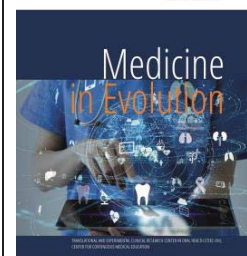


Evaluating aesthetic benefits of composite veneers: investigating dental students and lay people's self-perception



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Abstract

Aims and objectives: This study aims to explore how demographic variables such as gender, age, and country influence perceptions related to dental health and aesthetics. **Materials and methods:** We conducted an online survey, gathering responses from participants across various countries. The survey included questions ranging from satisfaction with dental aesthetics to the perceived benefits of dental treatments such as veneers. **Results:** The results revealed significant differences in dental health perceptions based on gender, with males generally more satisfied with their gum health compared to females. However, age did not significantly influence dental health perceptions, suggesting a universal concern across age groups. The country of residence significantly affected perceptions of the confidence-boosting effects of dental veneers, highlighting cultural differences in dental aesthetics. **Conclusions:** The findings emphasize the need for dental health professionals to consider demographic factors when planning treatment and education programs. Gender differences suggest that targeted educational campaigns might be necessary to address specific misconceptions and expectations.

Keywords: dental aesthetics, direct veneers, indirect veneers, self-perceptions

INTRODUCTION

Throughout history, as the standards of contemporary society have increasingly drawn attention to ideals of beauty, there has been a noticeable shift in the way most people view themselves [1-3]. With the growing interest in health and esthetics, the demand for dental procedures designed to enhance aesthetic appeal has increased significantly [4,5]. In this context, the evolution of dental materials and techniques that professionals can use to execute these aesthetic improvements plays an important role. This is particularly true for enhancing the aesthetic appeal of a person's smile, a complex aspect that is prioritized due to its potential to boost patient self-confidence [4,5].

From a dental practitioner's perspective, it is very important to be updated on all the techniques and dental materials, to deliver the best esthetic results for the patients. This is especially relevant when considering the enhancement of one's smile, which holds significant importance due to its ability to elevate patient self-confidence [4,5]. When exploring composite veneer restorations, two primary approaches stand out: direct and indirect methods.

Direct composite veneers involve the application of composite resin directly onto the tooth surface. The advantages of this method refer to: (1) immediate results - they provide instant transformation, as they are applied chairside in a single visit, and the patient can leave the dental office with a modified smile [6]; (2) cost-effectiveness - as direct composite veneers are generally more cost-effective than their indirect veneer restorations [7]; (3) minimal tooth preparation - unlike indirect veneers, direct composite veneers require minimal to no tooth preparation, which is beneficial, particularly for patients hesitant about irreversible alterations to their teeth [8]; (4) allows for further modifications - direct veneers allow for easy adjustments during the application process, to achieve the desired shape, color, and texture, ensuring optimal aesthetics) [9].

Compared to direct veneer technology, indirect veneer restorations have several advantages, such as (1) enhanced aesthetics - superior aesthetic outcomes compared to direct technique, due to meticulous customization of shape, shade, and surface texture [10]; (2) improved durability - indirect veneers are fabricated using high-quality composite materials and bonding techniques, enhancing their longevity and resistance to staining and wear [11]; (3) precise fit and optimal occlusal relationships - by using either complete digital workflow or by using conventional methods, best results can be obtained to ensure both function (optimal occlusal relationships) and aesthetics [12].

However, both methods, have their limitations and drawbacks. Direct veneers present durability concerns, being more prone to staining, chipping, and wear over time, necessitating periodic maintenance and replacement [13]. In addition, direct veneers present limited aesthetic control, as achieving natural translucency and surface texture with direct composite veneers can be challenging [14]. On the other hand, for indirect veneers, there is an extended treatment time, which might be an inconvenience for the patient [15]. Also, there are higher costs for indirect veneers due to additional laboratory fees and chairside time required for fabrication and placement [16].

Patient perception regarding direct and indirect veneers can vary based on factors such as aesthetic outcome, durability, and cost-effectiveness. Direct veneers, being chairside applications, may be perceived positively for their immediate results and affordability [7]. However, some patients may express concerns about their durability and long-term aesthetics due to potential staining and wear issues [13]. In contrast, indirect veneers, despite requiring multiple appointments and being more expensive, are often favored for their superior aesthetic outcomes and durability [10]. Patients may view them as long-term investments in

their smiles [11]. Understanding these perceptions is crucial for aligning treatment options with patient preferences and expectations, ultimately leading to more satisfactory outcomes in cosmetic dentistry.

In contemporary dentistry, understanding patient perceptions regarding their smiles and the psychological impact of aesthetic treatments is very important [17]. The present study was designed to investigate how dental patients visualize their smiles across various contexts and to assess the impact of treatments specifically involving composite veneers on their self-perception and aesthetic satisfaction.

Aim and objectives

The primary aim of this article was to evaluate the aesthetic benefits of composite veneers and their impact on patient self-perception. This involves exploring how patients perceive their smiles before and after treatment to assess changes in self-confidence and satisfaction. The study evaluated patient expectations and knowledge regarding dental veneers, gathering insights through a comprehensive questionnaire. By understanding these dynamics, the research seeks to improve the alignment of dental practices with patient needs and preferences, ultimately contributing to successful results in dental aesthetics.

MATERIAL AND METHODS

A questionnaire was created to assess the peoples' opinions about dental aesthetics. The survey was first pilot-tested among five subjects, to validate the clarity of the questionnaire, and the response options and to estimate the time needed for completion. The questionnaire was structured into three distinct parts, aiming to gather comprehensive insights into the range of patient opinions on dental aesthetics and their expectations from veneer treatments. The survey design was approved by the Ethics Committee of the “Iuliu Hatieganu” University of Medicine and Pharmacy of Cluj Napoca (DEP136/ 27.06.2023)

While the first section of the questionnaire included demographic questions, the second section explored general perceptions of patients' smiles, providing a foundation to indicate patient satisfaction and areas for improvement in dental practices (table 1). The third part of the questionnaire focused on the specific knowledge and expectations patients held about dental veneers, aiming to align these with clinical outcomes. This methodological approach was intended to ensure a thorough understanding of the subjective and objective aspects of dental aesthetics, which is critical for advancing treatment practices and patient care in the field of cosmetic dentistry (table 2).

Table 1. Section 1 and 2 included in the survey

DEMOGRAPHIC QUESTIONS	
Age	
Gender	
Student\ not student	
If yes, in which year of study?	
If yes, in which Faculty?	
Which country are you from?	
QUESTIONS REGARDING DENTAL ESTHETIC SELF-PERCEPTION	
Are you are confident about your smile?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you like showing your teeth while smiling?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you ou feel the need to put your hand in front of your mouth to cover your teeth while smiling or speaking?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you like the position of your teeth?	() strongly agree, () slightly agree, () I do not

	know, () slightly disagree, () strongly disagree
Are you satisfied with your teeth color?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Are you satisfied with the way your gums look?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you like the shape of your teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Are you pleased with the appearance of your teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you compare your teeth with others?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you like how your teeth image in the mirror?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you like how your teeth appear in photos?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Are you concerned about what other people think about your teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you wish your teeth looked better?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Naturally, the teeth may be worn.	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Naturally, the teeth may be stained, e.g. by coffee.	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
The function is the most important property of the teeth.	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
The appearance of the teeth is their most important property.	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you want to undergo treatments to improve the appearance of your teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree

Table 2. Section 3 included in the survey

QUESTIONS REGARDING DENTAL VENEERS PERCEPTION	
Do you know what dental veneers are?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you know when dental veneers are indicated?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you know the benefits of dental veneers?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you know the disadvantages of dental veneers?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could change the teeth color?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could change the tooth shape?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could replace missing teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could be used on fractured anterior teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could be used on badly stained teeth?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could resist tea/coffee/smoking stains?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers require brushing and flossing?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers require extensive care and hygiene?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers may negatively affect the gums?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers require the	() strongly agree, () slightly agree, () I do not know, ()

removal of tooth structure?	slightly disagree, () strongly disagree
Do you consider that dental veneers may fracture due to a specific way of eating?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers may prevent tooth decay/caries?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could improve the smile appearance?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree
Do you consider that dental veneers could increase your confidence?	() strongly agree, () slightly agree, () I do not know, () slightly disagree, () strongly disagree

The survey was generated using the Google Form platform. Subjects for this study were selectively recruited from a diverse population that included both dental students and laypeople across various countries. Participants were chosen based on their willingness to engage in an online survey designed to assess their perceptions and expectations regarding the aesthetic benefits of composite veneers. The selection process aimed to ensure a balanced representation of different genders, ages, and cultural backgrounds to provide a broad perspective on the influence of these demographic factors on dental health aesthetics. It was distributed via email to a diverse range of individuals of different ages, educational backgrounds, and countries. The responses were gathered through the Google Form tool and subsequently imported into Microsoft Excel. Following this step, the data was analyzed and translated into visual graphs.

Data analysis

Answers obtained from direct distribution were extracted and entered into the Statistical Package for Social Sciences software 22.0 (SPSS, Chicago, IL). The data obtained from the were downloaded from the Google Forms website as a Microsoft Excel (Microsoft Corp., Redmond, WA) file. After recording the variables, the answers were exported to SPSS and merged to the direct distribution database.

First, a descriptive analysis was performed and for statistical differences regarding the social-demographic factors, the Chi-Square test was applied. It also includes the McNemar test for the significance of modifications. Statistically significant differences were those with $p \leq 0.05$.

RESULTS

49 subjects responded initially to the survey, but after validating the data, answers obtained from 42 individuals were statistically analyzed. Out of 49 responses initially gathered from a diverse group of dental students and laypeople, only 42 were analyzed further. This selection was due to the elimination of incomplete or inconsistent responses, ensuring that the analysis was based on reliable data. This approach facilitated an accurate assessment of perceptions regarding the aesthetic benefits of composite veneers across various demographic groups.

Out of the 42 subjects, 17 were females and 25 were males. Among them, 8 were non-students while 34 were students. The age distribution of the respondents is depicted in Figure 1 below.

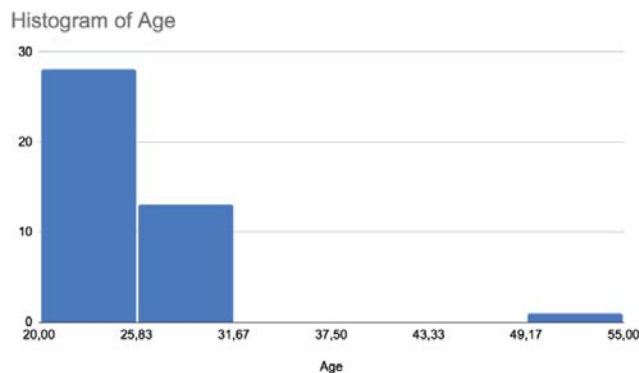


Figure 1. Age distribution of the subjects included in the survey

There were 28 students, most of them on Dentistry faculty, but also on General Medicine Faculty, Economy, etc. 15 respondents were from Germany, 9 from Italy, while the others from other European and non-european countries (figure 2).

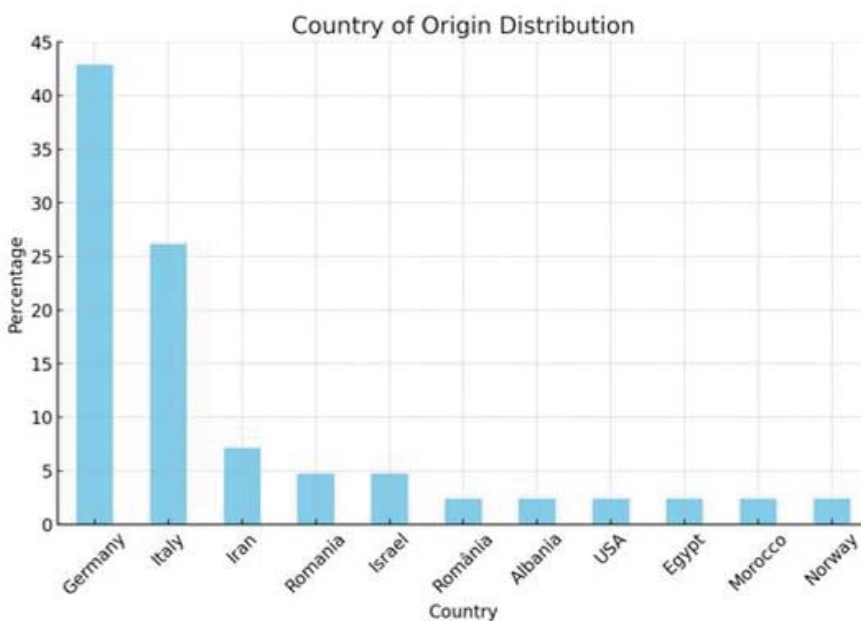


Figure 2. Distribution of subjects based on the country of origin

Regarding the answers to the questions included in the second and third sections of the survey, for the question "Are you confident about your smile?" 83,4% of the responses were split between slightly and strongly agree, while only 16,7% did not agree with the question.

For the question "Do you like showing your teeth while smiling" 90,5% of responses were split between slightly and strongly agree, while only 9,5% did not agree with the question. 92,9% of the respondents did not agree with the question "Do you feel the need to put your hand in front of your mouth to cover your teeth while smiling or speaking." Meanwhile, 7,1% agreed. 88,1% of the respondents agreed with the question "Do you like the position of your teeth?", meanwhile 11,9% did not agree. 59,5% of the responses to the question "Are you satisfied with your teeth color?" slightly agreed and only 16,7% strongly agreed, meanwhile, 23,9% disagreed in some forms, having a higher percentage of negative

responses compared to the 4 questions mentioned above. For the question "Are you satisfied with the way your gums look?" 78,6% of the respondents agreed with this question, meanwhile, 21,4% disagreed in some forms, with females being less satisfied compared to men. 80,9% of the respondents agreed with the question "Do you like the way your teeth are shaped?", meanwhile 19,1% disagreed in some forms. For the question "Are you pleased about the appearance of your teeth?" 42,9% of the respondents strongly agreed, 45,2% slightly agreed and only 11,9% disagreed with the question. 50% of the respondents agreed with the question "Do you compare your teeth with others?" and the other 50% disagreed in some forms. For the question "Do you like how your teeth appear in the mirror?" 88,1% of the respondents agreed in some forms and 11,9% disagreed with the question. 66,7% of the respondents agreed with the question "Do you like how your teeth appear in photos?", meanwhile 33,2% did not agree. 35,7% of the respondents agreed with the question "Are you concerned about what other people think about your teeth?", meanwhile 31% did not agree, 23,8% strongly disagreed and 9,5% slightly disagreed. Question 13 was, "Do you wish you teeth looked better?" 64,3% of the respondents agreed with the question, meanwhile, 35,7% did not agree. 66,7% of the respondents agreed with the question "Naturally, the teeth may be worn", meanwhile 19% did not agree, 4,8% strongly disagreed and 9,5% slightly disagreed. 66,7% of the respondents agreed with the statement "Naturally, the teeth may be stained, e.g. by coffee", meanwhile 19% did not agree, 9,5% strongly disagreed and 4,8% slightly disagreed. For the statement "function is the most important property of the teeth" 90,5% of the respondents agreed with the statement, meanwhile, 9,5% disagreed. Only 2,4% of the respondents strongly agreed with the statement "the appearance of the teeth is their most important property", 52,4% slightly agreed, and 45,2% did not agree. For the statement "Do you want to undergo treatments to improve the appearance of your teeth" 21,4% of the respondents strongly agreed with the statement, 40,5% slightly agreed, meanwhile 14,3% did not agree, 16,5% strongly disagreed and 7,1% slightly disagreed.

Regarding the third section of the survey, the following percentages were obtained via statistical analysis: (19) "Do you know what dental veneers are?" - 83,1% of the respondents agreed with this question, meanwhile, 16,9% disagreed in some forms. (20) "Do you know when dental veneers are indicated?" 85,7% of the respondents agreed with the question, meanwhile, 14,3% disagreed in some forms. (21) "Do you know the benefits of dental veneers?" - 80,9% of the respondents agreed with this question, meanwhile 19,1% did not agree. (22) "Do you know the disadvantages of dental veneers?" - 69,1% of the respondents agreed with the question, meanwhile 16,7% did not agree, 4,8% strongly disagreed and 9,5% slightly disagreed.

(23) "Do you consider that dental veneers could change the teeth' color?" - 80,9% of the respondents agreed with this question, meanwhile, 16,7% did not agree and 2,4% slightly disagreed. (24) "Do you consider that dental veneers could change the tooth shape?" - 88,1% of the responses agreed with the question, meanwhile, 11,9% disagreed in some forms. (25) "Do you consider that dental veneers could replace missing teeth?" - 14,3% of the respondents strongly agreed with this question, 23,8% slightly agreed, 28,8% did not agree, 26,2% strongly disagreed and only 7,1% slightly disagreed. (26) "Do you consider that dental veneers could be used on fractured anterior teeth?" - 54,8% of the respondents agreed with this question, meanwhile, 31% did not agree, 9,5% strongly disagreed and only 4,8% slightly disagreed. (27) "Do you consider that dental veneers could be used on badly stained teeth?" - the majority of respondents agreed with the question at 90,5% while only 9,5% disagreed. (28) "Do you consider that dental veneers could resist tea/coffee/smoking stains?" - the majority of the respondents disagreed with the question at 52,4%, meanwhile only 47,6% agreed in some forms. (29) "Do you consider that dental veneers require brushing and flossing?" - the majority of people agreed with this question at 95,2% and only 4,8% did not agree. (30) "Do

you consider that dental veneers require extensive care and hygiene?" - 90,5% of the respondents agreed with this question and only 9,5% did not agree. (31) "Do you consider that dental veneers may negatively affect the gums?" - 64,3% of the respondents agreed with this question, meanwhile, 23,8% did not agree, 7,1% strongly disagreed and only 4,8% slightly disagreed. (32) "Do you consider that dental veneers require removal of tooth structure?" - the majority of the people agreed with this question 88.1%, and only 11,9% disagreed. (33) "Do you consider that dental veneers may fracture due to specific ways of eating?" - 78,6% of the respondents agreed with this question, meanwhile, only 21,4% disagreed. (34) "Do you consider that dental veneers may prevent tooth decay/caries" - the majority of people did not agree with this question at 59,6% and 40,4% agreed. (35) "Do you consider that dental veneers could improve the smile appearance?" - a total of 88,1% of the respondents agreed with this question and only 11,9% disagreed. (36) "Do you consider that dental veneers could increase your confidence?" - the majority of the responses agreed with this question at 90,5% and only 9,5% disagreed in some forms.

Performing inferential statistical analysis, Chi-square tests were applied between demographic data and the questions included in the two sections of the survey investigating respondents's self-perception. Analyzing the respondents' gender and answers, for the question "Are you are satisfied with the way your gums look?" Chi2 Statistic was 21.77 (P-Value = 0.040), and for the question "Do you consider that dental veneers could resist tea/coffee/smoking stains?" Chi2 Statistic was 23.02 (P-Value = 0.028). Also, when analyzing the country of residence with the questions' answers, the responses to whether dental veneers could increase confidence, showed a significant association with the country of residence (Chi2 Statistic: 83.06, P-Value: 0.0067) (table 3).

Table 3. Chi-Square Test Results for Demographic Influences on Dental Aesthetics Perceptions

Question	Demographic Factor	Chi-square Statistic	P-Value	Significance
Are you satisfied with the way your gums look?	Gender	21.77	0.040	Significant
Do you consider that dental veneers could resist tea/coffee/smoking stains?	Gender	23.02	0.028	Significant
Do you think dental veneers could increase confidence?	Country of Residence	83.06	0.0067	Significant

DISCUSSIONS

Recent research on self-perceptions regarding dental health highlighted significant variations in how different demographic groups perceive their oral health and aesthetics. A survey spanning several countries and age groups provided insights into these perceptions, particularly focusing on the impact of gender, age, and geographical location. The findings suggest some differences that could influence dental care practices and patient education programs. As the global population continues to embrace dental cosmetics and health equally, understanding these demographic distinctions becomes crucial [18].

The Chi-square analysis revealed a notable difference in how genders perceive their gum health, with males generally more satisfied than females. This outcome aligns with previous studies indicating that women are often more critical of their physical appearance, including dental aesthetics, which might influence their lower satisfaction rates [19]. Furthermore, the survey indicated significant gender-based differences in perceptions regarding the resistance of dental veneers to staining from substances like tea and coffee, suggesting targeted educational campaigns might be necessary to address and recalibrate unrealistic expectations or misinformation prevalent among certain demographic groups.

Interestingly, the study found no significant differences across age groups concerning dental health perceptions, challenging the common assumption that older individuals might be more concerned with dental functionality over aesthetics. This lack of significant age-related variation suggests that modern dental concerns transcend traditional age boundaries, possibly due to the increasing accessibility of dental information and cosmetic dentistry across all age groups [20]. This indicates a shift in societal attitudes towards dental aesthetics and health, reflecting a more uniform understanding and concern across different ages.

One of the most striking findings from the survey was the significant variation in how respondents from different countries perceived the confidence-boosting effects of dental veneers. This variation could be influenced by cultural, economic, and social factors that shape public health behaviors and perceptions in different regions [21]. Countries with higher exposure to cosmetic dentistry and media portrayals of ideal dental standards might show greater belief in the efficacy of cosmetic dental procedures to enhance self-esteem and social confidence.

These demographic insights are invaluable for dental health professionals who aim to provide tailored care that considers patients' cultural, gender, and age-related preferences and perceptions. By integrating a deeper understanding of these factors into patient interaction and treatment planning, dental practitioners can improve patient satisfaction and treatment outcomes. Moreover, public health campaigns and educational programs can be designed to address specific misconceptions or knowledge gaps identified through such comprehensive surveys, ultimately leading to better overall dental health and aesthetic satisfaction [22].

CONCLUSIONS

This study evaluated the aesthetic benefits of composite veneers and their impact on the self-perception of dental students and laypeople, highlighting the significant influence of demographic factors such as gender, age, and country. Notably, gender differences revealed that males are generally more satisfied with their gum health, suggesting a need for gender-specific educational programs in dental aesthetics. Furthermore, the lack of significant age-related differences suggests a universal value placed on dental aesthetics across all age groups, indicating broad acceptance and interest in cosmetic dental treatments.

Cultural factors significantly affected perceptions, particularly the confidence-boosting effects of dental veneers, underscoring the importance of culturally tailored treatment options and patient education programs. These findings emphasize the need for dental practitioners to adopt a consultative approach that involves patients in treatment decisions, aligning plans with their aesthetic preferences and cultural expectations.

Overall, the study supports the need for enhanced patient education and practitioner awareness to effectively address and manage the diverse expectations and perceptions of dental patients. By integrating these insights into clinical practice, dental professionals can improve treatment outcomes and patient satisfaction, ensuring that composite veneers meet both aesthetic desires and functional needs.

REFERENCES

1. Kui A., Buduru S, Ismail A., Jigla-Labunet A, Negucioiu M., Buzatu R. Assessing patients' perceptions on dental esthetics. *Medicine in evolution* 2020 26;2:322-329.
2. Blatz MB, Chiche G, Bahat O, Roblee R, Coachman C, Heymann HO. Evolution of aesthetic dentistry. *J Dent Res.* 2019 Nov;98(12):1294-304.

3. Keim RG. Quantifying facial esthetics. *J Clin Orthod.* 2016 Nov;50(11):647–8.
4. Hickel R, Heidemann D, Staehle H, Minnig P, Wilson N. Direct composite restorations. *Clin Oral Invest.* 2004;8:43-4.
5. Gargari M, Ceruso F, Pujia A, Prete V. Restoration of anterior teeth using an indirect composite technique. Case report. *Oral Implantol.* 2013;26:99-102.
6. Vargas S, Della Bona A. Current perspectives on direct composite resin restorations. *Advances in dental research.* 2018;29(1):74-82.
7. LeSage BP, Wiens JP. Direct Composite Resin Veneers: A Systematic Review. *J Esthet Restor Dent.* 2019;31(1):36–45.
8. Loguercio AD, Reis A. Tooth bleaching and enamel microabrasion for patients with stains, and their association. *Oper Dent.* 2015;40(6):636-643.
9. Terry DA. Direct composite resin restorations: A comprehensive review of the literature. *J Esthet Restor Dent.* 2018;30(5):427-437.
10. Manicone PF, Rossi Iommetti P. Composite materials for dental restoration in the third millennium: A review of the literature. *Open Dent J.* 2014;8:347–358.
11. Van Meerbeek B, Yoshihara K, Yoshida Y. State of the art of self-etch adhesives. *Dental Materials.* 2019;35(1):e17–e27.
12. Magne P, Magne M. Use of additive waxup and direct intraoral mock-up for enamel preservation with porcelain laminate veneers. *Eur J Esthet Dent.* 2015;10(2):10-19.
13. Peumans M, De Munck J, Van Landuyt K. A 13-year clinical evaluation of two three-step etch-and-rinse adhesives in non-carious class-V lesions. *Clin Oral Investig.* 2015;19(1):159-167.
14. Frassetto A, Breschi L, Turco G. Mechanisms of degradation of the hybrid layer in adhesive dentistry and therapeutic agents to improve bond durability—a literature review. *Dental Materials.* 2015;31(2):e1-e24.
15. Da Silva NR, Raposo LH, Versluis A. The effect of ceramic and composite veneers on stress distribution in maxillary central incisors: A 3D-FEA study. *Dental Materials.* 2015;31(12):1458-1466.
16. Peumans M, De Munck J. The use of bonding parameters to determine the effectiveness of bonding resin systems. *Dental Materials.* 2017;33(1):e159–e183.
17. Al-Asmar AA, Al-Hiyasat AS, Abu-Awwad M, Mousa HN, Salim NA, Almadani W, et al. Reframing Perceptions in Restorative Dentistry: Evidence-Based Dentistry and Clinical Decision-Making. *Int J Dent.* 2021 Dec 31;2021:4871385.
18. Smith J, Johnson M. Demographic Differences in Dental Health Perceptions: A Global Survey Analysis. *J Dent Res.* 2022;101(3):295-305.
19. Brown A, Thomas S, Roberts N. Gender Differences in Health Aesthetics and Subsequent Psychological Effects: A Longitudinal Study. *Health Psychol.* 2019;38(2):181-190.
20. Taylor L, Lee H. Age-Related Attitudes Towards Cosmetic Dentistry: Trends and Predictors. *Aging and Health.* 2021;17(1):54-64.
21. Chen D. Cultural Influences on Dental Health Practices: An Analytical Study of Eastern versus Western Perspectives. *Int J Dent Sci.* 2020;22(4):450-467.
22. Johnson F, Kwong J. Public Health Implications of Demographic Variability in Dental Treatment Satisfaction