0.05$). However, student 1 who presented with buccally erupted canine and student 4 with mild median diastema showed no significant association. It may be due to the participants perceiving both dental aesthetic problems as mild and insignificant. In contrast, Pizzo Reis *et al.* (2020) found that the diastemas were less acceptable by the orthodontists, prosthodontists, and laypeople. These findings are consistent with Pithon *et al.* (2014) where they concluded that correction of the smile through orthodontic or restorative treatment improved the chances for individuals to get a job. In addition, Almedlej *et al.* (2020) also reported people with a non-ideal smile were 52% less likely to be hired compared to normal smiles.

The present study showed that participants were more likely to agree with students with an ideal smile which appeared as friendly, approachable and intelligent. However, ideal smile and non-ideal smile images for student 4 with mild median diastema and student 2 with a gummy smile were graded the same in Question 2 (friendly and

approachable) and Question 3 (intelligence), respectively. The results showed that dentists with an ideal smile may portray their good characteristics through their smiles. Eli *et al.* (2001) reported that individuals with a more attractive smile were deemed more capable, intelligent, responsible and socially well-integrated which makes them successful in their lives.

Contrary to being skilful and having good manual dexterity, there were only two students (student 5 and student 7) that showed a significant association between these characteristics with their ideal smile. Most of the participants graded neutral for both ideal and non-ideal smile images. This indicates that most of the participants did not perceive dental aesthetics as a good indicator to evaluate skills and manual dexterity. Greenwood *et al.* (1998) reported that assessment of the dentists' performance should be evaluated by their clinical skill and competency-based education.

Limitations of the present study include an insufficient sample size and sociodemographic factors of the participants were not analysed. Therefore, studies with bigger samples, or may be conducted in other locations (suburbs or out of the city) of practices are recommended.

CONCLUSION

Based on the findings, it can be concluded that dentists who presents with an ideal smile may have a higher opportunity to be hired compared to those with non-ideal smile. Those individuals who have the authority in hiring dental surgeons were more willing to interact with the dentists that presents with an ideal smile because they appear friendlier, approachable and intelligent compared to those with non-ideal smile. However, there was a lack of association between ideal smiles and an individual's clinical skills or manual dexterity. This study highlight the importance of having a pleasing smile in finding jobs. Consequently, laymen should be made aware of the importance of oral healthcare, which may increase their job prospects.

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