

# WEST AFRICAN JOURNAL OF ORTHODONTICS

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**Space closure with active-tieback  
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**Dental calcification and cervical  
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**Psychological impact of  
malocclusion**



# Psychological Impact of Malocclusion: A Case Report

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## *Abstract*

A 35-year-old female patient presented to the clinic with an account of dissatisfaction with her protruding upper anterior teeth. She had serious psychological issues while in secondary school due to constant verbal abuse from her mother and her schoolmates resulting in her attempt to cut her tooth with a knife. On examination, there was a traumatic dental injury running horizontally across the upper right central incisors. The patient's personality was assessed using the Big 5 personality test.

**Keywords:** Psychological Impact, Malocclusion, Traumatic Dental Injury

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## **Introduction**

Malocclusions are highly prevalent and they have a profound effect on the quality of life. It is common for individuals to associate difficulty in a relationship, or loss of a job with malocclusion<sup>1</sup>. Individuals with attractive physical characteristics make a better impression on others and obtain more privileges due to their appearance<sup>2</sup>. Indeed, orthodontic treatment is generally associated with gains in quality of life due to improvements in physical, social, and psychosocial aspects.<sup>3</sup>

## **Presenting Complaint**

A 35-year-old female patient presented to a government-owned Orthodontic clinic in Ilorin,

Kwara, Nigeria with the chief complaints of dissatisfaction with her protruding upper anterior teeth.

## **Medical and Dental History**

No medical history of clinical importance, but dental history revealed a history of self-inflicted traumatic injury to the upper right central incisors. She had serious psychological issues while in secondary school due to constant verbal abuse from her mother and her schoolmates. She was 15 years of age when she attempted to use a knife to cut off her upper right central incisors following an altercation with her classmate who insulted her and said her teeth were like a digger. Her mother had also on different occasions called her the same name. Out of frustration, she made an unsuccessful attempt of cutting up the teeth with a knife. She traumatized the tooth leaving an injury that extends to the dentine with the resultant sensitivity of the tooth to air and water. She was seen and addressed both at home and in public as the girl with the digger teeth.

The patient believes her proclined incisors was a contributory factor to some romantic relationship

loss. She claimed she lost many relationships that could have led to marriage as the men claimed she was beautiful except for her teeth. They eventually ended the relationship with her. She however didn't know of the possibility of an orthodontic correction until she was in the university and had since then vowed to have the treatment done as soon as she is financially buoyant. Due to her present poor financial state, she has been unable to commence treatment.

## Diagnosis

### Clinical Assessment

External finding: Examination showed protruding upper jaw. The lips are potentially competent with

vertical maxillary excess. Skeletal assessment is pattern II.

Intraoral finding: - Examination showed full complement of permanent dentition. Angle's class II malocclusion is complicated by increased overjet 14mm & 11mm, deep and complete bite, severe upper anterior spacing 11mm, mild lower anterior spacing 2.5mm, lower midline shift to the Rt (2mm), increased upper and lower incisal angle, constriction of upper and lower jaw anteriorly and traumatic dental injury on the upper right central incisors. (Fig. 1)



Traumatic injury on the upper right central incisor

**Fig 1 (A-H) Facial and intraoral photograph**

## Radiographic Evaluation

Intra-oral periapical radiograph of the upper incisors shows horizontal bone loss and radiolucency at the apex of the centrals. There is also coronal radiolucency with pulpal communication (fig 2)

**The Patient whose case we reported had her Personality assessed using the Big 5 personality test.**

The scores are between 0 and 40.



**Table 1**

Traits	Score	Comment
Extroversion (E)	18	This is the personality trait of seeking fulfilment from sources outside the self or in the community. The patient Scored 18/40. A low score means patient tends to work on their projects alone.
Agreeableness (A)	33	High scorers are typically polite and adjust their behaviour to suit others
Conscientiousness (C)	36	High scorers tend to follow rules.
Neuroticism (N)	9	A low score shows the patient is confident
Openness to Experience (O)	28	High scores may daydream a lot, while low scorers may be very down to earth

She had high scores on agreeableness and conscientiousness which may indicate a personality that may want to please others; if people say my teeth are like diggers then let me cut them off. She wants to take charge and deal with the problem. Her low score on Neuroticism shows her confidence in wanting to solve the problem instead of becoming moody and

resorting to self-pity.

### Treatment Objectives

1. To restore traumatized maxillary central incisor
2. Periodontal therapy of upper anterior teeth
3. To create a satisfactory occlusion correcting

the class II molar relationship to a class I molar relationship

4. To correct the increased overjet
5. To correct the deep bite
6. To close up the spaces
7. To correct the rotations

### Treatment Alternatives

1. Restorative and periodontal treatment followed by upper and lower fixed appliance therapy non-extraction.
2. Restorative and periodontal treatment followed by upper and upper fixed appliance therapy with 2-unit extraction.

Treatment could not be carried out on the patient whose case we have reported due to financial constraints.

### Discussion

In today's world perfect white straight teeth are seen as a social standard. People are accorded respect based on the appearance of the teeth or deviation of their teeth from normal<sup>4</sup>

Severe malocclusion is almost always a hindrance, people with protruding upper incisors are likened to idiots and a prognathic lower jaw is always used in the description of a "witch". In all, well-aligned teeth always carry and infer a positive status to the possessor, and not so well-aligned teeth or other dentofacial deformities and malocclusions have a negative impact<sup>4</sup>

Hadam et al concluded that around 40% of patients requesting orthodontic treatment had been made fun of due to the appearance of their teeth, whereas there was no association between the degree of need for orthodontic treatment and the need perceived by the patients themselves<sup>5</sup>. This implies patient's perceived need is increased due to taunting from other people about their appearance.

Multiple studies have shown an association between malocclusion and a greater psychosocial impact as the condition worsened<sup>6-9</sup> revealing also that a

correction of the malocclusion improved psychosocial impact results and the impact decreased after orthodontic treatment.

The objective of the patients that undergo orthodontic treatment is to improve their dentofacial aesthetics to enhance their self-esteem and to feel socially accepted according to Kiekens et al.<sup>10</sup>

Some studies found a significant correlation between lower self-esteem and malocclusion and the improvement of self-esteem as a result of orthodontic treatment<sup>11-12</sup>, but Kiyak reported that orthodontic intervention did not significantly affect self-esteem.<sup>13</sup>

In a study titled "The emotional effects of malocclusion among Nigeria orthodontic patients" by Onyeano, Utomi et al<sup>14</sup>, 27% of the subject were depressed the first time they noticed their malocclusion, and 55% of them felt the malocclusion negatively affected their general facial appearance. According to Ernest M.A et al<sup>15</sup> in an article on the Perception of facial attractiveness among a young Nigerian Population, the most important facial feature the subjects in the study wanted to change was their teeth, however, concerning important features that make facial attractiveness, the teeth ranked second.

The mental effect of malocclusion can affect a patient's lifestyle and the day-to-day interactions of individuals with malocclusion. Different results of psychosocial attractiveness research suggest that the perception of one's physical appearance is often associated with concerns about other people's reactions and a negative body concept<sup>16</sup>

It has been shown, for instance, that minor dental aesthetic impairment in young adults was associated with social apprehension, appearance disapproval, and appearance-related insecurity<sup>17</sup>

This is in accordance with what our patient experienced in school and at home, prompting her to self-harm. This is in agreement with the study by A. N. Anosike et al<sup>18</sup>.

Also, previous studies showed that the appearance of teeth was found to be very significant for young women<sup>19</sup>. An association between teeth appearance satisfaction and gender has been consistent in the literature, with some studies reporting a higher concern in women<sup>20</sup>

## Conclusion

The psychological effect of malocclusion is significant and is associated with appearance dissatisfaction and body mutilation. There is an urgent need for increased Orthodontic awareness creation in the population as this patient was unaware of Orthodontic treatment and so sought self-help.

Professional counselling must be considered for individuals with handicapping malocclusion to address their psychological needs.

Treatment could not be carried out on the patient whose case we have reported due to financial constraints. Due to the economic downturn post-Covid, a lot of patients cannot afford it. Orthodontic

care because of competing family needs and the dwindling national economy with resulting high inflation. Patients like these can benefit from the Nigeria Association of Orthodontists establishing free orthodontic services for such special cases. Financial plans for instalment monthly payments like the Carbon Zero financial plan should be made more accessible to the public so more clients can assess orthodontic treatment.

**Authors contribution:** All the authors were involved in the study.

**Conflict of interest:** None declared

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  16. Keep in the background.
  17. Sympathize with others' feelings.
  18. Make a mess of things.
  19. Seldom feel blue
  20. I'm not interested in abstract ideas.
  21. Start conversations.
  22. I'm not interested in other people's problems.
  23. Get chores done right away.
  24. I'm easily disturbed.
  25. Have excellent ideas.
  26. Have little to say.
  27. Often forget to put things back in their proper place
  28. Have a soft heart.
  29. Get upset easily.
  30. Do not have a good imagination.
  31. Talk to a lot of different people at parties.
  32. I'm not really interested in others
  33. Like order.
  34. Change my mood a lot.
  35. I'm quick to understand things
  36. Don't like to draw attention to myself
  37. Take time out for others
  38. Shirk my duties
  39. Have frequent mood swings.
  40. Use difficult words.
  41. Don't mind being the centre of attention
  42. Feel others' emotions
  43. Follow a schedule.
  44. Get irritated easily.
  45. Spend time reflecting on things.
  46. I'm quiet around strangers
  47. Make people feel at ease.
  48. I'm exacting in my work
  49. Often feel blue
  50. I'm full of ideas

## Appendix:

### Instructions

In the table below, for each statement 1-50 mark how much you agree with on a scale of 1-5, where

1=disagree, 2=slightly disagree, 3=neutral,  
4=slightly agree and 5=agree

1. I'm the life of the party.
2. Feel little concern for others.
3. I'm always prepared.
4. Get stressed out easily
5. Have a rich vocabulary
6. Don't talk a lot.
7. I'm interested in people.
8. Leave my belongings around
9. I'm relaxed most of the time.
10. Have difficulty understanding abstract ideas.
11. Feel comfortable around people.
12. Insult people.
13. Pay attention to details.
14. Worry about things.
15. Have a vivid imagination.

# Instructions for Authors

West African Journal of Orthodontics is a peer-reviewed journal published by affiliated Orthodontic Groups and Associations in the West African Sub region. The journal gives priority to reports of outstanding clinical and experimental and epidemiological works on malocclusion, dento-facial defects as well as important contributions related to common orthodontic problems in children, adolescents and adults worldwide.

## Submission

Manuscripts and registered letters should be sent to: the Editor, West African Journal of Orthodontics, Department of Child Dental Health, Faculty of Dentistry, College of Health Sciences Obafemi Awolowo University, Ile-Ife, Osun State. Nigeria.

Manuscripts in MS word attachments may also be submitted via Email to [wajoeditorinchief@yahoo.com](mailto:wajoeditorinchief@yahoo.com), in addition to hard copies. Tables, figures and text should be included in the same file if possible. Authors may submit their research works by email only; such manuscripts need not be simultaneously sent by post.

However, photographs and/or figures need to be sent separately as hard copy (under figures and illustrations).

## Acceptance

Manuscripts should meet the following criteria: original material, clear writing, appropriate study methods, valid data, and reasonable conclusions supported by the data, in short, they should contain important information on topic of general orthodontic interest.

## Peer-review Process

All the manuscripts that adhere to its style and Instructions for Authors are referred to peer-review. Some of them are rejected immediately after an inhouse review. The rejection at this stage is due to insufficient originality, serious scientific flaws or absence of message. The remaining articles are sent to at least two reviewers who are experts in the subject. Manuscripts are reviewed with due respect for authors' confidentiality, and the identity of peer reviewers is also kept confidential. A decision is made from 6 to 12

weeks according to the response from reviewers, revision by the author(s) and reappraisal on the revision.

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Manuscripts should be prepared in accordance with the Uniform Requirements for Manuscripts submitted to Biomedical Journals. 2 A summary of technical requirements for preparing the manuscript is provided below:

- Three copies of the manuscript should be submitted.
- Use 1 side of standard size 21.6x27.9 cm A4, white bond paper, with margins of at least 2.5 cm on each side.
- Double-space throughout including title page, abstract, text, acknowledgements, references, tables and figure legends. Start each of these sections (in same order) on a new page, numbered consecutively in the upper right hand corner, beginning with the title page.
- Use at least 12 point font size (Times New Roman or Arial).
- Submit photographs and transparencies in a separate heavy paper envelope (enclosed in cardboard, to prevent bending during mail handling).
- Conventional units are preferred with SI units in parenthesis, if available. The metric system is preferred for the expression of length, area, mass and volume.
- Use nonproprietary names of material rugs, devices and other products.
- All manuscripts should be accompanied by a signed statement by all authors regarding authorship, responsibility, financial disclosure and acknowledgements, as per standard format (Appendix J)[23 1 Those sending their manuscript through email are also required to submit this form by post with original signatures.

Manuscripts not fulfilling the technical requirements shall be returned to the authors without initiating the peer-review process.

### **Title Page**

The page should contain (i) the title of the article: which should be concise but informative (simpler the title the better; preferably it should contain all the key words to help electronic retrieval reliably); (ii) a short

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All persons designated as authors should qualify for the authorship. Authorship credit should be based on substantial contributions to (i) concept and design, or acquisition of data, or analysis and interpretation of data; (ii) drafting the article or revising it critically for important intellectual content; and (iii) final approval of the version to be published. Conditions 1, 2 and 3 must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. All such people who contributed to the work but do not satisfy all the conditions should be listed in the acknowledgements.

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### **Competing Interest**

Competing interest for a given manuscript exists when the author has ties to activities that could inappropriately influence his or her judgment, whether or not judgment is in fact affected. Financial relationships with industry for example, through employment, consultancies, stock ownership, honoraria, expert testimony, either directly or through immediate family, are usually considered to be the most important competing interests. However, conflicts can

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## **Original Article**

Original articles should report original research relevant to basic and clinical orthodontics including randomized trials, intervention studies, studies of screening and diagnostic tests, cohort studies, cost effectiveness analyses and case control studies. While reporting randomized controlled trials (RCT), authors must attempt to be in conformity with the consolidated standards of reporting trial.

## **(CONSORT) statements**

Each manuscript should be accompanied with a structured abstract (divided into background, methods, results and conclusions) in no more than 250 words. Four to five key words to facilitate indexing should be provided in alphabetical order along with the abstract. The text should be divided in sections on introduction, methods, results, discussion and conclusion.

Acknowledgment section may be included where necessary. Number of tables and figures should be limited to the very relevant ones and may be compressed if necessary. The typical text length for such contributions is 2500-3 500 words (excluding title page, abstract, tables, figures, acknowledgments and references).

## **Brief Report**

Short accounts of original studies are published as brief reports. The text should be divided into sections, i.e., abstract, introduction, methods, results and discussion.

Abstract should be of 100-150 words highlighting the aims, methods and main results along with 3-4 key words.

The text should contain no more than 1500 words, 3 illustrations or tables and up to 20 references, preferably recent publications.

## **Review Article**

State-of-the-art review articles or systematic, critical assessments of literature are also published. Normally a review article on a subject already published in the West African Journal of Orthodontics is not accepted for a period of 3 years.

The typical length for review articles is 2000-3000 words, excluding tables, figures, and references.

Authors submitting review manuscripts should include a structured abstract of around 200 words describing the need and purpose of review, methods used for selection, extraction and synthesis of data, and main conclusions.

Clinical cases highlighting uncommon malocclusion condition, orthodontic treatment techniques are published as case reports. Single case reports are usually not accepted, unless some new or unusual aspect regarding aetiopathogenesis, diagnosis or management is brought out that adds to the existing body of knowledge. The text should not exceed 1000 words and is divided into sections, i.e., abstract, introduction, case report and discussion. The number of tables/figures should be limited to 2. Ten recent references are acceptable. A maximum of 3 or 1 author is permitted from the principle and each of the associated departments respectively. Thus, case reports from only one investigative department can have a maximum of 3 authors.

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Letters commenting upon a recent article in the West African Journal of Orthodontics are welcome.

Such letters should be received within 6 months of the article's publication. At the editorial board's discretion, a letter may be sent to authors! experts for comments and both letter and reply may be published together. Letters may also relate to other topics of interest to orthodontists and others, and/or useful clinical observations. Letters should not be more than 400 words. The number of authors should not exceed 2, including the authors' reply in response to a letter commenting upon an article published in this journal.

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A short text of about 150 words depicting the condition with color photographs (vide infra) is needed.

Normally only clinical photographs are accepted but accompanying skiagrams or pathological images could also be considered for publication.

Photographs should be of high quality, clearly identify the condition and preferably add to the existing knowledge.

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Such articles are published on topical orthodontic issues including social aspects. It is expected that the authors have sufficient credible experience on the subject for giving viewpoints. These should not exceed 1500 words.

## **Notes, News and Events of Interest**

Announcements for conferences, symposia, meetings or courses may be sent for publication in advance. The announcements should provide title, date(s) and place of the event and contact address, telephone, and email

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The second page should carry an abstract in case of original article (250 words), review article (200 words), brief report (100-150 words), and case report (50 words), respectively. For original article and reviews, the abstract should be structured as detailed earlier. For brief reports, the abstract should state the purpose of the study, basic methodology, main findings (giving specific data and statistical significance) and key conclusion(s). Below the abstract, authors should provide 3-5 key words for indexing; terms from the Medical Subject Headings (MESH) list of Index Medicus should be used. The basic structure of a paper follows the well known acronym IMRAD, which stands for Introduction (what questions was asked), Methods (how was it studied), Results (what was found) and Discussion<sup>4</sup>.

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The introduction must clearly state the question that the author(s) tried to answer in the study. It may be necessary to briefly review the relevant literature.

Only cite those references that are essential to justify the proposed study.

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The methods section should describe, in a logical sequence, how the study was designed (e.g., how randomization was done), carried out (e.g., how subjects were chosen or excluded, ethical considerations, accurate details of materials used, exact drug dosage and form of treatment, etc.) and data were analyzed (e.g., an estimate of the power of the study, exact test used for statistical analysis, etc.).

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Discussion ordinarily should not be more than one third of the total length of the manuscript. This section should include a summary of the major findings, their relationship to other similar studies, limitations of methods and implications of these findings in future research. Conclusions should be linked to the goals of the study. Unqualified statements and conclusions which are not completely supported by the data should be avoided. Authors should also refrain from making statements on economic benefits and costs unless their manuscript includes economic data and analyses.

## Acknowledgements

In acknowledgements section, it is suitable to list all contributors who do not meet the criteria for authorship, such as a person who provided purely technical help, writing assistance, or a department head who provided only general support. Financial and material support should also be acknowledged.

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## Journal Article

List all authors when 6 or less. When 7 or more, list only first six and add et al. Ngan P, Yiu C, Hu A, Hagg U, Ei SHY, Gunel E. Cephalometric and occlusal changes following maxillary expansion and protraction. *Eur J Orthod* 1998; 20: 237-254.

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### **Material from Internet**

World Health Organization, 2002.  
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Each table should be typed in double-space on a separate sheet of paper. Tables not submitted as photographs must be numbered consecutively (Arabic numerals) in the order of their first citation in the text, with a brief but self explanatory title for each.

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