Perceptions of dental attractiveness and orthodontic treatment need among Tanzanian children

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The aim of this study was to assess the opinions of Tanzanian children on dental attractiveness and their perceptions of orthodontic treatment need in relation to their own dental attractiveness as measured by the aesthetic component (AC) of the index of orthodontic treatment need (IOTN). In a random sample of 386 school children (48% boys, 52% girls), aged 9 to 18 years, the subjective need was assessed by using a prestructured questionnaire, and attractiveness was scored by using 18 intraoral frontal photographs. Orthodontic treatment need was measured with the IOTN, and 11% of the children definitely needed orthodontic treatment (grades 8-10 of the AC with 4-5 of the dental health component [DHC]). The AC indicated that 11% of the children needed orthodontic treatment, whereas the DHC indicated 22%. Although 38% of the children said they needed treatment, 33% and 31% were unhappy with the arrangement and the appearance of their teeth, respectively. Most children (85%) recognized well-aligned teeth as important for overall facial appearance. Photographs showing severe deviations including crowding were regarded as the most unattractive, with older children tending to dislike them the most (P < .0005). This suggests that, from the children’s point of view, grades 8-10 of the AC and 4-5 of the DHC could be given the first priority when considering an orthodontic treatment policy in Tanzania. (Am J Orthod Dentofacial Orthop 2004;125:426-34)

Well-aligned teeth and a pleasing smile reflect positive status at all social levels, and irregular or protruding teeth reflect negative status.1,2 In each race and sex, some balance of facial features is viewed by the majority as pleasing to the eye.3 The perception of beauty not only is an individual preference that could be influenced by training, but also might have cultural and ethnic biases.4-6 Only a few studies have addressed the perception of malocclusion in the African cultural context. Otuyemi et al7 showed that the perceptions of dental esthetics of Nigerian students were very similar to those of American groups.

The scientific literature in all aspects of craniofacial biology and orthodontics is primarily based on white populations. However, population norms derived from white people might not be valid and accurate for other ethnic groups, and applying them to other populations could lead to clinical decisions that cause undesired and unexpected outcomes.

Although dissatisfaction with dental appearance is broadly related to the severity of the occlusal irregularities,1,8,9 there are differences in the recognition and evaluation of the dental features.10 Some studies have reported that perceptions of malocclusion do not differ among various racial groups and cultural circumstances;8,11-13 but African people living in Africa can have different malocclusion perceptions compared with other societies. For example, spacing (especially median diastema) is significantly disliked in white cultures,14,15 but it is considered desirable and a sign of beauty in many African cultures.

Between 18% and 51% of Tanzanian children have been reported to have some type of dental irregularity in the deciduous and permanent dentitions.16-18 It is generally understood that the evaluation of malocclusion must consider morphological and functional factors, as well as aesthetic and psychological ones.19,20 However, not all potential patients with dental irregu-
larieties, even those with extreme handicapping malocclusions or anatomic deviations from the normal, seek orthodontic treatment. Although some do not recognize that they have problems, others believe that they cannot afford or cannot obtain orthodontic treatment. Both perceived need and demand vary with social and cultural conditions, but the most important motivation for orthodontic treatment is usually an improvement in appearance. Information on the perception for orthodontic treatment is usually an improvement in appearance. Information on the perception for orthodontic treatment is usually an improvement in appearance. Information on the perception for orthodontic treatment is usually an improvement in appearance. Information on the perception for orthodontic treatment is usually an improvement in appearance. Information on the perception for orthodontic treatment is usually an improvement in appearance.

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The aim of this study was to investigate the opinions of Tanzanian children about dental attractiveness and their perceptions of orthodontic treatment need.

MATERIAL AND METHODS
The study, conducted in Dar es Salaam, Tanzania, involved 400 children, aged 9 to 18 years, from a primary school and a secondary school. The 2 schools were randomly selected from the lists of 180 public primary and 4 coeducation secondary schools obtained from the City Council and the Ministry of Education authorities, respectively. School classes were randomly chosen, and 400 children (52% girls, 48% boys) were randomly selected for inclusion in the study. Inclusion criteria for the respondents were age at the time of the study (9-18 years), African Tanzanian origin, and willingness to participate. All respondents were asked to produce birth certificates, Maternal and Child Health birth cards, or other evidence for age verification. The Ministry of Education of Tanzania, the City Council of Dar es Salaam, and the school authorities gave permission to conduct the study in the selected schools; the parents and the respondents were given written information and then could decide whether to participate.

All 400 children agreed to participate in the study. A prestructured questionnaire in Swahili was administered to the children in their classrooms. The questionnaire was divided into 3 sections. The first section asked for demographic characteristics, particularly age, sex, and parents’ education and employment status.

The second section dealt with awareness of the children’s own occlusions, including questions on their subjective need of treatment, satisfaction with the arrangement and appearance of their teeth, and the importance of well-aligned teeth. The questions were scaled and scored with 3 or 5 points, as follows:

1. Do you need orthodontic treatment? (1 = yes, 2 = no, and 3 = do not know)
2. Are you happy with the arrangement of your anterior teeth? (1 = very happy, 2 = happy, 3 = normal, 4 = unhappy, and 5 = very unhappy)
3. Are you happy with the appearance of your own teeth compared to the teeth of your peers? (1 = very happy, 2 = happy, 3 = normal, 4 = unhappy, and 5 = very unhappy)
4. Do you consider well-aligned teeth important for overall facial appearance? (1 = very important, 2 = important, 3 = does not matter, 4 = not important, and 5 = not important at all).

The third section concerned the respondents’ perceptions of malocclusion and comprised questions related to 18 intraoral frontal photographs on which the respondents had to give an opinion about attractiveness. The first 10 intraoral photographs represented the aesthetic component (AC) of the index of orthodontic treatment need (IOTN). The AC rates a person’s dental attractiveness on a 10-point scale, illustrated by intraoral photographs. Eight other intraoral photographs were added to represent common malocclusions in Tanzania. The 18 photographs are shown in the Figure. The 2 questions for each photograph (18 × 2 = 36 items) were as follows:

1. The arrangement of teeth in this photograph is: (1 = very good looking, 2 = good looking, 3 = satisfactory, 4 = not good, and 5 = not good at all)
2. Would you be happy if the arrangement of your teeth was like that of the teeth in this photograph? (1 = very happy, 2 = happy, 3 = normal, 4 = unhappy, and 5 = very unhappy).

One investigator (E.A.M.) administered the questionnaire in the classroom on the scheduled days. The teacher gave a brief introduction about the investigator to the children. The investigator answered any questions. Subsequently, the investigator conducted a clinical examination of the participating children using the IOTN. Of the 400 children, 295 (73.8%) (45% girls, 55% boys) participated in the clinical examinations; 2 extraoral and 3 intraoral photographs were also taken. Before the data collection, the investigator received thorough methodology training for IOTN measurements at the University of Manchester (United Kingdom) and the University of Nijmegen (The Netherlands). Intraexaminer and interexaminer consistency for the IOTN was studied by using double determinations from the dental casts of 20 children with 18 days between investigators (E.A.M. and A.M.K.J.); this was expressed as the kappa reliability coefficient.
Data processing and analysis were carried out with the SPSS statistical package (SPSS, Chicago, Ill). Frequencies and means for various variables were obtained. Factor analysis, $t$ test, multiple regression, and analysis of variance (ANOVA) were used to analyze the data. The 2 questions per intraoral photograph (18 photographs $\times$ 2 questions $= 36$ items) were subjected to principal component analysis, generating 4 factors that were checked by the Cronbach $\alpha$ for reliability. Correlations between various variables including the 4 factors and both the AC and the dental health component (DHC) of the IOTN for the clinically examined children were calculated. A nonparticipation analysis for those who refrained from the clinical oral examination was done by using the $t$ test for independent samples.

**RESULTS**

Of the 400 children who responded to the questionnaire, 14 (3.5%) were excluded from the analyses due to incomplete data. The distribution of the subjects according to age and sex is given in Table I. None of the children had been treated orthodontically. About three quarters—295 (73.8%)—of the children who responded to the questionnaire also agreed to participate in the clinical examination. Twenty-six percent of

Fig. Intraoral frontal photographs used in study.
the children refrained from clinical examination mainly because they did not like the lip retractors used for the intraoral photographs. When a test for independent samples was used to analyze the difference between children with and without clinical data, the only significant difference was age, with older children refraining more often from the clinical examination ($P < .003$).

Table II shows the education and employment status of the children’s parents. About 31% of the mothers had primary education or less. The percentage of parents with university educations was relatively high compared with the general Tanzanian population. More than 60% of the mothers and 75.6% of the fathers had regular jobs.

Both intraexaminer and interexaminer reproducibility for the AC of the IOTN was excellent, with kappa values ranging from 0.82 to 0.99 (SE = 0.13) and 0.66 to 0.82 (SE = 0.13), respectively.25,26 For the DHC of the IOTN, both the intraexaminer and interexaminer reproducibility was almost perfect, with kappa values ranging from 0.71 to 0.81 (SE = 0.12) and 0.90 to 0.91 (SE = 0.09), respectively.

Clinical AC and DHC scores for the children are shown in Table III. According to the AC, about 11% of the children who were examined clinically were found to need orthodontic treatment; more than one quarter of the children fell in the group of moderate/borderline need for orthodontic treatment. A higher proportion of children, 22%, needed orthodontic treatment (grades 4 and 5), according to the DHC. Moderate/borderline treatment need was found in 34% of the children. A definite need for orthodontic treatment was assessed in 11% of the children who had both grades 8-10 of the AC and 4-5 of the DHC.

Table IV shows the frequencies of the questions on subjective need, satisfaction with the arrangement and appearance of the teeth, and the importance of well-aligned teeth important for overall facial appearance.
the high correlation between the AC and the DHC \( r = 0.58 \). The parents’ education and employment variables had no influence on subjective treatment need.

About one fifth of the children were unhappy with the arrangement or the appearance of their teeth (17% and 23%, respectively). The satisfaction with arrangement and appearance of teeth showed a significant correlation with the AC and the DHC of the IOTN, ranging from 0.22 to 0.26 (all \( P < .0001 \)). After correcting for the AC, the correlation with the DHC disappeared. The satisfaction was not correlated with the children’s age or sex and parental education or occupation.

The importance of well-aligned teeth was recognized by 85% of the children (58% rated this very important, and 27% rated it important). This variable was significantly correlated with age \( (r = 0.14, P = .006) \); older children considered well-aligned teeth more important. No significant correlation with other background variables was found.

A principal component analysis generated 4 factors for the respondents’ opinions on the attractiveness of 18 intraoral photographs that could be clearly interpreted, as shown in Table V. The analyses reduced the 36 items (18 photographs \( \times 2 \) questions) to 4 factors: normal occlusion, spacing with overbite \( \leq 2 \) mm or open bite, spacing with overbite \( > 2 \) mm, and severe deviations including crowding. The 4 factors had high reliability coefficients (Cronbach \( \alpha \) ranging from 0.70 to 0.89).

Table VI shows the mean scores for the children’s opinions on attractiveness of the 18 intraoral frontal photographs. Generally, the children considered severe deviations including crowding (factor 4) as unattractive. They generally liked the photographs of normal occlusions (factor 1), and the means of the opinions about spacing with overbite \( \leq 2 \) mm (factor 2) and

### Table V. Factors for respondents’ opinions on 18 intraoral frontal photographs

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
<th>Photographs</th>
<th>Factor loadings in own factor (Range)</th>
<th>Cronbach’s ( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal</td>
<td>1, 2</td>
<td>0.59–0.72</td>
<td>0.87</td>
</tr>
<tr>
<td>2</td>
<td>Spacing with overbite ( \leq 2 ) mm or open bite</td>
<td>12, 13, 14, 15, 16*</td>
<td>0.62–0.70</td>
<td>0.70</td>
</tr>
<tr>
<td>3</td>
<td>Spacing with overbite ( &gt; 2 ) mm</td>
<td>3, 4, 5, 6, 7, 9</td>
<td>0.60–0.79</td>
<td>0.89</td>
</tr>
<tr>
<td>4</td>
<td>Severe deviations including crowding</td>
<td>8, 10, 11, 17, 18</td>
<td>0.50–0.73</td>
<td>0.88</td>
</tr>
</tbody>
</table>

*Photograph showing open bite without spacing having factor loading of 0.42.

### Table VI. Scores for questions about respondents’ opinions on 18 intraoral photographs (higher scores indicate less attractive occlusion)

<table>
<thead>
<tr>
<th>Photograph number</th>
<th>Factor</th>
<th>Attractiveness* Mean ( \pm ) SD</th>
<th>Happiness** Mean ( \pm ) SD</th>
<th>Overall Mean ( \pm ) SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal</td>
<td>2.24 ( \pm ) 1.10</td>
<td>2.40 ( \pm ) 1.19</td>
<td>2.42 ( \pm ) 0.82</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2.42 ( \pm ) 1.08</td>
<td>2.64 ( \pm ) 1.14</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Spacing with overbite ( \leq 2 ) mm</td>
<td>3.34 ( \pm ) 1.07</td>
<td>3.35 ( \pm ) 1.03</td>
<td>3.38 ( \pm ) 0.76</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>2.92 ( \pm ) 1.16</td>
<td>3.02 ( \pm ) 1.13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>3.19 ( \pm ) 1.15</td>
<td>3.27 ( \pm ) 1.14</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>3.57 ( \pm ) 1.00</td>
<td>3.65 ( \pm ) 0.98</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>3.74 ( \pm ) 1.06</td>
<td>3.76 ( \pm ) 1.05</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Spacing with overbite ( &gt; 2 ) mm or open bite</td>
<td>3.43 ( \pm ) 0.98</td>
<td>3.53 ( \pm ) 0.97</td>
<td>3.78 ( \pm ) 0.62</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>3.36 ( \pm ) 1.03</td>
<td>3.42 ( \pm ) 1.03</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>3.80 ( \pm ) 0.94</td>
<td>3.86 ( \pm ) 0.94</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>3.70 ( \pm ) 0.96</td>
<td>3.70 ( \pm ) 1.01</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>4.35 ( \pm ) 0.78</td>
<td>4.26 ( \pm ) 0.89</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>3.98 ( \pm ) 0.82</td>
<td>3.94 ( \pm ) 0.91</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Severe deviations including crowding</td>
<td>3.51 ( \pm ) 1.16</td>
<td>3.54 ( \pm ) 1.18</td>
<td>4.10 ( \pm ) 0.64</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>4.58 ( \pm ) 0.73</td>
<td>4.51 ( \pm ) 0.78</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>3.99 ( \pm ) 0.96</td>
<td>4.01 ( \pm ) 0.95</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>4.45 ( \pm ) 0.78</td>
<td>4.36 ( \pm ) 0.89</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>4.01 ( \pm ) 0.94</td>
<td>4.05 ( \pm ) 0.92</td>
<td></td>
</tr>
</tbody>
</table>

*Scale (1 = very good looking, 2 = good looking, 3 = satisfactory, 4 = not good, and 5 = not good at all)

**Scale (1 = very happy, 2 = happy, 3 = normal, 4 = unhappy, and 5 = very unhappy).
overbite > 2 mm or open bite (factor 3) fell in the middle of the scale with a tendency toward unattractiveness. For the question “would you be happy if the arrangement of your teeth was like this photograph?” the answers were comparable.

ANOVA and regression analyses were applied to explain the attractiveness of the photographs’ sum scores from the background variables—age, sex, AC, DHC, parental education, and parental occupation. Older children tended to dislike severe deviations (including crowding) the most. The parents’ education and employment variables had no statistically significant influence on the children’s opinions of dental attractiveness.

DISCUSSION

In this cross-sectional study, perceptions of orthodontic treatment need and opinions on dental attractiveness among Tanzanian children were evaluated in randomly selected school children aged 9 to 18 years in Dar es Salaam. The study was conducted in public schools, which generally have children from a wide range of social backgrounds. The sample does not represent the whole Tanzanian population of this age group but, rather, gives an overview of the potential Tanzanian orthodontic service consumers in an urban area. The response rate to the questionnaire was 100%, and 96.5% of the returned questionnaires could be used in the data analyses. However, 26% of the children who filled out the questionnaire refrained from the clinical examination because they were uncomfortable with the clinical picture taking. The reasons were teasing by other children when the lip retractors were used, distrust of the future use of the photographs, and HIV precautions. On analyzing the nonparticipating children, it was found that older children tended to refrain more often from clinical examination than younger ones. No other differences were found, so that the nonparticipating subjects did not appear to bias the results of the study. Intraoral photographs were used to judge the dental attractiveness by the respondents. It has been previously shown that dental photographs can be valid representations of dental attractiveness. Furthermore, visual stimuli might be more useful than verbal descriptions in communicating with children.

According to the AC of the IOTN, Tanzanian children had a higher need of treatment than did British and Turkish children (2% and 5%, respectively). The objective need for orthodontic treatment according to the DHC in this study was 22%—similar to that reported for British children, but lower than the 32% to 53% reported by various researchers using the same index in British children and other populations. The only African study using the IOTN reported a lower need for treatment—13%—for Nigerian children aged 12 to 18 years. With regard to the 2 components of the IOTN, 22% of the children needed orthodontic treatment on the basis of the DHC compared with 11% for the AC. A definite need for orthodontic treatment (grades 8-10 of the AC and grade 4-5 of the DHC) was found in 11% of the children; this is close to the reported need among young adults in Finland. The results on objective need for orthodontic treatment in this study provide baseline data for planning orthodontic services in Tanzania.

In the present study, 38% of the children expressed a subjective need for orthodontic treatment. The subjective orthodontic treatment need was related to the objective treatment need (AC and DHC) but was influenced more by the AC than the DHC, indicating that the children in this age group can make objective evaluations of their teeth. On the other hand, 12% of the subjects did not know whether they needed orthodontic treatment. This could be due to the children’s lack of exposure to orthodontics and perhaps language barriers that resulted in misunderstanding the questions. Also, this could be attributed to low frequencies of malocclusion reported among Tanzanian children and inexperience with or unavailability of organized orthodontic care in the country. In earlier studies, it was found that perceived need of orthodontic treatment varies with social and cultural conditions. It has been suggested that the public’s assessment of dental irregularity and perception of psychological and sociological implications of malocclusion become more critical when orthodontic services are readily available. In populations whose general perceived need and use of dental services and orthodontic treatment exposure are low, it is necessary to investigate the perceptual awareness of malocclusion before an orthodontic care system is developed.

Some children were unhappy with both the arrangement (17%) and the appearance (23%) of their teeth, although satisfaction was correlated with their clinical grades of the AC and the DHC. The children who were unhappy with the arrangement and appearance of their teeth had higher clinical scores of the AC. This has also been shown in other studies in which dissatisfaction with dental appearance was generally related to the severity of the occlusal irregularities. This finding underlines the usefulness of the AC when evaluating need for treatment.

Most children (85%) recognized the importance of well-aligned teeth for overall facial appearance. This agrees with a number of authors who suggested that teenagers have developed an oral perceptual aware-
ness. Concern over appearance and facial attractiveness seems to develop during adolescence. The subjects in the present sample might have been well aware of their own physical appearance of which dental appearance is an essential component. It was surprising that sex was unrelated to satisfaction with dental appearance. Earlier studies have shown that girls are more particular in their self-evaluations, are more often dissatisfied with their dental arrangements, and value dental appearance highly. Although our results might reflect cultural and educational differences, other explanations could be that the frequency of malocclusion in the Tanzanian population is low, whereas orthodontic treatment, which can increase orthodontic awareness, is uncommon.

This study indicated that photographs of severe deviations including crowding were perceived as less attractive. The results parallel previous studies with photographs that show crowding. Contrary to these previous reports, in the present study, spacing fell in the middle of the scale with only a tendency toward unattractiveness. The respondents perceived photographs that show crowding as attractive. The results parallel previous studies with photographs of severe deviations including crowding. Although orthodontics is not a well-established oral health discipline in Tanzania, television, films, newspapers, and magazines all provide daily reinforcement for facial stereotypes.

CONCLUSIONS

Tanzanian children with a higher objective need of treatment had also a higher subjective need of treatment and were unhappy with the arrangement and appearance of their teeth. Most children recognized that well-aligned teeth are important for facial appearance. Children perceived severe deviations as the most unattractive, suggesting that, from the children’s point of view, grades 8-10 of the AC and 4-5 of the DHC could be given the first priority when considering a nationwide orthodontic treatment policy in this society with limited resources. More studies involving children from different areas of the country, especially rural settings, are recommended.

REFERENCES

COMMENTARY

Despite the difficulties of conducting this type of study, the authors have provided some important epidemiologic data on objective and subjective orthodontic need in a sample of African students that might be useful to the government of Tanzania, local dental health professionals, and the World Health Organization. The only qualification might be that this sample appears to be from an upper-class group of urban students with relatively educated parents and might therefore be different from the general population of Tanzania. This study also provides further evidence of the often considerable gap between orthodontically defined need and patients’ perceived need for treatment.

Even though the IOTN extends beyond clinically identifiable morphological and functional factors by including the AC, several concerns still remain for this and similar studies that have attempted to relate clinicians’ “objective” assessments to patients’ subjective perceptions.1,2 Except for the quantitative linear, angular, or proportional measurements that can be made objectively by clinician examiners, all other evaluations are qualitative and subjective, whether by clinicians’ or patients’ ratings, rankings, or categorization.

A related problem for this study could be the comparison of the examiners’ evaluations of the AC with the patients’ perceptions using an expanded AC. Both evaluations are subjective, but they apparently were using different criteria. The validity and reliability of these instruments might have been compromised because the clinician examiners used the original 10 photos, but the students were asked to respond to 8 additional photos that reflected specific deviations found in Tanzania. It would be interesting to know more about the responses to the 8 additional photos. Moreover, one can question whether Tanzanian students know what “alignment” or “orthodontic” treatment is.

Worldwide, “orthodontists have struggled with the paradox of diagnosis and treatment being based on morphological considerations, while patient decisions are based on expectation and satisfaction with esthetic outcome and other subjective factors.”3 Only if the clinician and the patient can communicate about expectations of treatment outcome by responding to the same representation of the patient’s facial morphology can the clinician develop an acceptable treatment plan.4

Therefore, a more standardized procedure is needed for relating objective need to subjective demand that can be used for comparisons across sex, age, and ethniccultural group. One psychophysical possibility suggested earlier by Giddon et al,5 which differs from the binary tabulation of perceptions by questions in this article, is to represent the relationship graphically with anthropometric data such as millimeters of overjet on the X-axis and percentages of clinicians or patients responding as attractive or acceptable on the Y-axis to each X increment while holding all other variables constant. The resulting slopes and 50% (point of
subjective equivalence) intercepts can then be used to compare various groups of patients or clinicians. This procedure can also provide the anthropometric bases for other subjective classifications of physical appearance, such as pretty, beautiful, and ugly. Ultimately, a database of subjective or perceived need can be created to complement those based on objective need.

Although the authors contend that their “finding supports the premise that people seem to share a common basis for dental esthetic judgment regardless of nationality, age, sex, or occupation,” there are still some obvious differences from similar studies in Western countries. As pointed out by the authors, diastemata are not of great concern to these Tanzanian students and might be a mark of distinction, perhaps more so in less “Westernized” segments of the population. The correlation of 0.14 between “well-aligned teeth” with age is not impressive, regardless of significance.

Their finding of no apparent sex differences is also striking; this is quite different from Western countries, in which female adolescents are considerably more concerned than males about appearance generally and the orofacial area specifically. This disparity could, however, be due to the relatively lower influence of the Western-dominated media, which emphasize an attractive smile with well-aligned teeth without diastemata.

Finally, these authors provide further evidence that clinicians should be sensitive to cultural differences between what they and their patients consider esthetically pleasing, particularly when the clinicians’ training and cultural background differ from those of their patients.

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REFERENCES