

Original Article

Psychosocial Impact of Dental Aesthetics among Secondary School Students in Birnin Kebbi, Northern Nigeria: Population-Based Study

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ABSTRACT

Introduction: Dental aesthetics is a major determinant of good psychosocial well-being. Individuals with good dental aesthetic appearance tend to enjoy better social interactions and quality of life than those with poor dental aesthetic appearance. This study aims to assess the psychosocial impact of dental aesthetics among secondary school students in Birnin Kebbi metropolis, Kebbi State, Northern Nigeria.

Material and Methods: This study was a questionnaire-based cross-sectional survey of 692 students attending Army Day Boys Secondary School (ADBSS) and Army Day Girls Secondary School (ADGSS), Birnin Kebbi. Data collected was analysed using SPSS version 20 software.

Results: The majority (75.4%) of the 692 respondents were within the age range of 15 – 19 years of age, 50.7% were in SS 1 class, and 53.7% were females. The majority (>82%) of the respondents were confident about the appearance of their dentition, roughly half of the respondents were negatively impacted, socially, by the appearance of their dentition. There exists a statistically significant relationship between respondents' gender and: psychosocial self-perception of their dental

aesthetics (p-values<0.05); and concerns about their dental aesthetics (p-values<0.05).

Conclusion: This study concluded that many of the surveyed northern Nigeria secondary school students were not convenient with their current dental aesthetic appearances. Appropriate counselling, public health, and clinical intervention programmes may go a very long way in minimizing the negative impact of dental aesthetics-associated psychosocial problems among this population group.

INTRODUCTION

Dental aesthetics is the cosmetic appearance of the teeth¹. The appearance of one's dentition goes a long way in defining people's perception of one's facial beauty and personal characteristics². Dental aesthetic appearance can look appealing or the other way round, and the judgement of a dental aesthetic appearance usually comes from the subjective lay public².

In clinical dentistry, the factors that predispose humans to poor dental aesthetics had been well-studied³. Some of these factors include malocclusion, dental discolouration, tooth fracture, odontogenic infections, periodontal diseases, and oral habits³.

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Dental aesthetics is a major determinant of good psychosocial well-being^{2,3}. Individuals with good dental aesthetic appearance tend to enjoy better social interactions and quality of life than those with poor dental aesthetic appearance^{2,3}. Due to these associated benefits, those with better dental aesthetic appearance tend to be more frequently happier, *ceteris paribus*, than those with worse dental aesthetic appearance- this is an inequality of public health concern^{2,3,4}.

Due to the high prevalence of factors causing poor dental aesthetics (such as deleterious oral habits, traumatic dental injuries, dental caries, malocclusion, etc.) among the adolescent population⁵⁻⁹, the secondary school student population is considered as a highly vulnerable group when it comes to having poor dental aesthetics. Invariably, they are also at risk of suffering from the psychosocial problems associated with poor dental aesthetics, such as low dental self-confidence, poor social interactions, and more^{6,10-13}. However, the relationship between dental aesthetics and psychosocial well-being among secondary school students in various geographic locations and social settings in Nigeria is highly under-explored, with very scanty literature available on the theme^{11,12}. From the content perusal of the few available studies exploring the dental aesthetics-associated psychosocial well-being of secondary school students in Nigeria, it was found, to the best of the authors' knowledge, that none of them was conducted among secondary school students in the northern part of Nigeria. Based on the aforesaid, it becomes imperative to conduct a study to explore the impact dental aesthetics on the psychosocial status of this population group in northern Nigeria. Hence, this study was conducted with the aim of exploring the psychosocial impact of dental aesthetics among secondary school students in Birnin Kebbi metropolis- a metropolitan city in northern Nigeria. Such study amongst this population group is of high relevance, as the findings obtained from this study will provide scientific information on the psychosocial impact of dental aesthetic appearance amongst them.

MATERIAL AND METHODS

This study was a school-based descriptive cross-sectional survey of 692 students attending ADBSS and ADGSS, Birnin Kebbi, Kebbi State, Nigeria, which was conducted in accordance with the 1964 Helsinki Declaration on health research involving human subjects. Permission to conduct the study was officially obtained from the Ministry of Education of Kebbi State and the administration of the surveyed schools.

Both schools (ADBSS and ADGSS) are public schools owned by the Kebbi State Government. The ADBSS is a boys-only school while the ADGSS is girls-only. Both schools has students in the following classes: JS 1; JS 2; JS 3; SS 1; SS 2; and SS 3. The JS 1, JS 2, JS 3, SS 1, SS 2, and SS 3 classes are equivalent to Grade 7, Grade 8, Grade 9, Grade 10, Grade 11, and Grade 12, respectively, in the USA.

The study tool was a structured questionnaire. The questionnaire had 2 sections: section A and section B. Section A obtained information about the socio-demographic characteristics of the participants while section B obtained information about the psychosocial impact of the dental aesthetic appearance of the participants using the PIDAQ¹³. The PIDAQ is a standardized tool for assessing the psychosocial influence (dental self-confidence, social impact, psychological impact, and aesthetic concern) of dental aesthetics in a population¹³.

A minimum sample size of 600 secondary school students was considered appropriate for the study, based on authors' estimation and available resources for the study.

Using one-stage sampling technique, JS 3 and SS 1 classes were selected from the JS and SS classes. Individual participant selection was done using simple random sampling technique.

The surveyed schools were visited on the 2019 World Oral Health Day (March 20, 2019)¹⁴. The students were informed about the aims and objectives of the study; they were also informed that

their participation is strictly voluntary and confidential. Only those that gave verbal informed consent to participate in the study were recruited. A total of 726 consenting students were recruited for the study. Each of the participants was issued a self-administered questionnaire to fill. Out of the 726 participants, only 713 returned their questionnaire filled.

During data cleaning process, 21 questionnaires were excluded from the study because they were not completely filled. Study data was computed into the SPSS version 20 software for analysis. The frequency distributions of all variables were determined. Test of associations between relevant variables were done using Chi-square test, with a p-value of <0.05 used to determine the level of statistical significance.

RESULTS

Socio-demographic Profile

The majority (75.4%) of the 692 respondents were within the age range of 15 – 19 years of age, 50.7% were in SS 1 class, 53.7% were females, 80.1% were Hausas, and 98.6% were single (Table 1).

Table 1. Socio-demographic characteristics of respondents

Variable (N = 692)	Frequency	%
Class		
JS 3	341	49.3
SS 1	351	50.7
Age (years)		
10 – 14	157	22.7
15 – 19	522	75.4
≥ 20	13	1.9
Gender		
Male	320	46.2
Female	372	53.7
Tribe		
Hausa	554	80.1
Yoruba	41	5.9
Igbo	24	3.5
Others	73	10.5
Religion		
Islam	579	83.7
Christianity	110	15.9
African Traditional Religion	2	0.3
Others	1	0.1
Marital Status		
Single	682	98.6
Married	10	1.4

Dental Self-Confidence

The majority (>82%) of the respondents were confident about the appearance of their dentition. For instance, 92.0% of them were proud of their teeth, 89.2% liked to show their teeth when they smile, 88.7% were satisfied with the appearance of their teeth, and 90.8% found their tooth position to be very nice (Table 2). Also, there exists a statistically significant relationship between respondents' gender and self-perception of their dental attractiveness (p-value=0.014) (Table 3).

Table 2. Psychosocial impact of dental esthetics among respondents

Assessment (N = 692)	Yes (%)	No (%)
Dental Self-confidence		
I am proud of my teeth	637 (92.0)	55 (8.0)
I like to show my teeth when I smile	617 (89.2)	75 (10.8)
I am pleased when I see my teeth in the mirror	601 (86.8)	89 (12.9)
I am satisfied with the appearance of my teeth	614 (88.7)	78 (11.3)
I find my tooth position to be very nice	628 (90.8)	64 (9.2)
My teeth are attractive to others	575 (83.1)	117 (16.9)
Social Impact		
I restrain myself when I want to smile	357 (51.5)	335 (48.5)
I am concerned about what strangers think about my teeth	397 (57.3)	295 (42.7)
I am afraid of people's offensive remark about my teeth	367 (53.0)	325 (47.0)
I am socially withdrawn because of my teeth	347 (50.1)	345 (49.9)
I hide my teeth sometimes with my hand in front of my mouth	289 (41.8)	403 (58.2)
Sometimes I think people are staring at my teeth	382 (55.2)	310 (44.8)
Joking remarks about my teeth irritate me	361 (52.2)	331 (47.8)
What an opposite sex thinks about my teeth worries me sometimes	337 (48.7)	355 (51.3)
Psychological Impact		
I envy the nice teeth of other people	453 (65.5)	239 (34.5)
I am somewhat distressed when I see other people's teeth	399 (57.7)	293 (42.3)
I am unhappy about the appearance of my teeth	352 (50.9)	340 (49.1)
I think most people I know have nicer teeth than I do	336 (48.6)	356 (51.4)
I feel bad when I think about what my teeth look like	338 (48.8)	354 (51.2)
I wish my teeth looked better	576 (83.2)	116 (16.8)
Aesthetic Concern		
I don't like to see my teeth in the mirror	226 (32.7)	466 (67.3)
I don't like to see my teeth in the photograph	254 (36.7)	438 (63.3)
I don't like to see my teeth when I look at the video of myself	244 (35.0)	448 (65.0)

"N" – Number of respondents per category

Social Impact

Roughly half of the respondents suffered, socially, by the appearance of their dentition. For instance, 51.5% of them restrained themselves whenever they want to smile, 52.2% remarked that joking remarks about their teeth irritate them, 50.9% were unhappy

about the appearance of their teeth, and 83.2% wished that their teeth looked better (Table 2). Also, there exists statistically significant relationship between the gender of the respondents and the social impact of their dental aesthetics (p-values<0.001) (Table 3).

Table 3. Psychosocial impact of dental esthetics among respondents – by subgroups

Assessment	Yes response		p- value
	JS 3 (N = 341)	SS 1 (N = 351)	
Dental Self-confidence			
I am proud of my teeth	316 (92.7)	321 (91.5)	0.554
I like to show my teeth when I smile	300 (88.0)	317 (90.3)	0.323
I am pleased when I see my teeth in the mirror	294 (86.2)	309 (88.0)	0.475
I am satisfied with the appearance of my teeth	300 (88.0)	314 (89.5)	0.538
I find my tooth position to be very nice	312 (91.5)	316 (90.0)	0.505
My teeth are attractive to others	279 (81.8)	296 (83.1)	0.378
Social Impact			
I restrain myself when I want to smile	182 (53.4)	175 (49.9)	0.355
I am concerned about what strangers think about my teeth	209 (61.3)	188 (53.6)	0.040
I am afraid of people’s offensive remark about my teeth	197 (57.8)	170 (48.4)	0.014
I am socially withdrawn because of my teeth	175 (51.3)	172 (49.0)	0.542
I hide my teeth sometimes with my hand in front of my mouth	141 (41.3)	148 (42.2)	0.828
Sometimes I think people are staring at my teeth	190 (55.7)	192 (54.7)	0.788
Joking remarks about my teeth irritate me	193 (53.5)	168 (47.9)	0.021
What an opposite sex thinks about my teeth worries me sometimes	182 (53.4)	155 (44.2)	0.015
Psychological Impact			
I envy the nice teeth of other people	213 (62.5)	240 (68.4)	0.102
I am somewhat distressed when I see other people’s teeth	195 (57.2)	204 (58.1)	0.803
I am unhappy about the appearance of my teeth	172 (50.4)	180 (51.3)	0.825
I think most people I know have nicer teeth than I do	170 (49.9)	166 (47.3)	0.501
I feel bad when I think about what my teeth look like	167 (49.0)	171 (48.7)	0.946
I wish my teeth looked better	298 (87.4)	278 (79.2)	0.004
Aesthetic Concern			
I don’t like to see my teeth in the mirror	100 (29.3)	126 (35.9)	0.065
I don’t like to see my teeth in the photograph	117 (34.3)	137 (39.0)	0.198
I don’t like to see my teeth when I look at the video of myself	118 (34.6)	126 (35.9)	0.722
Assessment	Male (N = 320)	Female (N = 372)	p- value
Dental Self-confidence			
I am proud of my teeth	295 (92.2)	342 (91.9)	0.903
I like to show my teeth when I smile	285 (89.1)	332 (89.2)	0.938
I am pleased when I see my teeth in the mirror	282 (88.1)	321 (86.3)	0.472
I am satisfied with the appearance of my teeth	281 (87.8)	333 (89.5)	0.480
I find my tooth position to be very nice	294 (91.9)	334 (89.8)	0.344
My teeth are attractive to others	278 (86.9)	297 (79.8)	0.014

Social Impact			
I restrain myself when I want to smile	203 (63.4)	154 (41.4)	<0.001
I am concerned about what strangers think about my teeth	212 (66.2)	185 (49.7)	<0.001
I am afraid of people's offensive remark about my teeth	191 (59.7)	176 (47.3)	0.001
I am socially withdrawn because of my teeth	199 (62.2)	148 (39.8)	<0.001
I hide my teeth sometimes with my hand in front of my mouth	172 (53.8)	117 (31.5)	<0.001
Sometimes I think people are staring at my teeth	215 (67.2)	167 (44.9)	<0.001
Joking remarks about my teeth irritate me	201 (62.8)	160 (43.0)	<0.001
What an opposite sex thinks about my teeth worries me sometimes	185 (57.8)	152 (40.9)	<0.001
Psychological Impact			
I envy the nice teeth of other people	239 (74.7)	214 (57.5)	<0.001
I am somewhat distressed when I see other people's teeth	230 (71.9)	169 (45.4)	<0.001
I am unhappy about the appearance of my teeth	194 (60.6)	158 (42.5)	<0.001

Psychological Impact

Many of the respondents suffered, psychologically, by the appearance of their dentition (Table 2). For instance, 50.9% of them were unhappy about the appearance of their teeth, 48.8% do feel bad whenever they think about what their teeth look like, and 83.3% wished their teeth looked better. Also, a higher proportion of the male respondents suffered from the negative psychological impact of their dental appearance, when compared to their female counterparts (p-value<0.001) (Table 3).

Aesthetic Concern

The majority of the respondents did not bother about their dental aesthetic appearance (Table 2). For instance, 67.3% of them liked to see their teeth in the mirror, and 63.3% liked to see their teeth in the photograph. Also, a higher proportion of the male respondents had concerns about their dental aesthetics than the females (p-values<0.05) (Table 3).

DISCUSSION

Dental aesthetics appearance is a very crucial determinant of quality of life^{6,10-12}. Scientific investigations had shown that a positive correlation exists between dental aesthetics and quality of life^{6,10-12}. A poor dental aesthetic appearance can negatively affect a person's: social interaction with

others; self-esteem; acceptance among peers and non-peers; and judgement of intellectual capacity by others^{2-4,6,10-12}.

As earlier said, only very few studies had explored the psychosocial impact of dental aesthetics amongst secondary school students in Nigeria^{11,12}, despite the high vulnerability of this population group to the aetiological/risk factors of poor dental aesthetics (such as deleterious oral habits, dental caries, orofacial trauma, and more)⁵⁻⁹. In the northern part of Nigeria, in particular, no study, to the best of the authors' knowledge, is available on this area of research interest.

In this present study, a random sample of 692 secondary school students in Birnin Kebbi metropolis were investigated to explore the impact of dental aesthetics on their psychosocial wellbeing. From the data generated from this study, it was observed that many of the surveyed students were not convenient with their current dental aesthetic appearances. This finding is interesting and it is also consistent with that reported among secondary school students in the southern part of Nigeria^{11,12}.

Furthermore, our data analysis showed that a significantly higher proportion of the male respondents, unlike the females, were having negative perception of their dentition, making them to have psychosocial dental aesthetics-associated

feelings with concerns about their dental aesthetics. Comparing this finding with that conducted by Klages et al¹⁵ and Ibiyemi & Taiwo¹², we found that gender is not associated with psychosocial impact of the dental aesthetics of their respondents. Based on this, it can be suggested that male secondary school students in northern Nigeria are more psychosocially affected by their dental appearance.

RECOMMENDATIONS

With the general high prevalence of self-perceived un-satisfaction about the dental aesthetics of the respondents, it is highly recommended by the authors that well-planned psychosocial counselling programmes and appropriate dental public health as well as clinical intervention programmes should be organized for students in secondary schools in northern Nigeria as the implementation of such programmes may go a very long way in minimizing the heavy psychosocial impact of dental-aesthetics associated psychosocial problems among them.

LIMITATIONS

However, this study has its limitations. This study only assessed the psychosocial impact of dental aesthetics amongst the surveyed respondents; the study did not assess their orthodontic treatment needs and no other objective dental assessment was made due to limited resources. Also, this study only sampled secondary school students in Birnin Kebbi metropolis; with respect to that, it will be difficult to make unguided generalizations based on the data of this study.

CONCLUSION

This study concluded that many of the surveyed northern Nigeria secondary school students were not convenient with their current dental aesthetic appearances. Psychosocial counselling programmes and appropriate dental public health as well as clinical intervention programmes may go a very long way in minimizing the heavy psychosocial impact of dental-aesthetics associated psychosocial problems among this population group.

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LIST OF ABBREVIATIONS

ADBSS: Army Day Boys Secondary School
ADGSS: Army Day Girls Secondary School
JS: Junior Secondary class
PIDAQ: Psychosocial Impact of Dental Aesthetics Questionnaire
SS: Senior Secondary class

CONFLICT OF INTEREST

Authors have none to declare.

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