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Original Research Article

Self- confidence and satisfaction with dental appearance among adolescents in rural areas of Nagpur division: A cross-sectional study

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Abstract

Background: Dental aesthetics can be negatively affected by irregularities in the oral cavity, and satisfaction levels often vary by age and gender. Assessing dissatisfaction with current aesthetic conditions and preferred treatment options can help guide the development of targeted strategies to improve aesthetic outcomes.

Materials and Methods: The research was a cross-sectional study involving adolescent students from rural schools in the Nagpur division, conducted over three months from December 2023 to March 2024. Data was collected using standardized questionnaires assessing the Psychosocial Impact of Dental Aesthetics (PIDAQ). Responses were compiled in an MS Excel spreadsheet for statistical analysis.

Results: The study found that tooth color (38%) was the main concern for participants regarding dental aesthetics, followed by teeth size (26%), lip shape (15%), arrangement of teeth (13%), and gingival color and positioning (8%). Male participants reported significantly higher dissatisfaction than females, particularly in tooth color (52.6% vs. 28.1%) and tooth size (31.6% vs. 20%), suggesting gender differences in aesthetic valuation. Participants with an average financial status reported significantly higher satisfaction with their appearance compared to those with a low financial status (high = average > low). Another factor influencing participants' satisfaction was their father's level of education; as the father's educational attainment increased, adolescents felt their teeth were more attractive.

Conclusion: Adolescent dissatisfaction with dental aesthetics is influenced by a combination of personal, sociocultural, and economic factors, highlighting the need for targeted interventions to improve self-perception

Keywords: Self-confidence, Dental Appearance, Adolescents, Psycho-social effect

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1. Introduction

Historically, restorative dentistry primarily focused on functional rehabilitation, particularly in addressing the damage caused by dental caries.^{1,2} However, as the incidence of carious lesions has diminished, there has been a notable shift towards aesthetic dentistry. Consequently, contemporary societal attitudes regarding dental aesthetics increasingly shape the evolving expectations and aspirations of patients.¹ The aesthetic quality of one's dentition plays a vital role in the overall perception of facial attractiveness, significantly influencing judgments about an individual's attributes. It has been proposed that an appealing dental

appearance is a prerequisite for securing esteemed positions within certain professional fields.³

The evaluation of dental appearance, a crucial element of dental aesthetics, frequently focuses on the six maxillary anterior teeth, as they are the most prominent during communication, speech, functionality, and smiling.^{2,4} Dental aesthetics can be detrimentally impacted by irregularities and deviations within the oral cavity. Furthermore, personal perceptions of satisfaction tend to fluctuate with age and gender.⁵ The media's depiction of an idealized appearance exerts a profound influence on our beauty consciousness, prompting individuals to frequently measure themselves against the images presented in magazines, advertisements, and the dental aesthetics of celebrities. Such representations

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insinuate that possessing white teeth is intrinsically linked to happiness and success.^{6,7} Before addressing a patient's dental aesthetic needs, it is imperative for the dentist to grasp not only society's perceptions of ideal dental aesthetics but also the individual's personal expectations regarding what constitutes proper dental beauty. Understanding this dual dimension is crucial in delivering care that resonates on both a personal and societal level. Hence the study aims to evaluate the self-confidence and satisfaction with dental appearance among adolescents in rural area of Nagpur division.

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2. Materials and Methods

2.1. Study design and participants

The research was conducted as a cross-sectional study involving students from rural schools in the Nagpur division. Data collection took place over four months, from December 2023 to March 2024. The inclusion criteria targeted adolescents aged 14 to 18 who were attending schools in rural areas of the Nagpur division and students with those currently undergoing orthodontic treatment or receiving therapy for psychiatric conditions or other serious illnesses being excluded.

2.2. Sampling and sample size

A minimum sample size of 280 respondents was calculated based on the study by Ellakany et al.³ Factors affecting dental self-confidence and satisfaction with dental appearance among adolescents in Saudi Arabia: a cross sectional study with p value at 80%. Participants were selected through convenience sampling method.

2.3. Survey design

Data collection was conducted utilizing standardized questionnaires designed to evaluate the Psychosocial Impact of Dental Aesthetics (PIDAQ). The questionnaire comprises 25 questions, with certain inquiries articulated in a positive manner while others are framed negatively. This dual approach aims to comprehensively capture and understand the psychosocial impact. The Validated questionnaire was translated into Marathi and Hindi to enhance comprehension among the students.

2.4. Questionnaire distribution

Upon receiving approval from the school authorities, the purpose of the study was communicated to the students, after which the questionnaire was distributed **Table 1**. The responses from each student were subsequently compiled into an MS Excel spreadsheet.

Table 1: Psychosocial impact of dental aesthetics questionnaire (PIDAQ)

Mark the response () options as follows: 0= not at all; 1= a little; 2= somewhat; 3= strongly; 4=very strongly						
S.No.	Questions	0	1	2	3	4
1.	proud of teeth					
2.	Like to show teeth					
3.	Pleased to see teeth in the mirror					
4.	Teeth are attractive					
5.	Satisfied with appearance					
6.	Find tooth position nice					
7.	Hold back when I smile					
8.	What others think					
9.	Offensive remarks					
10.	Inhibited in social contacts					
11.	Hide my teeth					
12.	People stare					
13.	Irritated on remarks					
14.	your smile makes you conscious in presence of opposite sex					
15.	Envy					

16.	Somewhat distressed					
17.	Somewhat unhappy					
18.	Others have nicer teeth					
19.	Feel bad					
20.	Wish teeth looked better					
21.	Don't like teeth in mirror					
22.	Don't like teeth in photo					
23.	Don't like teeth on video					
24.	Is your teeth the reason of your dissatisfaction with your looks?					
25.	What according to you is not satisfactory about your smile (more than one can be chosen) a. Lip shape b. Teeth colour c. Teeth size d. Teeth position and arrangement e. Gingival colour and position					

2.5. Statistical analysis

An independent t-test was employed to assess the gender-based differences in responses among the participants. A one-way ANOVA was utilized to examine the impact of socioeconomic status, as well as the education levels of both mothers and fathers, on the psychosocial effects experienced by the participants. Additionally, a chi-square test was conducted to evaluate the significance of various factors affecting self-confidence and satisfaction with dental appearance. All analyses were performed at a significance level of 5%.

3. Results

Out of the distributed questionnaires, 274 were filled out and submitted, resulting in a response rate of 97.86%. Among the

274 respondents, 58% were female and 42% were male. Analysis of parental education indicates that 66.9% of mothers and 73.0% of fathers completed secondary education. Only 2.2% of mothers and 5.5% of fathers attained graduate degrees, with even fewer achieving postgraduate qualifications (0.4% for mothers and 0.7% for fathers). Employment data reveals a significant gender gap, with 65.3% of mothers unemployed compared to 15.0% of fathers. Financially, 22.6% of families are classified as low income, 64.5% as average income, and 12.8% as high one.()

Table 2: Demographic data of the participants

Study Variable	Number of the participants (%)
Gender	
Male	114(42%)
Female	160(58%)
Mother's education level	
Primary Education	36 (13.1%)
Secondary Education	230(83.8%)
Graduate Education	8(2.9%)
Post Graduate Education	0(0)
Father's education level	

Primary Education	57(20.8%)
Secondary Education	200(73%)
Graduate Education	15(5.5%)
Post Graduate Education	2(0.7%)
Mother's employment	
Employed	95(34.7%)
Unemployed	179(65.3%)
Father's employment	
Employed	233(85%)
Unemployed	41(15%)
Financial status	
Low	62(22.6%)
Average	177(64.5%)
High	35(12.8%)

An analysis of the factors contributing to dissatisfaction with dental aesthetics revealed that 38% of respondents cited tooth colour as the primary concern. This was followed by 26% who indicated teeth size as a significant issue, while 15% highlighted lip shape as a contributing factor. In addition, 13% expressed dissatisfaction with the arrangement of their teeth, and 8% reported concerns related to gingival colour and positioning. In terms of satisfaction with their smiles, male participants exhibited a notably higher level of discontent regarding the colour of their teeth, with 52.6% expressing dissatisfaction, compared to only 28.1% of female participants. Furthermore, a significant disparity was

observed in dissatisfaction related to the size of their teeth, with 31.6% of male subjects reporting concerns, in contrast to 20% of their female counter parts. (**Table 3**)

Participants with an average financial status reported significantly higher satisfaction (**Table 4**) with their appearance compared to those with a low financial status (high = average > low). Another factor influencing participants' satisfaction was their father's level of education; as the father's educational attainment increased, adolescents felt their teeth were more attractive. (**Table 5**)

Table 3: Participants' gender variation in the reasons for dissatisfaction about their smile appearance Chi-square test

	Variable	Lip shape	Teeth colour	Teeth size	Teeth arrangement	Gingival contour
Gender	Male	16 (14)	60 (52.6)	36 (31.6)	11 (9.6)	5 (4.4)
	Female	23 (14.4)	45 (28.1)	32 (20)	25 (15.6)	16 (10)
	p value	1.000	<0.001*	0.034*	0.204	0.108

* indicates significant difference

Table 4: Comparison of participants satisfied with dental appearance to the financial status. One-way ANOVA test; Post Hoc tukey test

Questions	Low		Average		High		p value
	Mean	SD	Mean	SD	Mean	SD	
Satisfied with appearance	1.45 ^a	1.26	1.95 ^b	1.44	1.97 ^{a,b}	1.38	0.047*

*indicates significant difference; different superscript letters in a row indicates significant difference between respective pair of groups

Table 5: Comparison of participants find their teeth attractive to the Father’s education. One-way ANOVA test; Post HOC tukey test

Questions	Primary		Secondary		Graduate		PG		p value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Teeth are attractive	1.47 ^a	1.30	1.75 ^{a,c}	1.39	2.60 ^c	0.99	2.00 ^{a,c}	2.83	0.044*

** indicates significant difference; different superscript letters in a row indicates significant difference between respective pair of groups*

4. Discussion

The allure of pleasing facial aesthetics wields a profound influence on psychosocial well-being, serving as a silent architect in shaping our emotional landscapes. Attributes such as emotional stability, dominance, anxiety, and self-esteem intricately intertwine with the art of facial and dental allure.⁸ As children embark on their journey through diverse social spheres, they begin to forge nuanced self-perceptions, each distinct and tailored to the myriad facets of their existence. This transformative process ignites in the tender years of early childhood and reaches a crescendo during the tumultuous yet defining stages of junior high and high school.⁹ Adolescence is a crucial turning point in life, offering a unique opportunity to prevent current struggles and future health issues. By recognizing key risk factors, we can identify adolescents in need of early intervention, empowering them to navigate a path toward a productive and thriving adulthood.¹⁰ Hence the present study intended to analyse the self- confidence and satisfaction with dental appearance among adolescents.

Numerous assessment scales for Oral Health-Related Quality of Life (OHRQoL) have been devised to gauge the profound effects of oral conditions on overall quality of life. However, these instruments necessitate meticulous cross-cultural adaptation and validation before they can be confidently employed.¹⁰⁻¹² Among them, the PIDAQ scale stands out as a sophisticated tool that evaluates the self-perceived impact of dental aesthetics on one's OHRQoL, illuminating the intricate interplay between appearance and well-being in the realm of oral health.¹² Various studies have emphasized the impressive sensitivity of the PIDAQ scale in assessing the psychosocial impacts associated with dental aesthetics.^{12,13} Hence this study utilized the PIDAQ scale for the assessment of self-confidence and satisfaction with dental appearance among adolescent.

More than 70% of the Indian population lives in rural areas;¹⁴ nevertheless, their accessibility to dental care is markedly inferior to that of urban populations.¹⁵ Research conducted by Bhat et al. revealed that adults in these rural regions report a poor assessment of their oral health. In light of this, the current study aims to explore the satisfaction with

dental appearance among adolescents in this rural population.¹⁶

In this study, the predominant reason attributed to dissatisfaction with one's smile was the colour of the teeth. The perception of tooth colour is a complex phenomenon influenced by numerous factors, including the lighting conditions, the optical characteristics of the teeth (such as translucency, opacity, light scattering, and surface gloss), as well as the visual experiences of the observer.^{17,18} 38% percent of respondents cited tooth colour as the principal cause of their dissatisfaction with their dental appearance. In an era dominated by social media, its far-reaching influence profoundly shapes our standards of beauty and aesthetics, thereby transforming our perceptions of physical appearance.¹⁹ The pronounced discontent surrounding tooth colour can be significantly tied to the pervasive impact of societal expectations and personality portrayals prevalent in social media. A notable gender variation was observed, with male participants demonstrating a significantly higher level of dissatisfaction concerning the colour of their teeth; 52.6% expressed discontent, in contrast to just 28.1% of female participants. A second significant factor contributing to dissatisfaction is tooth size, which was also notably more prominent among male participants. Tooth size is a crucial element in the overall dental appearance. Various proportions have been suggested to delineate the ideal relationship between the maxillary anterior teeth in the pursuit of creating aesthetically pleasing restorations. Numerous studies have investigated these different proportions in order to achieve optimal aesthetic outcomes.^{20,21} These findings diverge from existing literature,^{18,22} which consistently indicates that a greater percentage of females report dissatisfaction with their tooth colour compared to their male counterparts. This transformation may signify a profound shift in societal values, where beauty, once exclusively the province of women, is now proudly embraced by men as well. This evolution is echoed in the marketplace, which is witnessing a surge in the availability and prominence of male beauty products, reflecting an inclusive definition of aesthetic appeal.⁷

A significant factor affecting satisfaction with dental appearance in the present study was socioeconomic status. Individuals who experienced downward social mobility,

along with those who have consistently struggled financially, reported higher levels of dissatisfaction with their dental aesthetics. This highlights the idea that socioeconomic factors play a significant role in shaping perceptions of dental beauty, a finding that aligns with previous research.^{23,24} In the present study, higher level of education in fathers was significantly associated with increased self-confidence and satisfaction regarding dental appearance among adolescents, which is consistent with findings from a previous study by Ellakany et al.³ Conversely, Akarslan et al.²⁵

Found a link between a decrease in dissatisfaction with dental aesthetics and an uptick in educational attainment. This discrepancy may be due to the fact that parental education could elevate participants' aesthetic expectations and needs, leading to a lower level of satisfaction with their smiles as they strive to achieve ideal aesthetic outcomes modelled by their parents.

The study had notable limitations, particularly the lack of comparison between self-confidence and satisfaction with dental appearance among rural and urban populations. Additionally, its focus was restricted to a small area in Nagpur. However, this research could serve as a starting point, highlighting the necessity for studies involving larger populations to better understand adolescents' needs and improve education regarding dental treatments. Analysing the prevalence of dissatisfaction with existing aesthetic conditions and the preferred treatments for enhancement can serve as a valuable framework for devising targeted intervention strategies to elevate aesthetic standards.

5. Conclusion

The study found that tooth colour (38%) was the main concern for participants regarding dental aesthetics, followed by teeth size (26%), lip shape (15%), arrangement of teeth (13%), and gingival colour and positioning (8%). Male participants reported significantly higher dissatisfaction than females, particularly in tooth colour (52.6% vs. 28.1%) and tooth size (31.6% vs. 20%), suggesting gender differences in aesthetic valuation. Additionally, individuals with average financial status expressed greater satisfaction with their appearance compared to those from lower backgrounds, indicating the impact of socio-economic factors on self-esteem. A correlation was also found between a father's education level and adolescents' perceptions of dental attractiveness, implying that higher education may enhance body image. Overall, adolescent dissatisfaction with dental aesthetics is influenced by a combination of personal, socio-cultural, and economic factors, highlighting the need for targeted interventions to improve self-perception.

6. Source of Funding

None.

7. Conflict of Interest

None.

8. Ethical Approval

This study was approved by institutional ethical committee with ref no. IEC/06/86.

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