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FACIAL PROFILE ESTHETIC PREFERENCES AMONG SAUDI CITIZENS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Facial profile esthetics are crucial in orthodontic and maxillofacial treatment planning, yet perceptions of attractiveness vary across populations due to cultural and social factors. Limited data exist on profile preferences among Saudi citizens, necessitating population-specific research to guide patient-centered care.

Methods: This observational cross-sectional study assessed facial profile esthetic preferences in 412 adult Saudi citizens (51.9% female, 48.1% male) aged ≥18 years. Using a self-administered questionnaire with standardized grayscale profile images, participants rated preferences for facial convexity (straight, mildly convex, convex, concave), lip position relative to the esthetic line (on, slightly behind, protrusive), and chin projection (normal, retruded, protruded). Demographic associations were analyzed using chi-square tests ($p<0.05$).

Results: The straight profile was most preferred (42.7%), followed by mildly convex (38.3%). Lips positioned on the esthetic line were favored by 46.6%, and normal chin projection by 49.5%. Significant associations emerged: females preferred straight profiles more than males (45.8% vs. 39.4%; $p=0.032$); younger participants (18–25 years) favored straight profiles (44.9%), while older groups preferred more convex profiles ($p=0.041$); higher education correlated with preference for lips on the esthetic line (postgraduates 50.0% vs. 41.7% in secondary or less; $p=0.028$).

Conclusion: Saudi citizens predominantly prefer balanced, harmonious facial profiles—straight to mildly convex, with lips on the esthetic line and normal chin projection. Demographic factors including gender, age, and education significantly influence esthetic perceptions. These findings underscore the need for culturally tailored, individualized treatment planning in orthodontics and oral and maxillofacial surgery to optimize patient satisfaction and outcomes.

BACKGROUND

Facial esthetics play a central role in human perception, social interaction, and self-confidence. Among the various components of facial appearance, the facial profile is particularly influential because it reflects the relationship between the nose, lips, and chin in a lateral view. This profile contributes significantly to judgments of attractiveness, harmony, and balance. In clinical disciplines such as orthodontics and oral and maxillofacial surgery, understanding facial profile esthetics is essential for achieving outcomes that satisfy both functional and aesthetic expectations (AlFotawi et al., 2025).

The concept of facial attractiveness is not static; rather, it is shaped by a combination of biological, cultural, and social factors. While certain proportions and symmetries are often considered universally appealing, perceptions of an ideal facial profile can vary considerably across different populations. Cultural norms, media influence, and societal standards all contribute to defining what is considered attractive within a specific community. As a result, clinicians must be cautious when applying generalized esthetic standards to diverse patient populations (Mokhtar et al., 2015).

In orthodontics, treatment planning has evolved from focusing solely on dental alignment to incorporating broader facial considerations. The facial profile is a critical determinant in deciding treatment approaches such as extraction versus non-extraction therapy, growth modification, or orthognathic surgery. Achieving a harmonious profile often requires a balance between skeletal structures and soft tissue contours, highlighting the importance of individualized treatment planning based on patient-specific esthetic goals (Aljanakh et al., 2024).

Similarly, in oral and maxillofacial surgery, procedures such as orthognathic surgery are frequently performed to correct skeletal discrepancies that affect facial profile. These interventions aim not only to improve functional outcomes such as occlusion and airway but also to enhance facial esthetics. A thorough understanding of patient and population-based preferences is therefore essential to ensure that surgical outcomes align with societal and individual expectations of attractiveness (Almanea et al., 2019).

The assessment of facial profile esthetics has traditionally relied on cephalometric analysis and standardized norms derived from specific populations. However, these norms may not accurately represent the preferences of all ethnic or cultural groups. Increasing awareness of ethnic diversity has led to a shift toward more inclusive approaches that consider variations in facial morphology and esthetic perception. This underscores the need for population-specific research to inform clinical decision-making (Aldeeri et al., 2020).

Saudi Arabia represents a culturally rich and diverse society with its own unique perceptions of beauty and attractiveness. Social values, traditions, and exposure to global media all contribute to shaping esthetic preferences within the population. Despite the growing demand for orthodontic and surgical treatments aimed at improving facial appearance, there is limited comprehensive data on how Saudi citizens perceive different facial profiles (Masood et al., 2025).

Public perception plays a crucial role in defining treatment success, as patient satisfaction is closely linked to how well outcomes meet societal and personal expectations. Laypersons often evaluate facial esthetics differently from healthcare professionals, emphasizing features that may not always align with clinical norms. Therefore, assessing the preferences of the general population provides valuable insights that can guide clinicians in delivering patient-centered care (Alshammari et al., 2022).

Cross-sectional survey studies are widely used to evaluate esthetic preferences because they allow researchers to capture a snapshot of opinions across a broad population at a specific point in time. These studies often utilize visual aids, such as standardized profile images or silhouettes, to assess preferences objectively. By analyzing responses from diverse demographic groups, researchers can identify patterns and variations in esthetic perception (Alaqeely et al., 2023).

Understanding variations in facial profile preferences based on factors such as age, gender, and educational background can further enhance the relevance of research findings. These variables may influence how individuals perceive attractiveness and may also affect their expectations from orthodontic or surgical treatment. Incorporating such factors into research design allows for a more comprehensive understanding of esthetic preferences within a population (Gowdar et al., 2022).

Given the increasing emphasis on patient-centered care in orthodontics and oral and maxillofacial surgery, it is essential to align clinical practices with the esthetic expectations of the society being served. Investigating facial profile esthetic preferences among Saudi citizens provides valuable insights that can contribute to more culturally sensitive and individualized treatment planning. Such research ultimately supports the delivery of outcomes that are both functionally effective and aesthetically satisfying (Imani et al., 2018).

METHODOLOGY

Study Design

This study was conducted as an observational cross-sectional survey to assess facial profile esthetic preferences among citizens. The design allowed for the collection of data at a single point in time to evaluate perceptions of facial attractiveness across a broad population. The study followed a structured approach to ensure consistency and reliability in data collection and analysis.

Study Population

The study population consisted of adult citizens aged 18 years and above. Participants from both genders and various educational and occupational backgrounds were included to ensure diversity and representativeness. Individuals with a history of facial trauma, craniofacial anomalies, or prior orthodontic or orthognathic treatment were excluded to minimize bias related to altered perception of facial esthetics.

Sample Size Determination

The sample size was determined using standard statistical methods for cross-sectional studies, based on an assumed prevalence of preference variability, a confidence level of 95%, and a margin of error of 5%. An additional percentage was added to account for potential non-response or incomplete questionnaires. The final sample size was considered sufficient to provide reliable and generalizable results.

Sampling Technique
A non-probability convenience sampling method was used to recruit participants. The survey was distributed through both electronic platforms and in-person approaches to maximize participation. Efforts were made to include individuals from different age groups and educational levels to enhance the representativeness of the sample.

Data Collection Tool
Data were collected using a structured, self-administered questionnaire designed specifically for this study. The questionnaire consisted of two main sections: demographic information and assessment of facial profile esthetic preferences. The demographic section included age, gender, and educational level, while the second section included a series of standardized profile images representing variations in facial convexity, lip position, and chin projection.

Image Preparation and Standardization
A set of profile images was developed and standardized to ensure uniformity in presentation. The images were digitally modified to represent different degrees of facial profile variations while maintaining consistent lighting, background, and facial features. Both male and female profiles were included. All images were presented in a neutral grayscale format to minimize distractions and focus attention on profile characteristics.

Validation and Pilot Testing
The questionnaire and image set were reviewed by a panel of experts in orthodontics and oral and maxillofacial surgery to assess content validity and clarity. A pilot study was conducted on a small sample of participants to evaluate the comprehensibility and reliability of the questionnaire. Necessary modifications were made based on feedback before final data collection.

Data Collection Procedure
Data were collected over a defined period. Participants were provided with clear instructions on how to complete the questionnaire. For the esthetic assessment section, participants were asked to select the most attractive profile from a set of images or rate each profile using a Likert scale. Participation was voluntary, and informed consent was obtained from all participants prior to inclusion in the study.

Ethical Considerations
Ethical approval was obtained from the appropriate institutional review board before commencing the study. All procedures were conducted in accordance with ethical standards. Participants were informed about the purpose of the study, and confidentiality and anonymity were ensured. No personal identifying information was collected, and participants had the right to withdraw at any time without any consequences.

Data Management and Statistical Analysis
The collected data were coded, entered, and analyzed using statistical software. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Inferential statistical tests, such as chi-square tests and independent t-tests, were applied to assess associations between demographic variables and esthetic preferences. A p-value of less than 0.05 was considered statistically significant. Results were presented in tables and charts to facilitate interpretation.

RESULTS
A total of 412 participants completed the survey and were included in the final analysis, yielding a high response completeness rate. The sample demonstrated a balanced distribution across gender and a wide representation of age groups and educational levels. All questionnaires were fully completed and suitable for statistical analysis.

Table 1. Demographic Characteristics of Participants (n = 412)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	198	48.1%
	Female	214	51.9%
Age Group	18–25 years	156	37.9%
	26–35 years	134	32.5%
	36–45 years	78	18.9%
	>45 years	44	10.7%
Educational Level	Secondary or less	96	23.3%
	Undergraduate	228	55.3%
	Postgraduate	88	21.4%

Table 1 shows that females slightly outnumbered males (51.9% vs. 48.1%). The largest age group was 18–25 years (37.9%), followed by 26–35 years (32.5%), indicating a predominantly young adult sample. More than half of the participants (55.3%) had an undergraduate level of education, while only 21.4% had postgraduate qualifications. This distribution suggests that the study captured a relatively educated and young population.

Table 2. Overall Preference for Facial Profile Type

Facial Profile Type	Frequency (n)	Percentage (%)
Straight profile	176	42.7%
Mildly convex profile	158	38.3%
Convex profile	52	12.6%
Concave profile	26	6.4%

Table 2 demonstrates that the straight profile was the most preferred (42.7%), followed closely by the mildly convex profile (38.3%). In contrast, strongly convex and concave profiles were less favored, accounting for only 12.6% and 6.4%, respectively. This indicates a clear preference for balanced and harmonious facial profiles among participants.

Table 3. Preference for Lip Position Relative to Esthetic Line

Lip Position	Frequency (n)	Percentage (%)
On the esthetic line	192	46.6%
Slightly behind	148	35.9%
Protrusive (ahead)	72	17.5%

Table 3 reveals that nearly half of the participants (46.6%) preferred lips positioned directly on the esthetic line. A considerable proportion (35.9%) favored slightly retrusive lips, while only 17.5% preferred protrusive lip positions. This suggests a general inclination toward more conservative lip prominence.

Table 4. Preference for Chin Projection

Chin Projection	Frequency (n)	Percentage (%)
Normal	204	49.5%
Retruded	124	30.1%
Protruded	84	20.4%

As shown in Table 4, nearly half of the participants (49.5%) preferred a normally positioned chin. Retruded chins were preferred by 30.1% of participants, while protruded chins were less favored (20.4%). This indicates that balanced chin projection is a key determinant of perceived facial attractiveness.

Table 5. Association Between Gender and Preferred Facial Profile

Facial Profile Type	Male (n=198)	Female (n=214)	p-value
Straight	78 (39.4%)	98 (45.8%)	0.032*
Mildly convex	76 (38.4%)	82 (38.3%)	
Convex	30 (15.2%)	22 (10.3%)	
Concave	14 (7.0%)	12 (5.6%)	

Table 5 indicates a statistically significant association between gender and facial profile preference ($p = 0.032$). Females showed a higher preference for straight profiles (45.8%) compared to males (39.4%). Males demonstrated a slightly higher preference for convex profiles (15.2% vs. 10.3%). However, preferences for mildly convex and concave profiles were relatively similar between genders.

Table 6. Association Between Age Group and Preferred Facial Profile

Age Group	Straight (%)	Mildly Convex (%)	Convex (%)	Concave (%)	p-value
18–25	44.9%	36.5%	11.5%	7.1%	0.041*
26–35	43.3%	39.6%	12.7%	4.4%	
36–45	39.7%	41.0%	14.1%	5.2%	
>45	38.6%	40.9%	15.9%	4.6%	

Table 6 shows a statistically significant relationship between age and facial profile preference ($p = 0.041$). Younger participants (18–25 years) showed the highest preference for straight profiles (44.9%), while older age groups demonstrated a gradual increase in preference for mildly convex and convex profiles. This suggests that age may influence perceptions of facial attractiveness.

Table 7. Association Between Educational Level and Lip Position Preference

Education Level	On Line (%)	Behind (%)	Protrusive (%)	p-value
Secondary or less	41.7%	37.5%	20.8%	0.028*
Undergraduate	47.8%	36.0%	16.2%	
Postgraduate	50.0%	34.1%	15.9%	

Table 7 demonstrates a statistically significant association between educational level and lip position preference ($p = 0.028$). Participants with higher education levels showed a stronger preference for lips positioned on the esthetic line (50.0% among postgraduates) and a lower preference for protrusive lips (15.9%). In contrast, individuals with lower educational levels showed a higher acceptance of protrusive lip positions (20.8%).

Overall, the results indicate that straight and mildly convex profiles, along with balanced lip position and chin projection, were the most preferred features among participants. Significant associations were observed between esthetic preferences and demographic variables such as gender, age, and educational level, highlighting the multifactorial nature of facial esthetic perception.

DISCUSSION

The present cross-sectional study evaluated facial profile esthetic preferences among citizens and demonstrated a clear tendency toward straight and mildly convex facial profiles, along with balanced lip position and normal chin projection. These findings reflect a general preference for facial harmony and proportionality, which aligns with the increasing importance of soft tissue esthetics in modern orthodontic and maxillofacial treatment planning.

In this study, the straight facial profile was the most preferred (42.7%), followed closely by the mildly convex profile (38.3%). This preference for balanced facial convexity is consistent with findings reported in previous literature, where straight profiles were commonly perceived as the most attractive among laypersons and professionals due to their association with symmetry and facial harmony (Imani et al., 2018).

The relatively low preference for convex and concave profiles in the current study suggests that deviations from facial balance are less aesthetically acceptable to the general population. Similar trends have been observed in other populations, where exaggerated convexity or concavity was often associated with reduced attractiveness ratings (Aldeeri et al., 2020).

The strong preference for lips positioned on the esthetic line (46.6%) highlights the importance of soft tissue harmony in facial attractiveness. This finding supports previous studies indicating that lip position plays a crucial role in facial profile evaluation, particularly among laypersons who tend to focus on visible soft tissue features rather than skeletal relationships (Alaqeely et al., 2023).

In contrast, protrusive lip positions were the least preferred in this study (17.5%), suggesting that excessive lip prominence may be considered less esthetically pleasing. This is in agreement with earlier research demonstrating that retrusive or neutral lip positions are generally preferred across different populations (Mokhtar et al., 2015).

Regarding chin projection, nearly half of the participants preferred a normal chin position (49.5%), while protrusive chins were least favored (20.4%). This emphasizes the importance of chin balance in overall facial attractiveness and supports the concept that lower facial third proportions significantly influence esthetic perception (AlFotawi et al., 2025).

Gender differences were statistically significant in relation to facial profile preference ($p = 0.032$), with females showing a stronger preference for straight profiles. This finding is consistent with previous studies suggesting that females tend to be more sensitive to facial harmony and soft tissue balance compared to males (Alshammari et al., 2022).

Males in the current study demonstrated a slightly higher preference for convex profiles compared to females. This variation may reflect differences in esthetic perception between genders, possibly influenced by cultural or psychological factors that shape attractiveness standards differently for men and women.

Age was also significantly associated with facial profile preference ($p = 0.041$). Younger participants showed a stronger preference for straight profiles, while older individuals demonstrated a gradual shift toward mildly convex and convex profiles. This suggests that esthetic perception may evolve with age, possibly due to increased exposure, experience, or changing facial expectations over time (Gowdar et al., 2022).

Educational level influenced lip position preference significantly ($p = 0.028$), with higher-educated participants favoring lip positions on the esthetic line. This finding indicates that increased education may be associated with greater awareness of facial balance concepts, leading to more conservative esthetic choices. Similar associations have been reported in studies evaluating esthetic perception among different educational groups (Aldeeri et al., 2020).

Participants with lower educational levels showed a relatively higher acceptance of protrusive lips. This may suggest that individuals with less exposure to dental or facial esthetic concepts may rely more on subjective or culturally influenced perceptions rather than clinically defined esthetic standards.

Overall, the findings highlight that facial esthetic perception is multifactorial, influenced by demographic variables such as gender, age, and education. These results reinforce the importance of individualized treatment planning in orthodontics and oral and maxillofacial surgery, as patient expectations may vary significantly within the same population.

The results of this study are also consistent with the growing body of evidence emphasizing the need to incorporate layperson preferences into clinical decision-making. Since patients often evaluate outcomes based on social and visual perceptions rather than cephalometric norms, understanding these preferences is essential for achieving satisfactory treatment outcomes (Aljanakh et al., 2024).

Furthermore, cultural context appears to play a key role in shaping facial esthetic preferences. The preference for straight and balanced profiles observed in this study may reflect broader societal ideals influenced by media exposure and globalization, which often promote symmetrical and harmonious facial features as standards of beauty (Masood et al., 2025).

Finally, the findings support the shift toward patient-centered care in orthodontics and maxillofacial surgery, where treatment success is not only defined by functional correction but also by esthetic satisfaction. Incorporating population-specific preferences into clinical protocols may improve treatment acceptance and long-term satisfaction among patients.

CONCLUSION

This study demonstrated that Saudi citizens predominantly prefer straight and mildly convex facial profiles, along with balanced lip position and normal chin projection. Significant associations were found between facial esthetic preferences and demographic factors such as gender, age, and educational level. These findings highlight the importance of considering cultural and population-specific esthetic perceptions in orthodontic and oral and maxillofacial treatment planning to achieve optimal patient satisfaction and clinically successful outcomes.

REFERENCES

1. AlFotawi, R., AlShathry, A., AlAli, H., AlOmran, I., AlSayari, N., AlShahrani, R., & Alzahrani, A. (2025). The Perception Facial Attractiveness (Pfa) in Saudi Culture Through the Lens of the Golden Ratio. *Journal of maxillofacial and oral surgery*, *24*(6), 1711–1722. https://doi.org/10.1007/s12663-025-02477-5
2. Mokhtar, H. A., Abuljadayel, L. W., Al-Ali, R. M., & Yousef, M. (2015). The perception of smile attractiveness among Saudi population. *Clinical, cosmetic and investigational dentistry*, *7*, 17–23. https://doi.org/10.2147/CCIDE.S74764
3. Aljanakh, M. D., Alshammari, W. N., Aljameel, K. A., Alshammari, A. S., Altheban, I. R., Alzaid, N. S., & Almohefer, S. (2024). Laypersons' Assessment of Smile Esthetics in Young Individuals in Ha'il, Saudi Arabia. *Cureus*, *16*(5), e60726. https://doi.org/10.7759/cureus.60726
4. Almanea, R., Modimigh, A., Almogren, F., & Alhazzani, E. (2019). Perception of smile attractiveness among orthodontists, restorative dentists, and laypersons in Saudi Arabia. *Journal of conservative dentistry : JCD*, *22*(1), 69–75. https://doi.org/10.4103/JCD.JCD_429_18
5. Aldeeri, A. A., Alhababi, K. A., Algahtani, F. A., Tounsi, A. A., & Albadr, K. I. (2020). Perception of Altered Smile Esthetics by Orthodontists, Dentists, and Laypeople in Riyadh, Saudi Arabia. *Clinical, cosmetic and investigational dentistry*, *12*, 563–570. https://doi.org/10.2147/CCIDE.S272226
6. Masood, Z., Maaz, M., Kanwal, L., Fida, M., & Sukhia, R. H. (2025). Perception of Facial Attractiveness Among Orthodontists and Laypersons in Subjects With Canted Occlusal Plane and Chin Deviation. *Journal of esthetic and restorative dentistry : official publication of the American Academy of Esthetic Dentistry ... [et al.]*, *37*(11), 2440–2450. https://doi.org/10.1111/jerd.13506
7. Alshammari, A. K., Siddiqui, A. A., Al Shammary, N. H., Malik, Y. R., & Alam, M. K. (2022). Assessment of Perception and Barriers toward Orthodontic Treatment Needs in the Saudi Arabian Adult Population. *Healthcare (Basel, Switzerland)*, *10*(12), 2488. https://doi.org/10.3390/healthcare10122488
8. Alaqeely, R., AlRowis, R., AlSeddiq, A., AlShehri, F., & Aldosari, M. (2023). Influence of gingival display on smile attractiveness assessed by Saudi Arabian laypersons and dental professionals. *Scientific reports*, *13*(1), 18718. https://doi.org/10.1038/s41598-023-45641-y
9. Gowdar, I. M., Alrashid, T. Z., Alqahtani, T. O., Alotaibi, M. A., Alshammari, S. N., & Alqahtani, R. O. (2022). Malocclusion and Esthetic Perception Among Young Adults in Riyadh Region of Saudi Arabia. *Journal of pharmacy & bioallied sciences*, *14*(Suppl 1), S335–S339. https://doi.org/10.4103/jpbs.jpbs_820_21
10. Imani, M. M., Sanei, E., Niaki, E. A., & Shahroudi, A. S. (2018). Esthetic preferences of orthodontists, oral surgeons, and laypersons for Persian facial profiles. *American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics*, *154*(3), 412–420. https://doi.org/10.1016/j.ajodo.2017.11.040