

Dental Aesthetic Perception of Dentistry Students: A Literature Review

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Abstract: The appearance of a smile has increasingly become a factor that significantly impacts an individual's self-esteem and social context. Consequently, there is a growing desire for changes in the oral region to achieve what is considered an ideal smile, particularly in light of new beauty standards, where white and aligned teeth are deemed highly relevant. However, the concept of beauty is highly subjective, and sometimes dental standards do not align with patients' aesthetic desires. This study aims to evaluate the dental aesthetic perception of dentistry students through an integrative review. For the reference framework, we searched articles from the PubMed and Lilacs databases from the past five years, using the keywords "Dental esthetic," "dental student," and "Smiling," with the Boolean operator "and." After a thorough reading of all the articles, nine studies were selected. This review showed that the level of education and gender presented differences in the perception of dental aesthetics. However, students generally agree that aesthetics must be associated with the health and naturalness of the smile, following dental anatomy, dental alignment, buccal corridor, level of gingival exposure, and color.

Keywords: Dental Aesthetics; Dentistry Student; Smile.

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1. Introduction

People are becoming increasingly demanding in their pursuit of aesthetics. A beautiful smile can elevate self-esteem, exuding confidence and personality to those around them. Patients desire a pleasant-looking smile, with whiter and perfectly aligned teeth. Through aesthetic dentistry, it is possible to mimic nature, preserving the size, shape, symmetry, and color of teeth [1]. Dental aesthetics have a significant influence on patients' quality of life, with the appearance of the smile being a factor that demonstrably impacts an individual's self-esteem [2]. Humans express their feelings through their face, and the smile is the highlight of this expression. When there are negative aspects related to smiling, social and psychological interactions can be affected [3].

It is important to highlight that the concept of beauty is subjective. The ideal smile may be far from what patients consider aesthetically appropriate [2]. To achieve an attractive smile appearance, it is important to have a natural facial harmony. Thus, it is fundamental to follow some references such as the smile arc (curvature of the smile), the buccal corridor, the amount of gingival exposure, the presence of gingival and incisal asymmetries, the presence of diastemas in the upper anterior region, the presence of mid-line deviations and changes in dental axial inclinations, the proportion, size, and symmetry of the upper incisors, among other factors [4].

The appeal of media and social networks for a collective aesthetic molded by beauty standards has been a challenge in this quest for the perfect smile. In this context, it is important for the dentist to perform aesthetic planning based on aesthetic and functional

references while respecting and adjusting the procedures to the patient's expectations. Every treatment plan should be individualized, as each patient has their uniqueness that will affect the final result [5].

Following these principles, this research estimates that dentistry students, as future professionals responsible for oral health, consider that the aesthetic standard also includes having white and healthy gums. Thus, the present study sought the perception of dentistry students on smile aesthetics through a literature review, highlighting their criteria and limitations.

2. Methodology

This is an integrative literature review conducted in 2022 through a search on the PubMed and Lilacs databases from the last 5 years (2017 to 2022), using the following descriptors: "Dental esthetic" AND "dental student" AND "Smiling." The research took place between September and October 2022 (Table 1). The abstracts of the selected articles were analyzed to verify if they met the inclusion and exclusion criteria. The inclusion criteria selected articles involving research in the area of dental aesthetics that addressed the general perception of white and red smile aesthetics by dentistry students, between 2017 and 2022, published in Portuguese or English.

The exclusion criteria included articles that were not in the field of dental aesthetics, case reports, literature reviews, or publications made before 2017, as well as non-indexed articles, theses, and dissertations. The guiding question that directed this study was: *What is the perception of dentistry students regarding the concept of smile aesthetics?*

Table 1: Data on Study Search Filters.

Database	Study Search Strategy	Filters
PubMed ¹	Advanced search with AND and OR using the descriptors "Dental esthetic" AND "dental student" AND "Smiling"	English and Portuguese languages from 2017 to 2022. Only research articles (excluding clinical cases and literature reviews)
Lilacs ²	Advanced search with the keywords Esthetic dental and Perception and smile	English and Portuguese languages from 2018 to 2022. Only research articles (excluding clinical cases and literature reviews)

¹ Search on October 11, 2022. ² Search on October 14, 2022.

3. Results

A total of 176 articles were identified in the PubMed database and 5 articles in the Lilacs database. After analyzing the pre-established inclusion and exclusion criteria, 101 articles were excluded due to the publication year (prior to 2017), 68 articles were excluded after a critical reading of the title, and 3 articles were excluded after a critical reading of the abstract. Additionally, literature reviews and articles that did not meet the objectives of the subject matter or were not available in full text were excluded. Thus, a total of 9 articles were included for this literature review (Table 2).

Table 2: Characterization of the Articles Included in the Integrative Review.

Reference	Dental Aesthetic Perception of Dentistry Students	Results
[6]	<p>The study was conducted at the Lithuanian University of Health Sciences with 431 dental students. Women were more critical than men in evaluating the gummy smile, the 'golden ratio,' occlusal inclination, and dental crowding. The most unfavorable smile characteristics were identified in the dental analysis category, with hypodontia ranked as the worst characteristic.</p>	<p>Among dental students, the most important smile characteristics in determining attractiveness were hypodontia, gummy smile, inverted occlusal plane curvature, and dental crowding.</p>
[7]	<p>The questionnaire was designed to examine awareness of eight different aesthetic discrepancies. Eight hundred printed questionnaires were distributed to two dental schools and the major government hospitals in Riyadh. Dentists were more capable of identifying discrepant features than students. This ability was higher in the following aspects: gingival aesthetics, midline deviation, dental and facial characteristics, and buccal corridor.</p>	<p>It was confirmed at the end of the research that as students advanced academically, their ability to evaluate dental aesthetics improved.</p>
[8]	<p>Gender significantly influenced the choice of desired aesthetic treatment by the students. The advanced academic level, knowledge, and clinical experience of 5th-year students may have influenced the difference in color selection. Most 1st-year students preferred the "BL1" shade.</p>	<p>The aesthetic perception of color is subjective and depends on gender, experience, social circumstances, and educational background. The opinions of 1st-year students approximate those of laypersons due to their insufficient knowledge and experience.</p>
[9]	<p>An exploratory cross-sectional study conducted at the College of Dentistry, Taibah University in Saudi Arabia, with final and penultimate year undergraduate students. Both men and women scored comparatively higher in aesthetic attractiveness for the smile arc, buccal corridor, gingival exposure, midline diastema, crown length and width, with no significant difference between the two groups.</p>	<p>Final-year dental students had a greater perception of the aesthetic components of the smile than fourth-year students. At each study level, female dental students apparently had higher perceptions of smile aesthetics than males.</p>
[10]	<p>A total of 1,000 university students from various fields, not just dentistry, who were social media users. The aim was to evaluate the effect of social media use on selecting the Hollywood smile among young university students in Saudi Arabia. Responses were compared based on gender, field of study, and the number of hours spent daily on social media. Health students had more knowledge about the Hollywood smile in the study.</p>	<p>The overall effect of social media on the decision to opt for the Hollywood smile was considered moderate. It showed that women were more dissatisfied with their smiles and needed aesthetic improvement compared to men.</p>

[11]	A questionnaire was assigned to 5th-semester dental students in Hungary to analyze whether students' self-perception and heteroplastic dental aesthetics are associated with their current study phase and whether self-perception has any effect on heteroperception.	Self-perception was highly favorable regardless of semester or gender. Heteroperception was significantly associated with maxillary midline deviation and smile arc. It was not possible to verify the association between self-perception and heteroperception for statistical reasons.
[12]	A study using a questionnaire was conducted with dental students from various semesters in Riyadh. Divided into two parts, the first measured students' self-perception and satisfaction with their own smile. The second, an assessment of the importance of facial attractiveness characteristics on a visual analog scale (VAS) bar of 100mm.	The results indicate a generally negative aesthetic self-perception among students. Reported satisfaction increased with the more advanced semester in the course.
[13]	The study aimed to evaluate through a questionnaire the perception of dental students regarding their own smile and facial profile, analyzing whether there would be a difference in this perception concerning the semester they were in and as knowledge was acquired.	There was no difference in the aesthetic perception of one's own smile and profile concerning the semester, with the degree of satisfaction with one's own smile being quite high.
[14]	The study aimed to broadly assess dental students' perception of facial, dental, and smile aesthetics to evaluate if the perception varies according to gender, clinical training, and GPA average.	Male students have a better perception of facial and dental aesthetics than females. The study found that clinical training has a positive effect on beauty evaluation.

4. Discussion

The objective of this study was to conduct a literature review on the aesthetic perception of undergraduate dental students. Since a smile is closely related to aesthetics and, in turn, has a significant psychological and social influence on individuals, bringing positive outcomes in terms of self-esteem and well-being, it is crucial that professionals know how to balance the natural with patient preferences to ensure that the result is both aesthetically pleasing and health-appropriate [6]. The divergence of opinions among dental students at different stages of their education can be explained by their practical and theoretical training, as a practicing professional will have a greater ability to perceive something that needs to be corrected or aesthetically improved. Therefore, some situations that are extremely unaesthetic for a particular specialty or individual may be considered clinically acceptable by another. Rigid rules cannot be established for defining aesthetics [15].

The perception of a beautiful smile is shaped by various factors. Among them, the influence of social media brings about a growing acceptance of a "Hollywood smile" both among future dentists and the general population [10]. The educational training of these dental students influences their ability to critically analyze which characteristics make a smile aesthetically more pleasing, a fact that becomes noticeable as opinions on the subject diverge with the advancement of their studies [17]. The evaluated studies revealed that certain specific characteristics are more noticeable to students. Tooth color, maxillary midline, smile arc height, presence of dental crowding, gingival exposure, facial asymmetry, buccal corridor, and clinical crown width are some of the most observed criteria [6].

Furthermore, it was found that there are more articles where women have a more critical self-perception of the set of characteristics that form an ideal smile [9]. It was also identified that as students progress through the course, they acquire knowledge and increase their clinical experience, which ensures greater skill in critically analyzing aesthetics, considering all morphological factors of the smile without removing naturalness and function [12]. According to Table 2, among the selected and analyzed articles, there was a consensus regarding this result, possibly due to their heightened knowledge of dentofacial analysis, as previously mentioned.

5. Conclusion

It can be concluded from the studies found that the aesthetic perception of students varies according to their level of education, ethnicity, and gender, in addition to the fact that the media is powerful in shaping aesthetic standards. It is important to highlight that this study indicates the need for more rigorous evaluation by professionals and students regarding aesthetics due to its subjectivity and changing perspectives based on an individual's knowledge or level of education. Therefore, it is essential to inform future dentists about the importance of paying attention to the patient's primary concern so that, along with the analysis of the patient's psychological, physical, and emotional characteristics, a correct diagnosis can be made. Based on this comprehensive set of factors, a treatment can be recommended that satisfactorily meets the patient's needs and desires clearly and ethically.

Finally, we understand that with the advent of globalization and access to social media, the demand for aesthetic procedures tends to increase and create standards. The smile remains one of the most observed elements in terms of facial attractiveness. It is then the responsibility of dental professionals to value the naturalness, morphology, anatomy, color, and especially the white and red health of the patient.

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