

## Original Research Article

DOI: <https://dx.doi.org/10.18203/2394-6040.ijcmph20240608>

# Association between dental appearance satisfaction and sociodemographic characteristics in Samarinda city, Indonesia

Ana Fitri Nuryanti<sup>1</sup>, Nisa Muthiah<sup>2\*</sup>, Saiful Rokhim<sup>3</sup>

<sup>1</sup>Dental Medicine Studies Program, <sup>2</sup>Department of Preventive and Public Health Dentistry, <sup>3</sup>Department of Orthodontia, Faculty of Medicine, Mulawarman University, Indonesia

**Received:** 13 January 2024

**Accepted:** 13 February 2024

**\*Correspondence:**

Dr. Nisa Muthiah,  
E-mail: nisamuthiah@fk.unmul.ac.id

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Confidence in the appearance of teeth affects a person's physical and psychological health. The appearance of teeth is influenced by factors such as age, gender, educational level and economic status. The aim of this study was to find out the relationship between dental satisfaction and sociodemographic characteristics.

**Methods:** A cross-sectional study has been conducted on 384 people aged 17 to 45 years in Samarinda City, Indonesia. The research instrument is a questionnaire on age, gender, educational level, family income, and six satisfaction questions about tooth appearance. Data analyzed descriptively and tested chi-square.

**Results:** A total of 222 respondents (57.8%) felt dissatisfied with the appearance of their teeth. Respondents with a younger age tend to be 1.262 times more dissatisfied compared to older ones. There was a significant relationship between age and satisfaction with the appearance of the teeth ( $p=0.017$ ). No significant relationship was found between teeth appearance satisfaction with gender, educational level and economic status. Respondents who did not want to do orthodontic care tended to be 1.920 times more satisfied than those who wanted to do orthodontic treatment. The most desirable treatments respondents wanted to improve dental aesthetics were bleaching (57.6%) and orthodontist treatment (43.2%).

**Conclusions:** There is a significant correlation between teeth appearance satisfaction and age factor in the Samarinda Indonesian population who are 17 to 45 years old; there is a meaningful relationship between desire for orthodontic care and teeth satisfaction.

**Keywords:** Dental aesthetics, Dental appearance satisfaction, Indonesia, Orthodontic care, Samarinda

## INTRODUCTION

The new definition related to oral health today focuses not only on the functional component, but also involves the social component. Both objectives contain the basis of physical health and psychological well-being. It is influenced by experiences, perceptions, expectations and the ability to adapt to new circumstances in the individual. Increased attention to cosmetic dentistry today is due to the influence of social media, where people can absorb references when looking at models or influencers with beautiful teeth. There is an acceptable "standard of

beauty" that plays an important role in a person's satisfaction with the appearance of his teeth.<sup>1</sup>

The appearance of teeth is one of the main attributes of facial attractiveness and plays an important role in social interaction.<sup>2</sup> The judgment of the appearance of the teeth is subjective which is scientifically a psychological interpretation of the observer.<sup>3</sup> This subjectivity affects a person's level of attention to dental aesthetics. It can be influenced by gender, age, culture, social media and so on.<sup>4</sup> In general, the appearance of teeth is determined by the factors of color, shape, position, occlusion and quality of dental restoration.<sup>5</sup>

Though subjective, the factors affecting a person's satisfaction with the appearance of a tooth should remain a concern for the dentist in carrying out treatment in order to a good result. Because anyway, a lack of proportionality and a beautiful smile can affect a person's self-confidence as well as their psychological and physical health.<sup>6,7</sup>

Based on previous studies related to dental satisfaction, 79.4% in Nigeria; 67.6% in Jordan; 71.1% in Turkey and 47.2% in Malaysia were satisfied with the appearance of their teeth. Tooth satisfaction varies according to two age groups, that is, the young adult group is more satisfied with the appearance of their teeth than the middle-aged group.<sup>3</sup> In the same study, it showed that female respondents had a higher rate of satisfaction with the appearance of their teeth than male. According to Afshar et al. (2019), people with better economic conditions were significantly more satisfied with their dental appearance.<sup>2</sup> The same study also mentions that educational level factors can affect satisfaction with the appearance of teeth, where the perception of a beautiful smile will be higher with higher educational levels. From the above background it can be seen that satisfaction with the appearance of the teeth is influenced by sociodemographic factors that vary and can vary between regions. In Indonesia, there is still a minimum of research on the satisfaction of the appearance of teeth that is influenced by certain factors. In Samarinda itself, there is no dental satisfaction study linked to sociodemographic factors.

## METHODS

This research uses analytical survey methods with cross-sectional study. The samples in this study were 384 people from Samarinda City who were 17-45 years old and did not have any medical conditions including mental, cognitive and psychological disorders. The research was conducted in March-April 2022. Data is

collected using a three-part questionnaire. The first section contains questions about sociodemographic data that includes name/initials, age, gender, family income and educational level.

The second part contains satisfaction questions on the appearance of the teeth, consisting of 6 questions about the overall appearances, teeth's color, tooth size, the shape of the tooth, dental alignment and symmetry. Part 2 is measured on the Likert scale: "Very dissatisfied", "Unhappy", "Sufficiently Satisfied," "Satisfied" and each is encoded with a score of 1-5. The third part includes questions about perception of satisfaction of the appearance of teeth and questions about desire for care to improve dental aesthetics. Score achievements based on respondent perceptions of satisfaction with dental aesthetic elements were categorized into two categories based on the average satisfaction score, which was categorized as "Unhappy" if the score was <19 and as "Satisfactory" when it was 19.

The questionnaires used have been validated by three experts and tested on 20 respondents. Significance values <0.05 and Cronbach's alpha 0.7 indicate this questionnaire is valid and reliable. The result data was analyzed using a chi-square test with a significance value of p<0.05.

## RESULTS

The total respondents were 62.8% younger ( $\leq 33$  years) and 37.2% older ( $> 33$  years). The number of female respondents was 1% higher than that of male respondents. Based on the level of education, the majority of respondents had a secondary education of 64.3%. According to the economic status, 62.8% of the respondents have a high economic status. A total of 162 (42.2%) respondents were satisfied with the appearance of their teeth and 222 (57.8%) were dissatisfied with their appearances (Table 1).

**Table 1: Distribution of dental satisfaction of respondents based on sociodemographic characteristics.**

Variable		Frequency (n=384) N (%)	Unsatisfied (n=222) N (%)	Satisfied (n=162) N (%)	PR <sup>†</sup> (95%CI)	P value
<b>Age group</b>	Young	241 (62.8)	151 (62.7)	90 (37.3)	1.262	0.017*
	Old	143 (37.2)	71 (49.7)	72 (50.3)	(1.042-1.529)	
<b>Gender</b>	Male	190 (49.5)	107 (56.3)	83 (43.7)	0.950	0.628
	Female	194 (50.5)	115 (59.3)	79 (40.7)	(0.801-1.127)	
<b>Education level</b>	Elementary	7 (1.8)	5 (71.4)	2 (28.6)	0.964	0.769
	Junior	247 (64.3)	140 (56.7)	107 (43.3)	(0.819-1.353)	
	High	130 (33.9)	77 (59.2)	53 (40.8)		
<b>Economic level</b>	Low	143 (37.2)	83 (58.0)	60 (42.0)	1.006	1.000
	High	241 (62.8)	139 (57.7)	102 (42.3)	(0.844-1.200)	

Note: 95% CI: 95% confidence interval; <sup>†</sup>prevalence ratio; \*p<0.05 (significant).

The results of the Chi-Square test showed that there was a significant relationship between age and satisfaction with the appearance of the teeth ( $p=0.017$ ) where people of younger age were 1.262 times more likely to be

dissatisfied than people of older age (95% confidence interval: 1.042-1.529). There was no significant correlation between gender, educational level and economic status with satisfaction with the appearance of

teeth.

Based on questions related to dental aesthetics, 46.4% of respondents felt quite satisfied with the color of their

teeth and 43.2% were satisfied by their size (Table 2).

**Table 2: Distribution of respondent based on dental aesthetics.**

Variable	Very unsatisfied N (%)	Unsatisfied N (%)	Sufficiently satisfied N (%)	Satisfied N (%)	Very satisfied N (%)
<b>Dental appearance</b>	6 (1.6)	95 (24.7)	163 (42.4)	94 (24.5)	26 (6.8)
<b>Teeth colour</b>	7 (1.8)	126 (32.8)	178 (46.4)	66 (17.2)	7 (1.8)
<b>Teeth size</b>	5 (1.3)	37 (10)	137 (35.7)	166 (43.2)	39 (10.2)
<b>Teeth shape</b>	6 (1.6)	66 (17.2)	141 (36.7)	138 (35.9)	33 (8.6)
<b>Teeth alignment</b>	22 (5.7)	115 (29.9)	126 (32.8)	84 (21.9)	37 (9.6)
<b>Symmetry</b>	13 (3.4)	102 (26.6)	132 (34.4)	109 (28.4)	28 (7.3)

Respondents majority did not receive treatment to enhance dental aesthetics where only 10.7% had ever received orthodontic treatment, 2.6% had received

bleaching treatment, 1.8% had received veneer treatment and 24.7% had received composite restoration treatment (Table 3).

**Table 3: Distribution of respondents dental appearance satisfaction based on history of dental aesthetic treatment and desire for aesthetic dental treatment.**

Variable	Frequency (n=384) N (%)	Satisfied N (%)	Unsatisfied N (%)	PR (95% CI)	P value
<b>Receiving orthodontic treatment</b>	No	343 (89.3)	146 (42.6)	197 (57.4)	1.091 (0.730-1.630)
	Yes	41 (10.7)	25 (61)	16 (39)	
<b>Receiving bleaching treatment</b>	No	374 (97.4)	156 (41.7)	218 (58.3)	0.695 (0.413-1.169)
	Yes	10 (2.6)	6 (60)	4 (40)	
<b>Receiving crown treatment</b>	No	377 (98.2)	161 (42.7)	216 (57.3)	2.989 (0.485- 18.419)
	Yes	7 (1.8)	1 (14.3)	6 (85.7)	
<b>Receiving veneer treatment</b>	No	379 (98.7)	159 (42)	220 (58)	0.699 (0.339-1.444)
	Yes	5 (1.3)	3 (60)	2 (40)	
<b>Receiving composite restoration</b>	No	289 (75.3)	128 (44.3)	161 (55.7)	1.238 (0.918-1.668)
	Yes	95 (24.7)	34 (35.8)	61 (64.2)	
<b>Desired orthodontic treatment</b>	No	218 (56.8)	116 (53.2)	102 (46.8)	1.920 (1.458-2.529)
	Yes	166 (43.2)	46 (27.7)	120 (72.3)	
<b>Desired bleaching treatment</b>	No	163 (42.4)	65 (39.9)	98 (60.1)	0.909 (0.875-4.161)
	Yes	221 (57.6)	97 (43.9)	124 (56.1)	
<b>Desired crown treatment</b>	No	362 (94.3)	157 (43.4)	205 (56.6)	1.908 (0.576-0.935)
	Yes	22 (5.7)	5 (22.7)	17 (77.3)	
<b>Desired veneer treatment</b>	No	345 (89.8)	143 (41.4)	202 (58.6)	0.851 (0.602-1.202)
	Yes	39 (10.2)	19 (48.7)	20 (51.3)	
<b>Desired composite restoration</b>	No	281 (73.2)	118 (42)	163 (58)	0.983 (0.756-1.278)
	Yes	103 (26.8)	44 (42.7)	59 (57.3)	
<b>Hiding teeth when smiling</b>	No	291 (75.8)	142 (48.8)	149 (51.2)	2.269 (1.512-3.405)
	Yes	93 (24.2)	20 (21.5)	73 (78.5)	

Note: 95% CI: 95% confidence interval; †prevalence ratio; \*p<0.05 (significant).

Based on the question of desire to receive treatment to improve dental aesthetics, it indicates that 100% of respondents want to receive a treatment to enhance dental aesthetics. The most popular treatments were bleaching with a percentage of 57.6% and orthodontic treatment with a percent of 43.2%. The Chi-Square test results showed that there was a significant correlation between desire for orthodontics and satisfaction with the

appearance of teeth ( $p<0.001$ ) where people who did not want to do orthodontic treatments tended to be 1.920 times more satisfied than people who wanted to do orthodontic treatment (95% confidence interval 1.458-2.529). A significant relationship was also found between the perception of covering teeth when smiling and satisfaction with the appearance of teeth ( $p<0.001$ ) where people who hiding their teeth when smiling tend to be

2.269 times more satisfied than people who hiding their teeth when smiling (95% confidence interval 1.512-3.405).

## DISCUSSION

Dental aesthetics has become a matter of attention both from the point of view of patients and dentists. It cannot be separated apart from the physical appearance that is the key to social interaction and a beautiful smile of a person that is essential for facial attractiveness. Evaluating the level of satisfaction with the appearance of the teeth is a subjective thing, but it can be a picture of how satisfied a person is with the aesthetics of their teeth.

This study shows that there is a significant relationship between age and teeth appearance satisfaction. The study also showed that the younger age group tended to be 1.262 times more dissatisfied than the older age group. This is consistent with Ajayi's research, which reported that the older age group tends to be more satisfied with the appearance and color of their teeth compared to the younger age group.<sup>8</sup> According to Akarslan et al, this is related to a young age group that tends to be influenced by social media. It can influence the perception to look beautiful, get a better job and better social acceptance.<sup>9</sup> Older age groups tend to have a self-image that accepts the appearance of their teeth as they are and have less desire to make aesthetic changes. Older people have a good perception and self-evaluation of their oral health status even though their clinical conditions are unsatisfactory for them. This indicates that poor oral health is considered something "natural" for them and tends to have a sense of their age as well as considering the presence of disease as part of the aging process.<sup>10</sup>

No significant relationship was found between gender and teeth appearance satisfaction in this study. This differs from a study conducted by Singh and Ghimire that a significant relationship between gender and dental satisfaction.<sup>11</sup> In the study, it was that female were more unsatisfied with teeth than male. This can be linked to the idea that awareness of "beautifulness" in female is higher than in male. However, in this study, satisfaction with the appearance of teeth between female and male has almost the same percentage. Differences in sample size, cultural background, personal preferences and psychological impact can influence differences in previous research with this study. Seeing from the desire for care to improve dental aesthetics, both female and male respondents, both had a high desire to have better dental appearance. Current life styles with increased consumption of sugar, tea, coffee and acidic beverages can lead to dental problems such as caries and discoloration, thus affecting a person's motivation to get better teeth.<sup>12</sup> The use of social media that is now an important part of everyday activities makes it a place where people create, distribute, exchange data and interact easily. With its very widespread use, giving it an influence on a person will be beauty and aesthetics. Then

from that, the desire to improve the physical appearance including the appearance of the teeth also increased.<sup>13</sup>

Based on the level of education, the middle-educated group had a higher satisfaction with the appearance of the teeth than the primary and higher education groups. This differs from the study conducted by Strajnić et al, and Afshar et al which found that the high-education group had higher satisfactions with the look of the tooth than the other educational groups.<sup>14</sup> Individuals with a high level of education tend to have a high awareness of orophacial appearance.<sup>15</sup> Other research conducted by Akarslan et al., showed that the level of education has an impact on the satisfaction of the appearance of the teeth and the factors also influence a person to undergo aesthetic care. However, the study did not find a significant relationship between the level of education and satisfaction with the appearance of the teeth. This is in line with the research carried out by Tin-Oo et al.<sup>16</sup> There are discoveries of various studies considered due to differences in study design, sample number and research population.

Someone who has a good economic condition is significantly more satisfied with the appearance of their teeth.<sup>2</sup> Socio-economic status affects the desire for aesthetic dental care. Those with good socio-ecological conditions feel that the appearance of teeth has an impact on lifestyle.<sup>3</sup> However, the study did not find a significant relationship between economic status and satisfaction with the appearance of teeth. Nevertheless, both respondents with low and high economic status had a high desire to improve dental aesthetics.<sup>17</sup>

Based on questions regarding the desire to improve dental aesthetics, 100% of respondents in this study wanted treatment to improve the aesthetics of their teeth. The most frequently chosen treatments are bleaching treatment and orthodontic treatment. People who do not want to have orthodontic treatment tend to be 1.920 times more satisfied than people who want to have orthodontic treatment. This is in line with research conducted by Maghaireh et al, which stated that crowding in the anterior teeth was significantly correlated with dissatisfaction with the appearance of the teeth. This can happen because crowded teeth become a concern for someone and make them feel less confident. A significant relationship was also found between hiding teeth when smiling and satisfaction with the appearance of teeth, where people who did not hide their teeth when smiling tended to be 2.269 times more satisfied than people who hide their teeth when smiling. Maghaireh et al, stated that these two things can be related due to feelings of lack of self-confidence and dissatisfaction with the appearance of the teeth.

## CONCLUSION

There is a significant relationship between teeth appearance satisfaction and age factor in Samarinda, Indonesian population aged 17 to 45 years; and a

significant link exists between desire for orthodontic care and teeth satisfaction. The most desirable dental aesthetics of Samarinda City are bleaching and orthodontics.

## ACKNOWLEDGEMENTS

We would like to thank the public health center of Samarinda, East Kalimantan, Indonesia, as well as the participants and all relevant groups who have contributed towards implementation of the study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Ríos K. Laypeople's perceptions of smile esthetics: Why is it important and what do we need to know?. *J Oral Res.* 2020(Special Issue 3):27-9.
2. Afshar MK, Eskandarizadeh A, Torabi M, Mousavi MJ, Mohammadzadeh I. Patient satisfaction with dental appearance and related factors a cross sectional study. *J Evol Med Dent Sci.* 2019;8(48):3569-74.
3. Saluja I, Shetty N, Shenoy R, Hedge S, Pradeep S. Perception of dental aesthetics among two different age- groups in an adult population. *Int J Drug Res Dent Sci.* 2020;2(4):7-16.
4. El Mourad AM, Al Shamrani A, Al Mohaimeed M, Al Sougi S, Al Ghanem S, Al Manie W. Self-perception of dental esthetics among dental students at King Saud University and their desired treatment. *Int J Dent.* 2021;Feb 22:6671112.
5. Al-Zarea BK. Satisfaction with appearance and the desired treatmt to improve aesthetics. *Int J Dent.* 2013;2013: 912368.
6. Boeira GF, Salas MMS, Araújo DC, Masotti AS, Correa MB, Demarco FF. Factors influencing dental appearance satisfaction in adolescents: A cross-sectional study conducted in Southern Brazil. *Brazilian J Oral Sci.* 2016;15(1):8-15.
7. Maghaireh GA, AlIzraikat H, Taha NA. Satisfaction with dental appearance and attitude toward improving dental esthetics among patients attending a dental teaching center. *J Contemp Dent Pract.* 2016;17(1):16-21.
8. Ajayi DM, Gbadebo SO, Adebayo GE. Perception about tooth colour and appearance among patients seen in a tertiary hospital, south-west, nigeria. *Pan Afr Med J.* 2021;38:1-15.
9. Akarslan ZZ, Sadik B, Erten H, Karabulut E. Dental esthetic satisfaction, received and desired dental treatments for improvement of esthetics. *Ind J Dent Res.* 2009;20(2):195-200.
10. Saintrain MVDL, Freitas SKS De, Dias AA, Freitas LP, Pequeno LL. Comparison of Ohip-14 and Gohai Measures in Relation to Sociodemographic Factors in Older People OHIP-14 versus GOHAI measures. *Int J Res Stud Biosci.* 2016;4(8):22-30.
11. Singh T, Ghimire TR. Evaluation of self contentment with dental appearance and preference to treatment to improve esthetics. *J Nepal Prosthodont Soc.* 2020;3(1):9-15.
12. Seiler R, Galassi FM, Rühli F, Eppenberger P. Aesthetic dentistry in the 18 th century: when beauty counted more than health. *Ann Dent Oral Disord.* 2018;1(1):109.
13. Binalrimal S. The effect of social media on the perception and demand of aesthetic dentistry. *IOSR.* 2019;18(6):69-73.
14. Strajnić L, Bulatović D, Stančić I, Živković R. Self-perception and satisfaction with dental appearance and aesthetics with respect to patients' age, gender, and level of education. *Srp Arh Celok Lek.* 2016;144(11-12):580-9.
15. Alhajj MN, Ariffin Z, Celebić A, Alkheraif AA, Amran AG, Ismail IA. Perception of orofacial appearance among laypersons with diverse social and demographic status. *PLoS One.* 2020;15(9 September 2020):1-11.
16. Tin-Oo MM, Saddki N, Hassan N. Factors influencing patient satisfaction with dental appearance and treatments they desire to improve aesthetics. *BMC Oral Health.* 2011;11(1):7-9.
17. Alhokair R, Alanzan A, Alamery G. Socioeconomic status and its effect on the dental esthetics: a survey-based study in Saudi Arabia. *Int J Med Dev Ctries.* 2021;5(September 2020):6-11.

**Cite this article as:** Nuryanti AF, Muthiah N, Rokhim S. Association between dental appearance satisfaction and sociodemographic characteristics in Samarinda city, Indonesia. *Int J Community Med Public Health* 2024;11:1095-9.