



Original Research Article

Facial profile preferences: Perception difference among Indian population

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ABSTRACT

It is a prospective, in-vivo randomized cross sectional questionnaire based study to determine general esthetic preference of Indian population and to find out whether this preference was affected by sex, age, education, social status and geographic location.

Toward these aims, 30 well balanced facial profiles are selected (15 males and 15 females) in the age group of 18-30 years. The most attractive facial profile of 1 male and 1 female subject is selected by three panel of Judges. Profile selected for each sex were morphed by an Adobe Photoshop version cs2 technique and then scored by 200 participants. Subjects were asked to rank the profiles in ascending order of attractiveness on scoring scale 1 to 10. Morphing is done in 2 dimensions Sagittal and Vertical. Profile digital photographs were altered by 2mm and 4mm increments to produce different combinations of mandibular sagittal positions and vertical facial heights and to assess whether interactions and magnitude of the sagittal and vertical facial dimensions influence perception of facial attractiveness. Analysis of variance (ANOVA) and independent sample t-tests were used to compare the preferences of the groups. The orthognathic profile and straight profile in both sexes was selected as the most preferred profile whereas the convex profile with a prognathic maxilla and a retrognathic mandible were the least preferred. The public also admired fuller and protrusive lips in females and retrusive lips in males. Sex, age, education, social status and geographic location were also shown to affect the public's profile preferences.

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1. Introduction

Beauty is a complex phenomena with considerable differences in its perception. Perception is an individual's understanding and interpretation of the face, particularly the human face. The proportions and expressions of the human face are important to identify origin, emotional tendencies, health qualities, and some social information. The perception of beauty is not only an individual preference that may be influenced by training, but it also may have cultural and ethnic biases.¹ Ethnic and Racial differences play a major role. Concept of esthetics is subjective; therefore, it is hard to determine objective criteria for defining the concept of beauty.

In today's society, a high value is placed on physical attractiveness. Overall physical appearances have been recognized as an indication of how people are perceived by others in society as well as how they perceive themselves. Artists and professionals have attempted to define and recreate an ideal profile. Although a concept of "ideal orthodontic norms" has been accepted widely. Facial esthetic standards have been derived from the field of art, the judgment of the general public and dentists, fashion models, movie stars, and beauty pageant contestants.

Perceptions of facial esthetics among dental professionals have been extensively investigated. Several authors have attempted to rank or classify faces on the basis of their attractiveness. Researchers have attempted to determine whether the treating clinician, the patient, and the lay public groups agree in their perception of

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acceptable facial esthetics. Some studies seem to indicate that professionals and lay groups are in agreement, whereas other studies suggest various degrees of disagreement between the trained and untrained observer.

It is well known that different socio-economic background, among races, age, sex, people of different geographic locations influence facial traits.

Studies have shown that motivation to seek orthodontic treatment appear to be linked to individuals' perceptions of the extent to which their dentofacial appearance deviates from social and cultural norms.

The orthodontic literature contains many studies involving facial profile preferences conducted on different subjects by different judges. Previous studies have shown that the opinions and variability of esthetic judgments between observers vary as well. In almost all cases, panel assessments have been used to evaluate facial aesthetics. Scientific literature describes studies in which facial attractiveness was assessed by showing graphical representations of facial appearances (drawings, silhouettes or photographs) and was later rated. Little information is presented regarding the different raters to evaluate various facial forms using one ideal facial profile. Therefore, keeping in mind that the perception of facial esthetics can vary from person to person; this study was undertaken to gain the differences among Indian Population considering General esthetic preferences and to determine whether these preferences were affected by Sex, Age, Education, Geographic location and Social-status.

2. Aim and Objectives

1. To determine general esthetic preference of Indian population.
2. To determine whether esthetic preference is affected by Sex.
3. To determine whether esthetic preference is affected by Age.
4. To determine whether esthetic preference is affected by Social status.
5. To determine whether esthetic preference is affected by Geographic location.
6. To determine whether esthetic preference is affected by Education.

3. Materials and Methods

A prospective, in-vivo randomized cross sectional questionnaire based study with 30 well balanced facial profiles selection (15 males and 15 females) in the age group of 18-30years with a sample size of 200 raters.

Groups assigned to each morphed images are as follows:-

3.1. Statistical summary

After surveying 200 raters, the scores and grouping criteria were according to SPSS 16.0 for (SPSS Inc, Chicago, IL, USA, 2001) statistical package. Mean and standard deviations of profile scores were calculated for each Group. The t test Unpaired for inter rater group and Paired t test for intra rater group were done for comparing Profile preferences. All raters showed a preference for Profile C as the most preferred and Profile D as the least attractive profile in each Group. The normality of data will be tested by Shapiro wilks test. Descriptive statistics, including the mean and SD, was calculated for all measurements.

3.2. Effect of sex

The mean scores of the profiles for the males and females raters and results of t- test compared. According to the results, Profile C was the most preferred and profile A was the least profile in both sexes. Female raters preferred profile ID more than male raters in Group I whereas in Group II Female raters least preferred Profile IIIA more than did the Male raters. In Group I, Group II, Group III and Group IV; Profile C was the most preferred and Profile A was the least preferred profile in both sexes. No significant difference was found in Groups for profile preferences between Male and Female raters.

Effect of geographic location

The profile preference difference between urban and rural population is shown in all the Groups. According to the results, in all Groups Profile C was the most preferred and Profile A was the least preferred profile in both the population. Profile ID was preferred by both the population. Raters living in the Rural area scored Profile IIE same as IIA i.e; least preferred. On the contrary. Profile IIIIE was least preferred by Urban population. No significant difference was noticed in profile preferences between Urban and Rural population.

3.3. Effect of social status

Evaluation of the profile preferences of the raters belonging to different social status compared between Dentists and Laypersons. Profile IC was the most preferred and Profile IA was the least preferred profile. Significant differences were found in ratings of the Profile IB and ID between Dentists and laypersons ($P < .001$). Dentists preferred IIA as the least preferred profile whereas laypersons considered IIE as the least preferred Profile. Significant differences were detected in scores of almost all the Profiles. Profiles IIIB and IIID showed highly significant differences ($P < .001$). In Group IV, Profile IVC was the most preferred Profile and Profile IVE was the least preferred one by both the raters. Highly significant differences were detected in scores of Profile IVC and IVD between Dentist and layperson ($P < .05$ and $P < .001$, respectively). Significant differences

Table 1: oGrouping of morphed images

Groups	Sub Groups	Morphed Profile
I Morphed profile in Sagittal direction for Male	I A	Mandibular displacement at soft tissue pogonion - 4mm
	I B	Mandibular displacement at soft tissue pogonion -2mm
	I C	Original Profile
	I D	Mandibular displacement at soft tissue pogonion +2mm
	I E	Mandibular displacement at soft tissue pogonion +4mm
II Morphed profile in Sagittal direction for Female	II A	Mandibular displacement at soft tissue pogonion - 4mm
	II B	Mandibular displacement at soft tissue pogonion -2mm
	II C	Original Profile
	II D	Mandibular displacement at soft tissue pogonion +2mm
	II E	Mandibular displacement at soft tissue pogonion +4mm
III Morphed profile in Vertical direction for Male	III A	Maxillary displacement at -4mm
	III B	Maxillary displacement at -2mm
	III C	Original Profile
	III D	Maxillary displacement at +2mm
	III E	Maxillary displacement at +4mm
IV Morphed profile in Vertical direction for Female	IV A	Maxillary displacement at -4mm
	IV B	Maxillary displacement at -2mm
	IV C	Original Profile
	IV D	Maxillary displacement at +2mm
	IV E	Maxillary displacement at +4mm

were found almost in all Groups for profile preferences between Dentists and Laypersons.

3.4. Effect of education

The statistical evaluation of the profile preferences between School and University graduates for comparing mean and VAS scores of the raters according to the education levels. Profile C was most preferred and A was least preferred. School graduates preferred Profile IA and Profile IE more than university graduates did ($P < .001$) in Group I. In Group II, significant difference was found in rating of Profile IID between School and University graduates. School graduates preferred Profile IID more than did the University graduates. Significant difference was seen between both the ratings ($P < .001$) Significant difference was noted in ratings of Profile preferences between School and University graduates ($P < .001$).

3.5. Effect of age

The results of the mean and VAS scores comparing profile preferences between adolescents and adults according to the age for Group I are given in Tables 4 and 5 respectively. Significant difference was found in Group I profile preferences between Adolescent and Adult raters. Profile C was preferred the most preferred and Profile A was preferred the least profile almost in all groups. Adolescents preferred Profile IA, IB and IE more than Adults did, whereas adults preferred Profile IC and ID more than the adolescents. Significant difference was found in Group II profile ratings as seen in Table 5. Adolescent raters preferred Profile IID more than did the adults (Table 7). Comparing

mean & VAS scores for Group III in Table 7 and in Table 38 adolescent raters preferred Profile IIID more than did the adults ($P < .001$). Significant difference was found in Group IV profile preferences between Adolescent and Adult raters. Profile IVC was the most preferred and profile IVA was the least preferred profile is shown in Table 9 whereas significant differences were seen in ratings of the profile IVA and Profile IVD ($P < .05$) shown in Table 11. Significant differences were found in profile preferences between Adolescent and Adult raters.

4. Discussion

In providing the highest standard of care for the patient, careful communication with the patient concerning esthetic expectations is essential. The objective of orthodontic treatment is not only well-aligned dental arches in an optimal occlusal relationship, but also a well-balanced and proportional face that is esthetically pleasing. This can be a challenging task because of the subjective nature of the evaluation and the perception of facial esthetics. The desire to improve facial esthetics has been shown in many studies to be the most common reason people seek treatment by an orthodontist.¹⁻⁵ Therefore, the study of facial attractiveness should be important to orthodontists when addressing their patients' needs for improved facial esthetics. It is also clear that any differences in the perception of facial attractiveness between clinicians and society should be more thoroughly understood in the further development of patient-centered treatment goals.

Orthodontists must also understand how the patient perceives facial attractiveness and the anticipated outcome

Table 2: Distribution of mean and S.d. of scores of different group I between Adolescent & Adults

	Group	N	Mean	Std. Deviation	Std. Error Mean
IA	Adolescent	20	2.15	1.089	.244
	Adults	20	1.40	.503	.112
IB	Adolescent	20	5.90	.641	.143
	Adults	20	5.00	.858	.192
IC	Adolescent	20	8.00	.858	.192
	Adults	20	9.05	.945	.211
ID	Adolescent	20	7.80	1.281	.287
	Adults	20	8.80	1.056	.236
IE	Adolescent	20	3.80	.834	.186
	Adults	20	3.10	.788	.176

Table 3: Comparison of mean of scores of different group I between Adolescent & Adults by unpaired t- test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	P value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
IA	9.737	.003	2.796	38	.008**	.750	.268	.207	1.293
IB	.810	.374	3.758	38	.001#	.900	.240	.415	1.385
IC	1.398	.244	-3.679	38	.001#	-1.050	.285	-1.628	-.472
ID	1.004	.323	-2.693	38	.010**	-1.000	.371	-1.752	-.248
IE	.346	.560	2.729	38	.010**	.700	.256	.181	1.219

Table 4: Distribution of mean and S.d. of scores of different group II between Adolescent & Adults

	Group	N	Mean	Std. Deviation	Std. Error Mean
IIA	Adolescent	20	1.85	.671	.150
	Adults	20	1.90	.718	.161
IIB	Adolescent	20	5.30	1.129	.252
	Adults	20	6.00	1.026	.229
IIC	Adolescent	20	7.95	.999	.223
	Adults	20	8.85	.875	.196
IID	Adolescent	20	6.85	.988	.221
	Adults	20	3.80	.951	.213
IIE	Adolescent	20	2.40	.995	.222
	Adults	20	2.35	.489	.109

Table 5: Comparison of mean of scores of different group II between Adolescent & Adults by unpaired t- test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	P value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
IIA	.047	.830	-.228	38	.821*	-.050	.220	-.495	.395
IIB	.496	.486	-2.052	38	.047**	-.700	.341	-1.390	-.010
IIC	.533	.470	-3.031	38	.004**	-.900	.297	-1.501	-.299
IID	.013	.911	9.944	38	.000#	3.050	.307	2.429	3.671
IIE	11.050	.002	.202	38	.841**	.050	.248	-.452	.552

Table 6: Distribution of mean and S.d. of scores of different group III between Adolescent & Adults

	Group	N	Mean	Std. Deviation	Std. Error Mean
IIIA	Adolescent	20	2.05	.605	.135
	Adults	20	1.60	.503	.112
IIIB	Adolescent	20	5.85	.745	.167
	Adults	20	6.25	.639	.143
IIIC	Adolescent	20	8.25	.851	.190
	Adults	20	8.35	.671	.150
IIID	Adolescent	20	7.45	1.317	.294
	Adults	20	4.20	.951	.213
IIIE	Adolescent	20	3.10	.718	.161
	Adults	20	3.50	1.147	.256

Table 7: Comparison of mean of scores of different group III between Adolescent & Adults by unpaired t- test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	P value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
IIIA	.893	.351	2.559	38	.015**	.450	.176	.094	.806
IIIB	.326	.571	-1.823	38	.076*	-.400	.219	-.844	.044
IIIC	.889	.352	-.413	38	.682*	-.100	.242	-.590	.390
IIID	2.917	.096	8.946	38	.000#	3.250	.363	2.515	3.985
IIIE	8.966	.005	-1.322	38	.194**	-.400	.303	-1.013	.213

Table 8: Distribution of mean and S.d. of scores of different group III between Adolescent & Adults

	Group	N	Mean	Std. Deviation	Std. Error Mean
IVA	Adolescent	20	2.00	.725	.162
	Adults	20	1.50	.513	.115
IVB	Adolescent	20	5.25	.786	.176
	Adults	20	6.00	1.170	.262
IVC	Adolescent	20	7.75	1.209	.270
	Adults	20	8.45	.887	.198
IVD	Adolescent	20	4.65	1.309	.293
	Adults	20	3.65	1.226	.274
IVE	Adolescent	20	2.40	.681	.152
	Adults	20	3.00	1.026	.229

Table 9: Comparison of mean of scores of different group IV between Adolescent & Adults by unpaired t- test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	P value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
IVA	.000	1.000	2.517	38	.016**	.500	.199	.098	.902
IVB	1.547	.221	-2.380	38	.022**	-.750	.315	-1.388	-.112
IVC	1.547	.221	-2.088	38	.044**	-.700	.335	-1.379	-.021
IVD	.113	.738	2.494	38	.017**	1.000	.401	.188	1.812
IVE	1.727	.197	-2.179	38	.036**	-.600	.275	-1.157	-.043

Table 10: Comparison of means scores of morphed with normal in different groups for male (Intra group comparison)

		Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	P value
					95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	IC - IA	6.300	1.261	.282	5.710	6.890	22.347	19	.000 [#]
Pair 2	IC - IB	4.400	1.818	.407	3.549	5.251	10.823	19	.000 [#]
Pair 3	IC - ID	1.000	1.338	.299	.374	1.626	3.343	19	.003 [#]
Pair 4	IC - IE	4.700	1.809	.405	3.853	5.547	11.617	19	.000 [#]
Pair 5	IIC - IIA	5.800	1.824	.408	4.946	6.654	14.222	19	.000 [#]
Pair 6	IIC - IIB	3.250	2.149	.481	2.244	4.256	6.763	19	.000 [#]
Pair 7	IIC - IID	3.950	1.504	.336	3.246	4.654	11.749	19	.000 [#]
Pair 8	IIC - IIE	4.250	1.713	.383	3.448	5.052	11.096	19	.000 [#]
Pair 9	IIIC - IIIA	6.050	1.395	.312	5.397	6.703	19.402	19	.000 [#]
Pair 10	IIIC - IIIB	2.150	1.268	.284	1.557	2.743	7.583	19	.000 [#]
Pair 11	IIIC - IIID	4.200	1.881	.421	3.320	5.080	9.987	19	.000 [#]
Pair 12	IIIC - IIIE	4.700	1.922	.430	3.800	5.600	10.935	19	.000 [#]
Pair 13	IVC - IVA	6.750	1.372	.307	6.108	7.392	22.007	19	.000 [#]
Pair 14	IVC - IVB	3.350	1.268	.284	2.757	3.943	11.815	19	.000 [#]
Pair 15	IVC - IVD	4.050	1.761	.394	3.226	4.874	10.283	19	.000 [#]
Pair 16	IVC - IVE	6.150	1.226	.274	5.576	6.724	22.437	19	.000 [#]

Table 11: Comparison of means scores of morphed with normal in different groups for Female (Intra group comparison)

		Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	P value
					95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	IC - IA	6.600	1.392	.311	5.949	7.251	21.209	19	.000 [#]
Pair 2	IC - IB	3.500	.946	.212	3.057	3.943	16.548	19	.000 [#]
Pair 3	IC - ID	.550	1.191	.266	-.007	1.107	2.065	19	.053 [*]
Pair 4	IC - IE	5.250	1.682	.376	4.463	6.037	13.959	19	.000 [#]
Pair 5	IIC - IIA	6.800	.894	.200	6.381	7.219	34.000	19	.000 [#]
Pair 6	IIC - IIB	3.000	1.414	.316	2.338	3.662	9.487	19	.000 [#]
Pair 7	IIC - IID	4.500	1.539	.344	3.780	5.220	13.077	19	.000 [#]
Pair 8	IIC - IIE	5.600	1.314	.294	4.985	6.215	19.061	19	.000 [#]
Pair 9	IIIC - IIIA	6.800	1.240	.277	6.220	7.380	24.531	19	.000 [#]
Pair 10	IIIC - IIIB	2.450	1.638	.366	1.684	3.216	6.691	19	.000 [#]
Pair 11	IIIC - IIID	4.750	1.446	.323	4.073	5.427	14.686	19	.000 [#]
Pair 12	IIIC - IIIE	5.650	1.496	.335	4.950	6.350	16.885	19	.000 [#]
Pair 13	IVC - IVA	7.100	1.119	.250	6.576	7.624	28.370	19	.000 [#]
Pair 14	IVC - IVB	3.550	1.605	.359	2.799	4.301	9.891	19	.000 [#]
Pair 15	IVC - IVD	4.700	1.218	.272	4.130	5.270	17.253	19	.000 [#]
Pair 16	IVC - IVE	6.550	.999	.223	6.083	7.017	29.331	19	.000 [#]

of treatment. Our goal should be in finding common ground on which we can meet to embrace reasonable objectives and common standards to judge patients solely by an orthodontic interpretation of esthetic harmony. The orthodontic literature contains many studies involving profile standards of white and African-American patients, Lew ranked the facial profile preferences among Asian population, Maganzini in native Chinese population and so as in Japanese and Turkish population. But little information is given for Indian population due to the diversified socials

and cultural norms.

The current study was conducted to gain the differences among Indian Population considering General esthetic preferences and to determine whether these preferences were affected by Sex, Age, Education, Geographic location and Social-status.

In our study, digital color photographs were used to show the facial profiles of selected subjects. Digital imaging or color profile gives a more realistic representation of facial esthetics than silhouettes and line drawings, so that

the changes in facial profile are related to the soft tissue contours. Facial profile images were used as a mean of stimulus presentation.

In this study, the morphed photographs of male and female profiles were obtained by using changes based on data from studies conducted by Maple et al. Morphing is the most accurate method that is currently available. The advantage of this digital technique is that images are blended together without altering the profile. Each pixel of the resulting image is the average color (or a weighted average) of the corresponding pixels of the target images. The purpose of the morphed images was to assess the relative contribution of other factors, aside from profile outline shape, on facial esthetics³². Again, keeping in mind that a morphed image is considered highly attractive, even with this sophisticated technique, algorithmic changes using ratios can give a general appreciation of the expected outcome but cannot account for the individual variability that would be expected.

In our study, multiple digitally morphed photographs were obtained for the questionnaire. The photographic questionnaire was used so that a large number of people can be reached relatively easily and economically; same method showed in a study conducted by Arqoub and Susan in a Jordanian population. Ackerman and Proffit provided clinical guidelines for facial-profile esthetics. As with all clinical judgments, an element of subjectivity in one's perception of an esthetic profile would be expected. In addition, orthodontists' and oral surgeons' perceptions of esthetics would be regarded as the "gold standard" to which the treatment outcome would be directed. In present study panel of three professional judges has been used and evaluators were asked to assess the selected profiles and to rate each profile on the basis of a visual analog scale with 10 being the most attractive and 1 being the least attractive.

Visual analogue scales (VAS) are most often used as a measuring instrument for dental, dentofacial, or facial aesthetics. The visual analog scale has several advantages over other methods that have been used in previous panel assessments of facial attractiveness. Ratings can be given quickly and the scores analyzed as continuous measures. The rating scores can detect differences in overall perception of facial attractiveness between the panels and yet the use of mean judge scores and the subsequent paired analysis decreases the variability observed among judges and focuses the analysis on the change measures. Howells and Shaw and Phillips et al⁶ have used a VAS without reference photographs but more recently the use of reference photographs has been advocated by Peerlings et al and Faure et al⁷ Reference photographs can help the panel members and evaluators to use the scale more uniformly. In this study, the use of the VAS proved to be a simple and rapid method for assessing the perception of facial attractiveness. Recording the results as continuous

variables allows more freedom in the analysis of data and permits more powerful parametric statistics to be used. In addition, the VAS allows greater sensitivity and can avoid biases toward preferred values as found with numeric or equal appearing interval scales. There remain many concerns when using this instrument to measure a subjective phenomenon such as facial attractiveness.

Furthermore, it should not be assumed that the same score by different raters or by the same rater at a different time implies the same assessment of a particular profile. Finally, it is uncertain how many millimeters of difference in facial attractiveness are required to be clinically meaningful. For this study, the reliability of the raters was measured by using the paired and unpaired t-test for intra rater and inter rater comparison respectively. Overall interrater reliability was good with dentists and laypersons having the highest VAS difference.

Maganzini in the Chinese population, a bialveolar retrusive profile in males has been found just as acceptable as a normal profile. Lew and Soh studied in the Asian populations, the bimaxillary dentoalveolar retrusion profile has been reported as attractive as the orthognathic profile. Cochrane et al⁸ reported that females found orthognathic profile more attractive than others. Although, overall profile rankings of female and male raters were similar.

Education is an important determinant of the individual's quality of life and social relationships. To determine whether education level also affects the public's esthetic preferences, raters were grouped as school and university graduates. Significant differences were found between groups. school graduates preferred female profile C and male profiles D more than university graduates did. These results indicated that school graduates could not notice sagittal and vertical morphed profiles as well as university graduates did. So, we can state that the quality of esthetic preferences improves with education. Geographic conditions affect a region's local culture. Culture has a great influence on public's esthetic concept. Turkkahraman and Gokalp⁹ determined that there is significant difference regarding geographic location whereas studies by Mantzikos and Maganzini no difference was noticed in profile preferences between populations. In our study no significant difference was noticed in profile preferences between Urban and Rural population. Raters living in the Rural area scored Profile E same as A i.e; least preferred. The two groups were in perfect agreement in male profile preferences.¹⁰

Both scientific language and art make many contributions in developing a common language between countries and cultures. When scientific criteria are applied to human beings, factors of individualism emerge. This is especially so in treatment plans of esthetic-based medicine. Individualism instead of direct application of scientific criteria provides more favorable results for both patient and

doctor. As a result, this study has shown that almost in all the raters groups profile C was most preferred and profile A was the least favored of all profiles in an Indian population. Certainly stereotyping of dentofacial forms and structures influence society's and our professional vision of facial norms. Nevertheless, the conclusions of this study should be very helpful in designing a treatment plan for the patients especially in an Indian population.

5. Conclusion

1. The ranking procedure used is a simple, rapid, and reliable method for the assessment of attractiveness.
2. Gender did not influence attractiveness rankings. No significant difference was found between profile preferences of sexes.
3. In an Indian population's profile preferences, significant effect of age on the profile preferences was found.
4. The quality of esthetic preferences increases with education.
5. Significant differences were determined between dentists and lay people in the perception of profile attractiveness.
6. No significant effect of geographic location on profile preferences was found.
7. Quality of aesthetic preferences increased with age also and differed between professions.

Therefore, as our patients become more esthetically inclined and educated, orthodontists must consider the patient's opinion. We should not aim for standards without considering each race separately and not include their opinions. The subjective concept of beauty is a matter of one's personal judgment, and no single racial study can be applicable to persons of other races. In addition, at times no single racial study can even be applicable to persons of that particular race. Consequently, the study concludes in providing a foundation for understanding the profile preferences in an Indian population and in assisting final treatment decisions for the orthodontist.

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7. Conflict of Interests

The author declares that they do not have any conflict of interests

References

1. Mantzikos T. Esthetic soft tissue profile preferences among the Japanese population. *American Journal of Orthodontics and Dentofacial Orthopedics*. 1998;114(1):1–7. Available from: [https://dx.doi.org/10.1016/s0889-5406\(98\)70230-6](https://dx.doi.org/10.1016/s0889-5406(98)70230-6). doi:10.1016/s0889-5406(98)70230-6.
2. Maganzini AL, Tseng J. Perception of facial esthetics by native Chinese participants by using manipulated digital imagery techniques. *Angle Orthod*. 2000;70:393–399.
3. Peck H, Peck S. A concept of facial esthetics. *Angle Orthod*. 1970;40:284–318.
4. Lundström A, Woodside DG, Popovich F. Panel assessments of facial profile related to mandibular growth direction. *Eur J Orthod*. 1987;9:271–278.
5. Kerr WJS, O'Donnell JM. Panel Perception of Facial Attractiveness. *British Journal of Orthodontics*. 1990;17(4):299–304. Available from: <https://dx.doi.org/10.1179/bjo.17.4.299>. doi:10.1179/bjo.17.4.299.
6. Phillips C, Tulloch C, Dann C. Rating of facial attractiveness. *Community Dentistry and Oral Epidemiology*. 1992;20(4):214–220. Available from: <https://dx.doi.org/10.1111/j.1600-0528.1992.tb01719.x>. doi:10.1111/j.1600-0528.1992.tb01719.x.
7. Phillips C, Griffin T, Benette E. Perception of facial attractiveness by patients, peers and professionals. *Int J Adult Orthod Orthognath Surg*. 1995;10:127–135.
8. Cochrane SM, Cunningham SM, Hunt SP. A comparison of the perception of facial profile by the general public and 3 groups of clinicians. *Int J Adult Orthod Orthognath Surg*. 1999;14:291–296.
9. Turkkahraman H, Gokalp H. Facial Profile Preferences Among Various Layers of Turkish Population. *Angle Orthod*. 2004;74:640–647.
10. Abdullah N, Naing L, Ismail NM, Ismail AR. A cross sectional study of soft tissue facial morphometric in children and adolescents. *Malays J Med Sci*. 2006;13:25–34.

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