Pattern of intrinsic tooth discolouration in a tertiary health facility in Nigeria

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Abstract

Objectives: This study evaluated the pattern of intrinsic tooth discolouration among patients seeking oral health care in a tertiary hospital in Nigeria. Materials and methods: This was a retrospective study of patients who sought treatment for intrinsic tooth discolouration at the Prof. Ejide Dental Centre of the University of Benin Teaching Hospital, over a 5-year period. Data of interest collated for the study were age, gender, occupation, marital status, discoloured teeth and possible aetiology of tooth discolouration. Results: Intrinsic tooth discolouration was found in 98 cases, however, only 89 had the information sought for the study. There was a female preponderance with majority (74.2%) of the patients having multiple discoloured teeth. The most prevalent etiology observed was enamel hypoplasia followed by tooth discolouration associated with dental trauma. There was statistically significant association between age group of the patients and number of discoloured teeth with a decrease in proportion of those with multiple discolored teeth with increasing age and an increase in proportion of those with single tooth discolouration with increasing age. Aetiology of the discoloured teeth was found to be statistically associated with marital status of the patients, with a higher proportion of patients that were single presenting with pre-eruptive tooth discolouration and a higher proportion of married patients presenting with post-eruptive tooth discolouration. Conclusions: Females presented more for treatment of intrinsic tooth discolouration. Age and marital status were associated with presentation for treatment of intrinsic tooth discolouration.

The perception of tooth appearance in modern society could influence the changes in patients' needs. Lately in developed countries and modern world, there seems to be more attention to aesthetics than function. 1 A study in the United Kingdom observed that the general public is concerned about their dental appearance in terms of tooth colour, hence, a relatively mildly discoloured dentition is a cause for concern. Tooth discolouration poses an aesthetic problem that can be associated with a variety of causes and it could be a source of embarrassment, leading to low self-esteem. 2 The colour of teeth varies from white to creamish yellow. 3 However, a lot of people desire white teeth, which show that tooth colour is a very important factor in determining patients' satisfaction with dental appearance. 4 Meeting patients' aesthetic demands form an important part of dental practice. Most often than not, patients' quest for pleasant appearance of the teeth usually results from anxiety and low self-esteem caused by tooth discolouration.

Pain is a major reason for seeking dental treatment in our environment, 5 however, patients do present with tooth discolouration which could be a precursor or sequela to pain. Tooth discolouration is an aesthetic problem which varies in aetiology, presentation and severity. 6,7 Broadly, tooth discolouration could be intrinsic or extrinsic. Intrinsic discoloration can be pre- or post-eruption of teeth into the oral cavity. Pre-eruptive causes of tooth discolouration include tetracycline stains, hypoplasia and fluorosis while post eruptive tooth discolouration include among other things, pulpal necrosis following trauma majorly and also yellowish discolouration due to aging. 8 Studies on tooth discolouration in Nigeria have assessed different aspects of tooth discolouration. Koleoso et al. 7 evaluated intrinsic tooth discolouration among 11-16-year old children, Sede 9 studied cases of tetracycline staining and Ibiyemi and Taiwo 10 assessed the psychosocial aspect of tooth discoloration. There is paucity of knowledge on pattern of discoloration among patients who seek treatment, hence, the objective of this study, was to evaluate the pattern of intrinsic tooth discoloration among patients seeking oral health care in a tertiary hospital in Nigeria.

Materials and methods

This was a retrospective study of patients who sought treatment for intrinsic tooth discolouration at the Prof. Ejide Dental Centre of the University of Benin Teaching Hospital over a 5-year period (2006-2011). All newly registered case notes over the study period were assessed. All those who had a diagnosis of tooth discolouration were retrieved and those with intrinsic tooth discolouration were used in the study.
Data of interest collated for the study were age, gender, occupation, marital status, reason for seeking treatment, discoloured teeth and possible aetiology of tooth discoloration. The aetiology was classified into post and pre-eruptive tooth discoloration. 

Data collected was analysed using the Statistical Package for Social Science (SPSS) version 21.0. The data was subjected to descriptive analysis in the form of frequencies, percentages, cross tabulations, mean and standard deviation. Chi squared was used to determine association between variables with p set at 0.05.

Results

Intrinsic tooth discoloration was found in 98 cases and these were retrieved for the study. However only 89 had the required information for the study. Table I shows that there was a female preponderance with females accounting for 61.8%; majority (71.9%) were dependent and 78.9% were single. The patients’ ages ranged from 2 to 70 years with a mean age of 25.31±11.67 years. Majority (68.5%) were within the 3rd and 4th decades of life.

The number of discoloured teeth ranged from 1 to 30 among the patients with a mean of 7.34±7.8 teeth. Majority (74.2%) of the patients had multiple discoloured teeth (Fig. 1) with both anterior and posterior teeth involved in 41.6% of the cases. Only anterior teeth were involved in 37.1% of cases while only posterior teeth involved in 21.3% of cases.

Various aetiologies were associated with tooth discoloration among the patients. The most prevalent etiology observed was enamel hypoplasia accounting for 73.0%. Tooth discoloration associated with dental trauma was found in 22.5% of the cases. Tetracycline-induced tooth discoloration and fluorosis were the least prevalent accounting for 3.4% and 1.1% respectively.

Table II depicts a statistically significant association between age group of the patients and number of discoloured teeth with a decrease in proportion of those with multiple discoloured teeth with increasing age and an increase in proportion of those with single tooth discolouration with increasing age. A greater proportion (71.4%) of patients over 40 years of age presented with a single discoloured tooth and almost all (95.2%) of those below 20 years of age presented with multiple discoloured teeth. However, there was no statistically significant association between gender, occupation as well as marital status and the number of discoloured teeth.

Aetiology of the discoloured teeth was found to be statistically associated with marital status of the patients (Table III), with a higher proportion of patients that were single having pre-eruptive tooth discoloration and a higher proportion of married patients having post-eruptive tooth discoloration (p=0.02). There was a decrease in proportion of cases with pre-eruptive tooth discoloration with increasing age and an increase in proportion of cases with post-eruptive tooth discoloration with increasing age, however this was not statistically significant (p=0.15).

There was statistically significant association between types of discoloured teeth, whether the patient had single discolored tooth or multiple discoloured teeth and etiology of the discoloration (Table IV).

Discussion

The dentition and how it looks is of great interest to a large group of people seeking dental care with the tooth color particularly of aesthetic importance. It is believed that young adults are more critical and more conscious about their appearance probably due to peer pressure; hence this study recorded the largest proportion of respondents within the 3rd and 4th decades of life with a mean age of 25.31±11.67 years. Society tends to put pressure on the female gender to have acceptable aesthetics for several reasons, this may have led

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Table IV: Association between teeth, number of teeth and etiology of tooth discoloration

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Pre-eruptive n (%)</th>
<th>Post-eruptive n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discoloured teeth</td>
<td>P&lt;0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anterior teeth only</td>
<td>13 (39.4)</td>
<td>20 (60.6)</td>
<td>33 (100)</td>
</tr>
<tr>
<td>Posterior teeth only</td>
<td>19 (100)</td>
<td>0 (0)</td>
<td>19 (100)</td>
</tr>
<tr>
<td>Both anterior and posterior teeth</td>
<td>37 (100)</td>
<td>0 (0)</td>
<td>37 (100)</td>
</tr>
<tr>
<td>Number of discoloured teeth</td>
<td>P&lt;0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single tooth</td>
<td>9 (29.1)</td>
<td>14 (60.9)</td>
<td>23 (100)</td>
</tr>
<tr>
<td>Multiple teeth</td>
<td>60 (90.9)</td>
<td>6 (91)</td>
<td>66 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>69 (100)</td>
<td>20 (22.5)</td>
<td>89 (100)</td>
</tr>
</tbody>
</table>

Figure 1: Distribution of discoloured teeth

more females to seek treatment for tooth discoloration as observed in this study.

Multiple teeth discoloration could be a serious source of concern and draw unwarranted attention when a person smiles, hence most of the patients presented with multiple tooth discoloration for treatment. Furthermore, anterior teeth discolorations were more compared to posterior teeth. The anterior teeth are more visible than the posterior teeth so any discoloration may seem unpleasant, motivating people to seek treatment. This is in keeping with a study by Ibiyemi and Taiwo who reported a similar finding. Likewise in another study, anterior tooth discoloration was one of the most frequent reasons for seeking dental treatment.

The majority of tooth discolorations were due to enamel hypoplasia showing that enamel hypoplasia is a significant factor when considering tooth discoloration. This is in agreement with what was reported by Ibiyemi and Taiwo. However, Shakereah and Ajayi reported pulp necrosis as the major cause of tooth discoloration. Tetracycline induced tooth discoloration and fluorosis were the least causes of tooth discolouration. The prevalence of tetracycline induced discoloration observed in this study is comparable to that documented by Sede as well as reports in Madrid. However, a Norwegian study reported a much less prevalence of tetracycline-induced tooth discoloration. The prevalence of fluorosis observed in this study is slightly higher than that reported by Shakereah and Ajayi, Mahmoodian et al as well as Khozeimeh et al.

Attention should be paid to pre-eruptive causes of tooth discoloration with the aim of preventing such disturbances during the tooth formative years. Patients who tend to seek treatment for tooth discoloration are affected by various factors. Age and number of teeth discoloured tend to play a role as a greater proportion of patients over 40 years of age presented with single tooth discolorations while those below 20 years of age presented with multiple tooth discolorations. Most patients over 40 years of age who in their early years did not have any discoloured tooth and suddenly have a discoloured tooth will be worried and seek treatment to correct such anomalies.

Conclusions

Treatment for tooth discoloration is desired by patients with pre-eruptive tooth discoloration affecting multiple teeth and post-eruptive tooth discoloration affecting a single tooth most times. When persons over 40 years of age suddenly have a discoloured tooth, they tend to seek treatment.

References


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