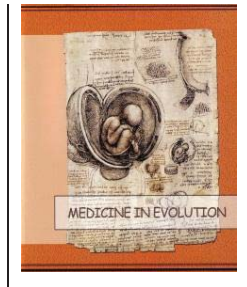


# Assessing patients' perceptions on dental esthetics



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## Abstract

Aims and objectives. This survey was conducted in order to evaluate the factors that influence patient's satisfaction regarding overall dental aesthetics, and if the opinions differ according to demographic factors such as age, education, or gender. Material and methods. A questionnaire was formulated in order to assess the patients' opinion on dental aesthetics, which included 10 statements, as well as some social - demographic questions. The distribution of the questionnaires was done by email and direct distribution. Results. The results revealed that respondents consider dental aesthetics of highest concern; however perceptions of dental aesthetics vary, especially according to age and level of education. The results also emphasise the fact that many patients were concerned about restoring function when it comes to dental treatments. Conclusion. When planning treatments, dentists should consider, together with the patients, the aesthetic objectives in addition to function, structure and biology.

**Keywords:** dental aesthetics; patient's perception; functional rehabilitation

## INTRODUCTION

In contemporary dentistry, various parameters, such as teeth's shape and colour, or dental arches shape are related to smile aesthetics. In addition, prior to undertaking aesthetic restorative dentistry, the dentist should establish a treatment plan which will provide functional rehabilitation and meet patient's expectations as well [1, 2].

From the dentist point a view, an organised and systematic approach is required in order to assess, diagnose and solve aesthetic issues predictably. Tooth colour is obviously an essential parameter for the final result, but aesthetic treatment planning should take into consideration several parameters in order to obtain a pleasant composition of the smile, such as tooth proportion, tooth-to-tooth proportions, marginal edge positioning, correct placement of the contact areas; in other words to create a result which combines various aesthetic elements in relation to functional principles [3].

From the patients' standpoint, usually the appearance of teeth is related to both cultural factors and individual preferences, meaning that someone's opinion of a visual experience can be pleasant or unpleasant, and what is considered "beautiful" in one culture may be "ugly" in another [4,5,6].

Studies related to this topic emphasise discrepancies between the treatment needs perceived by the patients and those assessed by the clinicians. Often, aesthetics is more important than function in patients' opinion, or the upper anterior teeth ("social six") seem to be of paramount importance compared to the loss of lateral teeth [2,7]. In modern society, smile has a great impact; in this context, if a patient's smile is ruined by different dental pathologies, then he/she can experience loss of self-esteem or even impairment of the overall physical and mental health [8].

### *Aim and objectives*

As the aesthetic demands seem to increase in dentistry, we conducted this survey in order to evaluate the factors that influence patient's satisfaction regarding overall dental aesthetics, and if the opinions differ according to demographic factors such as age, education, or gender.

## MATERIALS AND METHODS

A questionnaire was formulated in order to assess the patients' opinion about dental aesthetics. The survey was first pilot tested among five subjects, in order to validate the clarity of the questions, the response options and to estimate the time needed for completion. After making the necessary modifications, 10 statements were included in the survey, apart from the social - demographic questions. The survey design was approved by the Ethics Committee of the "Iuliu Hatieganu" University of Medicine and Pharmacy of Cluj Napoca.

The first section of the survey included general questions, regarding gender, age, education and occupation. The second section included ten statements, assessing the respondent's point of view on dental aesthetics. The ten statements used in the survey were: (1) **Perfect white teeth look natural**; (2) **Perfect white teeth look unnatural**; (3) **Teeth which are not perfectly white look more natural**; (4) **The most important property of teeth is their function**; (5) **The most important property of teeth is their appearance**; (6) **Teeth slightly worn look more natural**; (7) **The appearance of teeth has a great affect on a person's general appearance**; (8) **The appearance of teeth is the most important aspect of dental treatments**; (9) **I wish to have natural looking teeth in accordance with my age**; (10) **I am pleased with the appearance of my teeth**. The possible answers for each statement were (a) strongly disagree; (b) slightly disagree; (c) slightly agree; (d) strongly agree; (e) I do not know.

The distribution of the questionnaires was done by email (using Google Forms web site) and direct distribution, on patients receiving treatment in Prosthodontics Department, in University of Medicine and Pharmacy of Cluj Napoca.

*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 web-survey were downloaded from the Google Forms web site 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.

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

**RESULTS**

108 subjects responded initially to the survey, but after validating the data, answers obtained from 92 people were statistically analysed. The social-demographic characteristics of survey participants are summarised in table 2.

Out of the 92 patients, 51 were women and 41 men; 25 respondents were aged between 15-24 years, 22 between 25-34 years, 12 subjects between 35-44 years, 12 between 45-54 and 21 subjects aged over 54 years old. 41% of the respondents had a university degree, while 39% were high-school graduated (table 1).

Table 1. Description of the respondents participating in the survey

Variables	Age, years					Gender (F/M)		Level of education			Occupation				
	15-24	25-34	35-44	45-54	>54	Females	Males	High school	University degree	Master/PhD degree	Self-employed	Artist	Student	Retiree	Diiferent
Number of participants (N) and %	25 (27.2%)	22 (23.9%)	12 (13.0%)	12 (13.0%)	21 (22.8%)	51 (55.3%)	41 (44.1%)	36 (38.9%)	41 (43.8%)	15 (16.3%)	2 (2.2%)	2 (2.2%)	1 (1.1%)	8 (8.7%)	2 (2.2%)
<b>Total</b>	92 (100%)														

Regarding the first statement, 88% of the respondents agree with the fact that perfect white teeth are beautiful. 71.7% agree with the fact that “teeth which are not perfectly white look more natural”, while 89.1% believe that the most important property of teeth is their function. Also, 70.1% of the respondents believe that “teeth slightly worn look more natural” and 98.9% of the respondents believe that “the appearance of teeth has a great affect on a person’s general appearance” (fig.1). Regarding the statement no. 8, 41.3% agree, 51.1% of the respondents disagree that “the appearance of teeth is the most important aspect of dental treatments”.

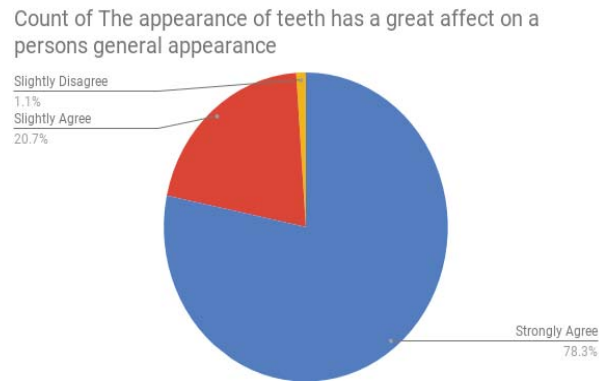


Figure 1. Distribution of answers on statement no.7

For the last two statements, 81.5% of the respondents wish to have natural looking teeth in accordance with age (fig.2), and 79.4% are pleased with the appearance of their teeth.

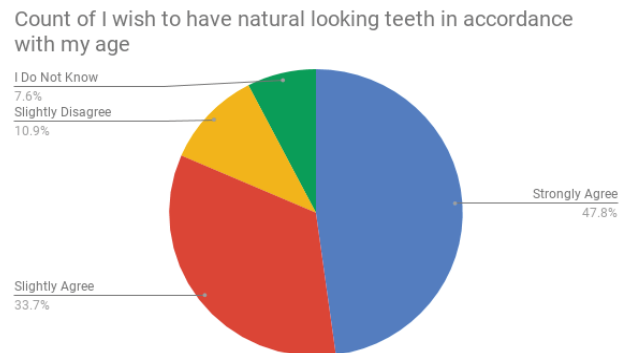


Figure 2. Distribution of answers on statement no.9

Pearson Chi-square test revealed several associations between social-demographic factors and the answers choose for the statements. Taking into consideration age and the answers for the ten statements, a significant association was observed for the statements no. 3 ( $\chi^2=29.667$ ,  $df=16$ ,  $p=0.020$ ), statement no.6 ( $\chi^2=57.648$ ,  $df=16$ ,  $p=0.000$ ), statement no.7 ( $\chi^2=46.159$ ,  $df=8$ ,  $p=0.000$ ) statement no. 8 ( $\chi^2=37.365$ ,  $df=16$ ,  $p=0.002$ ) (fig.3) and statement no. 9 ( $\chi^2=37.365$ ,  $df=16$ ,  $p=0.002$ ).

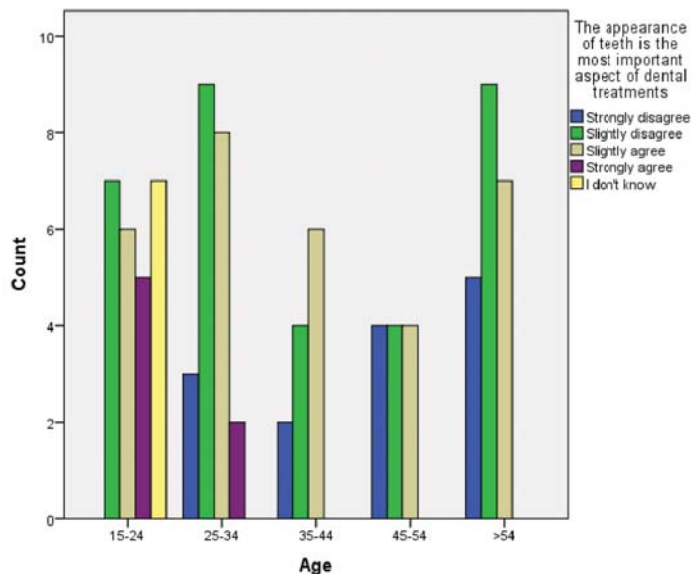


Figure 3. Distribution of answers on statement no.8 in correlation with age

Statistical analysis revealed no significant associations between gender and the choices for the ten statements ( $p > 0.05$ ). Considering occupation as a variable and the answers given to the ten questions, Pearson Chi Square revealed a significant association for statement no. 6 ( $\chi^2 = 49.143$ ,  $df = 16$ ,  $p = 0.000$ ) (fig.4), for statement no. 8 ( $\chi^2 = 29.563$ ,  $df = 16$ ,  $p = 0.020$ ) and for statement no. 9 ( $\chi^2 = 21.901$ ,  $df = 12$ ,  $p = 0.039$ ).

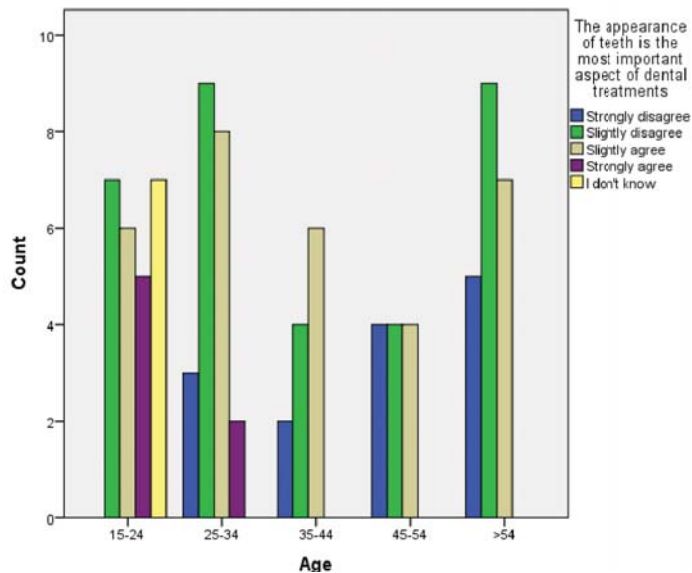


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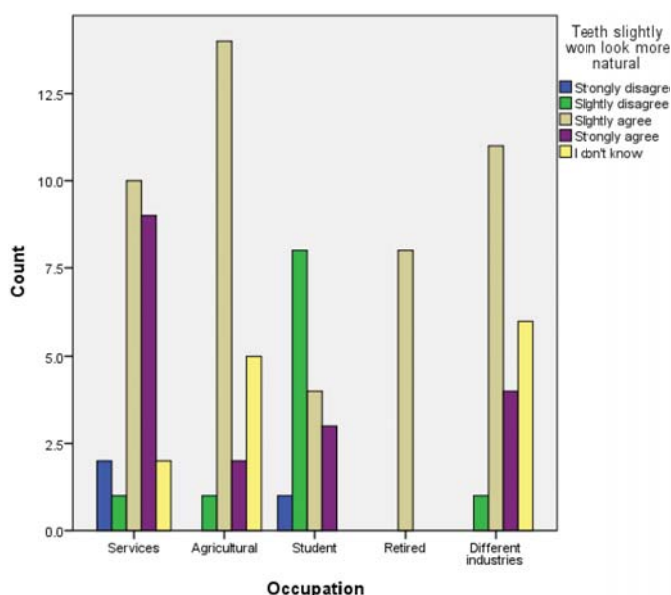


Figure 4. Distribution of answers on statement no.6 in correlation with occupation  
 Assessing any association between education and the answers chosen for the ten statements, Person Chi Square revealed a significant statistical result for statement no.1 ( $\chi^2=18.265$ ,  $df=8$ ,  $p=0.019$ ).

## DISCUSSIONS

In clinical practice it is very difficult to achieve a pleasing aesthetic result without having a clear idea of what the patient desires and what his or her expectations and aesthetic goals are. This is why all dental therapies should be based upon a combination of dentists knowledge of aesthetics criteria, and listening to the patient’s desires [3, 9, 10].

The aim of this study was to assess the patients’ opinion regarding dental aesthetics and if there is any correlation between social demographic variables and the patients’ preferences.

Previous studies concluded that people who were not dentists had a stronger preference for white teeth than dentists did [1]. In our study, the answers for statements no. 1 (“very white and straight teeth are beautiful”) and no.2 (“very white teeth look unnatural”) revealed that the vast majority of respondents consider also the ‘Hollywood smile’ as the benchmark for dental beauty, but in the same time the respondents generally have clear knowledge of their aesthetic preferences (81.5% of respondents agreed with the second statement). The responses showed that the majority of subjects accept that there is a distinction between aesthetic smiles and extremely white teeth. The statistical analysis also revealed a significant association between the level of education and the answers for statement no. 1. Subjects having high education level strongly agreed with the fact that perfectly white teeth look beautiful.

Regarding statement no. 3 (“teeth which are not perfectly white look more natural”) only 19.5% disagreed and 8.7% were unsure. The answers revealed the fact that perfectly white teeth are not necessarily the most natural and aesthetic way to restore teeth. This notion is also backed up by the responses from statement 6, which stated that “having slightly worn teeth is natural”, as 70.7% of people agreed. The responses to both these statements suggest the level of understanding that respondents might have over dental aesthetics, regarding the fact that successful aesthetic treatments are not reliant on having the perfect straight white smile, rather they should provide a unique, individualized smile adapted to the patient’s wishes and aesthetic demands. Also, Pearson Chi Square test revealed that retired subjects agreed that having slightly worn teeth might offer a more natural look.

Statement 7 was that “the appearance of teeth has a great affect on a person’s general appearance”. Only 1% slightly disagreed with this statement. This is a clear indicator of the important role dental aesthetics plays in a person’s life. The answers also reveal that regardless of patient’s feelings about the perfect smile, having an aesthetic smile seems to be very important. A significant association has been observed between age range (15-24 years) of the respondents and strongly agreeing with the statement.

The answers to statement no. 8 (“the appearance of teeth is the most important aspect of dental treatments”) indicate similar opinions to the responses given to statements 4 and 5. Although aesthetics are important, function of teeth should not be sacrificed purely for aesthetic gain, and there is more to a successful dental treatment than just focusing on dental aesthetics. Also, Pearson Chi Square test revealed a significant association between this statement’s answers and age. Subjects aged between 15-24 years and 25-34 years old strongly agreed with this statement (fig. 3). This is in accordance with other studies’ results, as young people tend to perceive aesthetics as being much more important than function, when it comes to dental treatments [9, 10].

Overall, respondents aged 55 years old or above were more likely (compared to younger people) to be satisfied with their dental appearance. This aspect has also been observed in others studies [11, 12, 13] and reveal that the appearance of their teeth is not as important in older individuals than in younger ones [9, 11].

For statement 9 (“I wish to have natural looking teeth in accordance with my age”) only 10.9% slightly disagreed, and 7.6% were unsure. This again shows that patients place a higher precedence on natural looking teeth rather than overly white and straight teeth. Statement 10 asked the subjects if they are pleased with the appearance of their teeth. 79.4% of patients agreed with this statement, with only 19.6% disagreeing and the last 1% unsure.

Statistical analysis revealed no significant differences between males and females when it comes to their answers in the survey, as well as regarding the occupation of the respondents.

These results reveal that patients consider dental aesthetics of highest concern; however perceptions of dental aesthetics vary, especially according to age and level of education. The results also showed the fact that many patients might be concerned about function rehabilitation when it comes to dental treatments.

## CONCLUSIONS

When planning treatments, dentists should consider, together with the patients, the aesthetic objectives in addition to function, structure and biology. This study emphasises the importance of communication between dentists and patients in the aesthetic dental treatment planning process. The use of an aesthetic self-evaluation questionnaire merged with an in-office professional assessment questionnaire will lead to a successful aesthetic treatment, pointing out from the beginning the expectation that patients have in mind.

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