

When is the smile categorized as an orthodontic smile? Highlight of a new conceptualization

Abstract

Objective: Pioneering studies were conducted at a Dental University Clinic, focusing on the mental representation of the smile in patients with orthodontic braces. This brief communication presents the final findings from several studies that emphasize the significance of self-perception of the mouth and smile in shaping self-image and well-being across children, adolescents, and adults. Drawing was employed as a projective tool and graphic recording method, within the framework of a highly empirically relevant methodology.

Methods: The sample was composed of two groups of patients of feminine and masculine gender, G1 - children and young people (8-24 Y) and G2 - Adults (25-59 Y), who underwent treatment with orthodontic appliances at the Orthodontic consultation. Participants were invited to draw two drawings of their mouth/smile based on the following questions: "What was your mouth like before you got braces?" (M1); and "What do you think your mouth will look like when you remove your braces?" (M2). The content analysis of all drawings made was carried out using a grid composed of analytical categories and subcategories. A sociodemographic questionnaire was also carried out, with the question, "Why do you wear orthodontic braces?"

Results: Differences were found in the scope of the mental representation of the mouth and smile, and of expression of smile emotions.

Conclusion: The results suggest that *functional* are the main reason for young people (children and adolescents) seeking orthodontic treatment, while adult participants appear to be motivated by *aesthetic* reasons.

Keywords: orthodontic smile, mental representation of smile, orthodontic treatment, children and adolescents, adulthood.

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Introduction

Over the past five years, pioneering studies have been conducted at a Dental University Clinic, focusing on the mental representation of the smile in patients wearing orthodontic appliances. These studies have resulted in the development of a new framework for categorizing the ideal smile: the **Orthodontic Smile**.¹⁻⁵ Understanding the significance, value, and impact of the smile on an individual's self-image and daily life remains an area of high scientific interest.⁶⁻⁹

There is, however, a shortage of empirical studies that address the relationship between malocclusion and the self-perception of the mouth and smile, and how these elements contribute to the mental representation of one's facial self-image.¹⁻⁴ This is the primary focus of the present brief communication.

The use of the "pictorial drawing" instrument as a methodological tool for qualitative research, specifically within content analysis grids, has been widely adopted in Health Sciences research projects.^{3,5,8,10}

To ensure objectivity in the task assigned to participants, they were instructed to focus their drawings exclusively on the mouth and smile, excluding other parts of the face. This approach was designed to minimize the inclination to depict the entire face and to centre the empirical analysis specifically on the smile.^{3,9,10}

The purpose of this short communication is to highlight the significance of self-perception of the mouth and smile in the mental representation of self-image and overall well-being among children,

adolescents, and adults. The use of drawing as a qualitative projective technique serves as a valuable graphic record with high empirical relevance.^{1-4,6-8}

Materials and methods

Several studies on the mental representation of the Orthodontic Smile carried out in a Dental University Clinic and published between 2018 and 2023 for this research Team.^{1-7,10}

Patients of feminine and masculine genders aged 8-24 years (children and adolescents) and 25-59 years (adults), who used orthodontic appliance, were invited to produce two drawings of their mouth/smile based on the following questions: "What was your mouth like before you had the orthodontic appliance?" (Moment 1- M1); and "How do you think your mouth will be when you remove the orthodontic appliance" (Moment 2- M2).

The content analysis of all the drawings was performed using a grid consisting of analytical categories and subcategories. In addition, all participants answered a socio-demographic inquiry and provided a written answer to the question: "Why do you use an orthodontic appliance?" which content analysis was also done.^{1-4,6-8}

Results/discussion

The results point to differences in the mental representation of mouth and the smile, before and after the use of the orthodontic appliance, as well as in the expressiveness and manifestation of emotions.^{1,4}

After the use of the orthodontic appliance (M2), children and adolescents draw well-positioned and straight teeth, revealing the correction of crooked teeth, diastemas, and fractures as main reasons for orthodontic treatment (Figure 1).

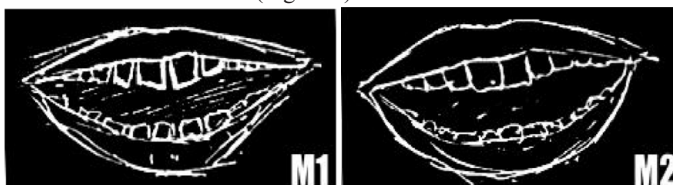


Figure 1 Example of drawings - presence of diastemas in M1 and absence of diastemas in M2 – orthodontic smile – children and adolescents.

Whereas, in adult subjects we can see more detailed drawings with more aligned teeth and no diastemas (Figure 2).

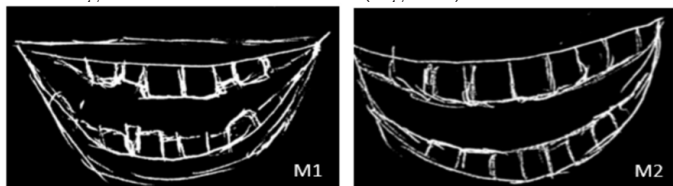


Figure 2 Representative percepts (Drawings) of the smile before (M1) and after (M2) the use of orthodontic appliance – aesthetic smile.

According to the results obtained, the main reason that leads younger participants to orthodontic treatment is related to functional questions - conceptualizing the category of *Orthodontic Smile*,^{1-4,6-8} while aesthetic motives seem to be the true motivational leverages for the subjects in adulthood when they decide to seek orthodontic care.³

These findings add to our understanding of the role that the mouth and smile play for the face, in a person's sense of *Self* and *Psychological Health*.

Conclusion

Evidence suggests that the primary motivation for **younger participants** (children and adolescents) to seek orthodontic treatment is related to **functional issues**, while **adult patients** are primarily driven by **aesthetic considerations**. When children and adolescents underwent orthodontic treatment, they appeared to associate the concept of a smile with the social display of healthy, well-aligned teeth-the so-called “**orthodontic smile**”, which has emerged as a **new conceptualization of the Perfect Smile**. In this context, the orthodontic smile (representing a healthy, well-functioning smile) was valued more highly than the purely aesthetic ideal of the perfect smile.

Orthodontic treatment contributes to an improved smile and a more attractive profile, reinforcing the conclusion that adult patients prioritize aesthetic concerns over functional ones.

Clinical significance

The Smile category was associated, in young participants with perfect and healthy teeth - *Perfect Smile* - giving rise to a new conceptualization - *Orthodontic Smile* - conceptualized as healthy and functional. For adults, orthodontic treatment seems to contribute to a more attractive smile, prioritizing *aesthetic* issues over *functional* ones.

Credit author statement

Maria do Rosário Dias and Ana Cristina Neves: Investigation, Planning, Methodology Development, Analysis of Results, Writing,

Maria do Rosário Dias: Conceptualization, Supervision, Project administration.

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Informed consent

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Conflict of interests

The authors declare that there are no conflicts of interest.

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