

Perception on dental appearance among secondary school students in Kigali

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Abstract

Background: In the period of adolescence, dental appearance takes on significant importance in the construction of personal identity and this may influence psychological adjustment and relationship status. **Objective:** To determine perception on dental appearance among adolescents in Kigali secondary schools. **Material and methods:** This was a cross sectional study involving 768 students in three secondary schools in Kigali city. The schools and classes were randomly selected; a structured questionnaire modified from Tin-Oo et al (2011) were used to gather information on particulars, perception and satisfaction on dental appearance, perceived factors and OIDP from the study participants. The SPSS version 16 was used to analyze the data. The perception with general appearance, color, arrangement and shape of anterior teeth, each had 5-point scale with the value ranging from “not good at all to very good. A summative index of the four questions with score ranging from 4 “lowest” to 20 “highest” was taken. This was dichotomized into a binary variable using mid-value (median) 12 as a cut-off point yielding 1 = “poor” (summative index 4 – 12) and 2 “good” (summative index 13 – 20). **Results and discussion:** Males constituted 52% of the study participants. Total of 60% had positive perception on dental appearance, 48.8% present tooth colour dissatisfaction. Around 43% had at least one impact; the most impacted performance was eating (24.5%). **Conclusion:** A high proportion of adolescents had positive perception and were satisfied with the appearance and colour of their front teeth.

Running title: Perception on Dental appearance

Introduction

Self-perception in dental appearance takes on significance importance in the period of adolescence, as it affect psychology, self esteem, and performance in daily activity, hence the construction of personal identity, including one's relationship with one's own body (Kershaw et al). Dental appearance is perceived as “the image of a perfect smile represented by well arranged white teeth with no sign of abnormality” (3). It is said that adolescent period is important in construction of personal identity, as physical appearance is taken seriously and hence improving it to gain social acceptance. There are several factors that influence self-perception of dental appearance such as social, cultural, psychological and personal factors (4).

Factors associated with dissatisfaction of dental appearance are tooth color, shape and position; quality of restoration, and general arrangement of teeth, especially the anterior teeth, position of upper lip, visibility of teeth and amount of gingival display; all these factors act together to create harmonic and symmetric entity that give final esthetic effect (2, 5). Some studies indicated that tooth color is one of the most important factors that determine satisfaction with dental appearance, thus generally people desire for pearly white teeth (1, 6-7). White teeth have been positively correlated with

high ratings of social competence, intellectual ability, psychological adjustment and relationship status (1). This may be reflected by dissatisfaction in appearance due to discoloration in people with dental fluorosis (3), untreated dental caries, discolored restorations in anterior teeth and missing anterior teeth (8), as well as malocclusion (9).

Sex has been associated with dental appearance satisfaction with female expressing dissatisfaction than males although Hamanci et al (2009) reported no significant sex differences. No age differences in dental satisfaction have been observed (2, 10). Treatments to improve dental esthetic have been found to increase patient satisfaction, and hence quality of life and psychological status of affected people (12). These treatments include tooth whitening procedures, anterior teeth restoration, labial veneers crowns, and orthodontic treatment (6).

In western world decrease in caries prevalence, has shifted the focus toward dental esthetics (6). This is contrary to the past where functional demands were the main consideration in dental treatment. In Rwanda self-perception on dental appearance in adolescents is not known, however it has been observed that there is increasing demand on esthetic treatment among adolescents. . It is not

known as to whether the increase on demand of aesthetic treatment among adolescents is a result of self-perception on dental appearance. The aim of this study therefore was to determine perception on dental appearance among adolescents in Kigali secondary schools

Material and Methods

The sampling frames were lists of all secondary schools in respective districts. From each district one secondary school was selected randomly by picking a paper, which had the name of the school. The selected secondary schools with their respective districts are as follows: Lycée de Kigali, Nyarugenge district, IFAK (Institut de formation apostolique de Kimihurura) , Gasabo district and College Apape, Kicukiro district. The next step was selection of classes from selected schools. The students from selected classrooms were asked to participate after signing a consent form and assent form according to their ages. A structured questionnaire modified from Tin-Oo et al (2011) was used to gather information on participants' particulars, perception and satisfaction on dental appearance, perceived factors and OIDP.

The questionnaire had four sections. The first section covered socio-demographic items: age, sex, school and the year of study. The second section consisted of four questions on perception of dental appearance, general appearance, color, arrangement and shape of anterior teeth. Each was measured on a 5 point scale with the value ranging from (1) not good at all, (2) not good, (3) satisfactory, (4) good and (5) very good.

The third section dealt with satisfaction with dental appearance of participants and perceived factors. It was assessed by seven questions with dichotomy options of Yes and No, covering the satisfaction or dissatisfaction with the general appearance of the participant's anterior teeth, color, crowding,

malalignment, protrusion, dental caries, non-aesthetic fillings and fractures on front teeth; each factor was assessed individually.

Assessment of treatment options formed the fourth section. It contained one question which asked participants to select the aesthetic treatments they wished to undergo, including orthodontic treatment, crowns, tooth whitening, tooth colored restorations and partial dentures.

The SPSS statistical package version sixteen was used to analyze collected data.

The perception with general appearance, color, arrangement and shape of anterior teeth, each had 5 point scale with the value ranging from "(1) not good at all, (2) not good, (3) satisfactory, (4) good, (5) very good. A summative index of the four questions with score ranging from (4) "lowest" to (20) "highest" was taken. This was dichotomized into a binary variable using mid-value (median) 12 as a cut-off point yielding 1 = "poor" (summative index 4 – 12) and 2 "good" (summative index 13 – 20).

Results

A total of 768 students participated in the study. Their age ranged from 10-24 years, of whom males were 52%.

Generally 60% of participants had positive perception of their dental appearance.

Table 1 shows that, more females had positive perception with their dental appearance than males ($\chi^2 = 16.58, p < 0.001$). Although not statistically significant, 48.5 % of participants aged 20-24 years had positive perception with their dental appearance compared to 39.1% in younger age groups.

Table 1: Distribution of participants by age, sex and perception of dental appearance

Characteristic	Perception of dental appearance		Chi-square	P-value
	Poor (%)	Good (%)		
Age group				
10-14 (n=110)	60.9	39.1		
15-19 (n=528)	60.9	39.1	3.897	0.143
20-24 (n=130)	51.5	48.5		
Sex				
Male (n=399)	66.1	33.9	16.576	0.000
Female (n=369)	52.9	47.1		

The most dissatisfying aspects of oral appearance were tooth color (48.8%), general appearance (32%) and poor alignment (29.4%), whereas, the least dissatisfying aspect was non-aesthetic restorations (9.8%).

Table 3 shows the participants desired treatment options. Teeth whitening was the most desired treatment reported by 62%. of This was followed by orthodontic treatment (35.3 %), tooth coloured

restorations (17.9%), dental crowns (16.1%) and dentures (12.8%).

Table 4 summarizes participants' perceived dental aesthetics oral impact on daily performance. 47.1% of female students experienced at least one oral impact on their daily performance compared to 33.9% of male students. But the difference was not statistically significant. 46.7% of participants aged 15-19 years experienced at least one oral impact on their daily performance compared to other age groups whose proportions were 35.5% and 39.1% for ages 10-14 years and 20-24 years respectively.

Discussion

Table 1 shows that, more females had positive perception with their dental appearance than males ($\chi^2 = 16.58, p < 0.001$). Although not statistically significant, 48.5 % of participants aged 20-24 years had positive perception with their dental appearance compared to 39.1% in younger age groups

Table 2: Participants' satisfaction with the appearance of their anterior teeth (N=768)

Perceived appearance		n (%)
Satisfied with general dental appearance	Yes	515 (67.1)
	No	253 (32.9)
Satisfied with tooth color	Yes	393 (51.2)
	No	375 (48.8)
Felt that teeth were crowded	Yes	170 (24.7)
	No	578 (75.2)
Felt that teeth were poorly aligned	Yes	226 (29.4)
	No	542 (70.5)
Felt that teeth were protruding	Yes	87 (11.3)
	No	681 (88.7)
Perceived dental caries	Yes	99 (12.9)
	No	669 (87.1)
Perceived non-aesthetic restoration	Yes	75 (9.8)
	No	693 (90.2)
Perceived fractures	Yes	96 (12.5)
	No	672 (87.5)

Most of participants aged 10-14 years had positive perception of their dental appearance (60%). However, majority of young adults (20-24 years) had poor perception than other groups. These results are similar to those reported in Turkey where it showed that increase in age could have an effect on perception (11).

Table 3: Distribution of participants by desired dental treatments

Treatment option		n (%)
Orthodontic treatment	Yes	271 (35.3)
	No	497 (64.7)
Tooth whitening	Yes	477 (62)
	No	291 (38)
Dental crown	Yes	124 (16.1)
	No	644 (83.9)
Tooth color restoration	Yes	137 (17.9)
	No	631 (82.1)
Dentures	Yes	98 (12.8)
	No	670 (87.2)

It is commonly thought that women are more interested in their appearance than males (2). The results of the present study show that female had

poor perception compared to males. These results are similar to those reported in Nigeria whereby more females had poor perception as compared to males (10). The present results are contrary to those reported in a study on Self-Perception of Malocclusion among Nigerian Adolescents, which reported no significant difference in self-perception of dental appearance between males and females (13).

Generally, majority (67.1%) of participants were satisfied with their dental appearance. These results are similar to those reported by Akarslan et al 2009 (8).

However, the results from this study show that there is no significant difference between males and females in satisfaction with dental appearance, which is contrary to a study done by Akarslan et al 2009 (8).

The main reported dissatisfaction factor in this study was about tooth color (48.8%), followed by poor alignment, this is similar with findings from a study done by Samorodnitzky-Naveh et al 2007 (6) whereby tooth color was the primary reason of dissatisfaction, other reported causes of

dissatisfaction are crowded teeth, teeth protrusion and fractured teeth, the least is non-esthetic anterior fillings and these were similar to a published report by Tin-Oo et al 2011 (2).

Most participants in the study were interested in tooth whitening to improve their dental esthetic (62%) which is similar to what was reported by (6, 14 and 2), The reason for increase in orthodontic

demand might be the awareness of feeling that teeth are poorly aligned, protruding and crowding. About 43.2% of participants reported to have at least one impact on daily performance. This is contrary to studies done in Uganda (15) and Albania (16), which showed the prevalence of OIDP to be high.

Table 4: Participants' Oral Impact on Daily Performances

Age group/sex	OIDP		Chi-square	P-value
	No impact	At least one impact		
10-14 (n=110)	64.5	35.5	6.251	0.044
15-19 (n=528)	54.3	46.7		
20-24 (n=130)	60.9	39.1		
Male (n=399)	66.1	33.9	1.378	0.502
Female (n=369)	52.9	47.1		

There was no significant difference in oral impact on daily performance between males and females. These results are similar to those reported by (8).

Results showed that the most impacted performance was eating (24.5%) followed by cleaning (15.2%), Socialization (13.5%) and speaking (7.4%). This might be explained by the fact that culture and sociodemographic factors may influence variability in OIDP statistics.

Conclusion

A high proportion of adolescents had positive perception and were satisfied with the appearance and colour of their front teeth.

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