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Proceeding Paper

The Impact of Incisor Molar Hypomineralisation in a Paediatric Population †

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Abstract: Incisor Molar Hypomineralisation (IMH) is a qualitative alteration affecting one or more first permanent molars (FMPs) with the possible involvement of the permanent incisors, and is associated with several dental complications. The aim of this study was to assess the impact of IMH on the quality of life (QoL) of children/adolescents. A total of 56 children attending the Egas MonizDental Clinic (EMDC) were enrolled, 27 females and 29 males, and the most common age was 11 years. Most of them had a mild or moderate degree of IMH. The impact of IMH on the children's quality of life was not significant.

Keywords: Molar-incisor hypomineralisation; perception; impact; quality of life

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1. Introduction

In the late 1970s, opacities in the FMPs and, in more severe cases, enamel fragmentation were observed and analysed for the first time [1,2]. The term "Incisor Molar Hypomineralisation (IMH)" [3] was first introduced in Bergen at the European Academy of Paediatric Dentistry (EAPD) in 2000 [2,4,5]. The Academy defined IMH as a specific clinical condition, a qualitative defect arising during enamel development, with a systemic and multifactorial origin and affecting one or more FMPs, with possible involvement of the permanent incisors. IMH is associated with several dental complications, such as the rapid development of carious lesions, a loss of structure, poor restorations due to difficult adhesion of the restorative material and hypersensitivity [6,7]. Additionally, affected teeth are more sensitive to temperature and mechanical stimuli. In more severe cases, these stimuli even cause pain that can negatively affect the simplest activities of daily living, like brushing or eating [6]. Finally, there are negative social and aesthetic consequences when incisors are affected [6,7]. Today, it is a highly prevalent defect worldwide, with a global estimate of 17.5 million new cases each year [3], and no difference between men and women [8]. Dentists are faced with a challenging approach for patients with IMH because they are required to overcome the technical challenges associated with the intrinsic characteristics of hypomineralized enamel, and IMH is recognized as a potential public health problem worldwide.

2. Materials and Methods

The sample consisted of children with IMH attending the EMDC between January and May 2022. Participants were selected based on the following inclusion criteria: individuals attending the EMDC with at least one FPM affected by IMH; individuals with ages between 11 and 18 years; patients with no known medical pathologies; and informed consent, free, explained, and signed by the parent or legal guardian. The identification of IMH was based on the criteria established by the EAPD in 2003: white, yellow or brownish spots, mainly

in the occlusal and vestibular areas of the tooth surface in at least one of the four PMPs; disintegrated enamel; atypical restorations; and tooth sensitivity and extractions. The questionnaire for the study was designed by the authors and divided into two parts, the first addressed to the child/adolescent and the second to the parent/guardian. The data were then stored in a password-protected remote access database and anonymized, in accordance with the authorization granted to the EMDC database by the National Data Protection Commission. In the second phase of the study, the data were subjected to descriptive and inferential statistical analysis in the second phase of the study; a significance level of 5% was set in the latter case. The study was approved by Egas Moniz Ethics Committee.

3. Results

A total of 56 children were enrolled, 27 females and 29 males (Table 1).

Table 1. Distribution of frequencies and percentages of individuals in the sample by gender.

Gender	Frequency (n)	Percentage (%)
Female	27	48.2
Male	29	51.8
Total	65	100

Regarding the complaints in the functional domain, which includes eating, drinking, talking, playing and sleeping, the percentages of those affected are all below 50% (eating: 16%, drinking: 44.6%, talking: 7.1%, playing: 1.8% and sleeping: 14.3%). When analysing social/emotional well-being, 28.5% of the children admitted to being ashamed of smiling, 12.5% admitted to having been teased and 16.1% had already sought treatment for the spots.

4. Discussion

Relating the self-perception to the age group, we found that 14–18 year olds had the highest awareness of the problem (46.4%), which is supported by the literature [9,10], and also the highest number of complaints, which, according to Freitas Fernandes, can be explained by the fact that this type of defect tends to worsen over time [11]. The percentage of children/adolescents who became aware of the problem themselves was 37.5% of children/adolescents became aware of it themselves, with females being the most aware and interested in the problem (44.4%, Table 2), due to their greater concern for their appearance [7,12].

Table 2. Distribution of frequencies and percentages by gender regarding the identification of stains.

Gender		Parent	MD	Child/Adolescent	Total
Female	Frequency (n)	4	11	12	27
	Percentage (%)	14.8	40.7	44.4	100
Male	Frequency (n)	4	16	9	29
	Percentage (%)	13.7	55.2	31	100

5. Conclusions

Child/adolescent perception of the disease varies by gender and age group. The impact of IMH on children's QoL was not significant.

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Institutional Review Board Statement: In response to the request for an opinion submitted to the Ethics Committee of Egas Moniz, entitled "The impact of incisor-molar hypomineralisation in a paeiatric population", was unanimously approved. The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of the Egas Moniz Higher Education Cooperative (protocol code 1015, 24 February 2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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