

# Influence of dentofacial characteristics on the appearance of self-reported bullying: A review

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## Abstract

Bullying is a social problem that affects children and adolescents in particular. It deteriorates the self-esteem of its victims, decreases their quality of life and generates future psychological problems. The aim of this review was to determine the influence of dentofacial characteristics on the appearance of self-reported bullying through a literature review.

A systematic search was carried out in the databases of international scientific literature on health sciences, including MEDLINE via PubMed, Scopus, LILACS, and SciELO. Up to October 10, 2020, a total of 348 articles were identified, but only 36 were ultimately selected for the review. Specific keywords in English were used in the search: “dentofacial features”; “soft tissue”; and “malocclusion”. It was found that the appearance of bullying was associated with altered facial profiles, namely the presence of different classes of malocclusion, with class II or class III malocclusion being the most impactful.

Altered dentofacial characteristics can make an individual the target of harassment, leading to low quality of life, emotional instability, low self-esteem, and the lack of confidence with regard to dentofacial appearance as well as poor long-term social and academic performance. There is a need to develop preventive measures that would be applied by both parents and authorities, with disseminating information on bullying in schools as well as on adequate oral hygiene and the importance of going to the dentist. Traditional and cybernetic bullying share similarities. While working out strategies against bullying, it is essential to raise awareness among victims and bullies, families, and society, and to determine how bullying is perceived by children and teenagers.

**Keywords:** bullying, malocclusion, dentofacial alteration, labial incompetence, self-reported bullying

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## Introduction

Bullying is a global social problem. It involves repetitive and intentional aggression with power imbalance between bullies and victims<sup>1</sup> that generates mental and physical weakness.<sup>2</sup> Harassment can be face-to-face or cybernetic, with ‘cyberbullying’ having similar characteristics to those of traditional bullying, including intimidation, verbal abuse and teasing. Cyberbullying is defined by the United Nations International Children’s Emergency Fund (UNICEF) as bullying with the use of digital technologies,<sup>3</sup> producing mental and physical deterioration, panic, hopelessness, and distress.<sup>4–6</sup>

Some studies have associated facial appearance with bullying,<sup>7</sup> demonstrating that distinctive facial features generate emotional impact in girls and boys, and especially among teenagers. It has been reported that 20–40% of adolescents are affected, with the phenomenon being more prevalent in females.<sup>8–11</sup> Bullying has been associated with malocclusion, mainly when both the mandible and the maxilla are affected.<sup>12</sup> Children with class III malocclusion are more likely to experience bullying as compared to those with mild or absent malocclusion.<sup>13</sup> Consequently, dentofacial appearance influences the self-esteem of children and teenagers, which in turn significantly impacts the educational performance and quality of life of the victims of bullying.<sup>14–18</sup>

A recent systematic review evaluating the relationship between bullying and malocclusion determined that dentofacial appearance influenced children’s social attractiveness,<sup>18</sup> which is one of the most characteristic consequences of bullying.<sup>17–19</sup> However, in the evaluation of the ‘bullying’ variable, the review did not take into account soft tissues, but rather focused only on the class of malocclusion. Until now, to the best of our knowledge, no systematic or literature review has comprehensively evaluated the association between bullying and malocclusion, and how facial appearance (soft tissues, the facial profile, and the shape and position of the lips) can provoke bullying.

## Methodology

### Protocol and registration

This systematic review followed the guidelines of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement. The study protocol was approved by the Ethics Committee for Systematic Reviews at the Scientific University of the South (Universidad Científica del Sur), Lima, Peru (No. 640-2020-PREB8).

### Information sources and search strategy

This review based its bibliographic search on the principal sources of information, using MEDLINE via PubMed, Scopus, LILACS, and SciELO as databases. Scientific search keywords connected with Boolean operators “AND” and “OR” were employed: (“dentofacial characteristics” OR “malocclusion” OR “dentofacial alteration” OR “crossbite” OR “class II malocclusion” OR “open bite” OR “deep bite” OR “class III malocclusion” OR “biprotusion” OR “lip incompetence” OR “lip protrusion” OR “lip shape”) AND (“self-reported bullying” OR “bullying” OR “teasing”).

The strategies used in the search for scientific articles in particular databases are shown in Table 1.

### Eligibility criteria

Observational, analytical and descriptive studies, literature review articles, and systematic reviews were included, whereas case reports, editorials, opinion articles, and theses were excluded. Thus, 348 articles were retrieved, but only 36 fulfilled the selection criteria. These studies were evaluated for later analysis in the development of theoretical topics. No language restrictions were applied. Articles were obtained until October 10, 2020.

### Study selection

In the data collection process, 2 trained observers (SAMS and JMMS) independently generated the search strategy for retrieving articles. In the analysis of the information,

Table 1. Strategies used in the search for scientific articles in particular databases

Database	Search terms
PubMed	((((((((((dentofacial characteristics) OR (malocclusion*) OR (dentofacial alteration*) OR (crossbite)) OR (class II malocclusion)) OR (open bite)) OR (deep bite)) OR (class III malocclusion)) OR (biprotusion)) OR (lip incompetence)) OR (lip protrusion)) OR (lip shape)) AND (((self-reported bullying) OR (bullying)) OR (teasing))
Scopus	TITLE-ABS-KEY (dentofacial characteristics) OR (malocclusion*) OR (dentofacial alteration*) OR (crossbite) OR (class II malocclusion) OR (open bite) OR (deep bite) OR (class III malocclusion) OR (biprotusion) OR (lip incompetence) OR (lip protrusion) OR (lip shape) AND TITLE-ABS-KEY (self-reported bullying) OR (bullying) OR (teasing)
LILACS/sciELO	dentofacial characteristics OR malocclusion OR dentofacial alteration OR crossbite OR class II malocclusion OR open bite OR deep bite OR class III malocclusion OR biprotusion OR lip incompetence OR lip protrusion OR lip shape AND self-reported bullying OR bullying OR teasing

publications related to the topic “influence of dentofacial characteristics on the appearance of self-reported bullying” were incorporated, and the authors individually assessed the documentation obtained from different databases.

## Results and discussion

### Malocclusion and bullying

The growth of soft tissues, muscles, bones, and teeth is associated with the development of their functions. While the proper development of the masticatory process as well as proper dentofacial appearance are important,<sup>20</sup> they cannot always be achieved, as the growth of the tissues is sometimes non-harmonious. Esthetic facial appearance involves proportionate lips, nose and chin.<sup>21</sup> Different classes of malocclusion refer to the alterations in facial bones and the facial profile, resulting from the overdevelopment or discontinuous development of the tissues. The reports on the Sudanese and Turkish populations have shown that soft tissues develop differently in these populations, not only in relation to gender, but also the race of each individual, including biological aspects according to phenotype.<sup>22,23</sup>

Malocclusion influences the harmony of the facial profile, affecting not only esthetics, but also the mastication and speech functions, being correlated with the mandibular size and the position of the chin as well as alterations in the development of the teeth and disproportion in the bony tissue of the oral area. These alterations modify the facial angle and the position of the lips, among others.<sup>24</sup>

Altered dentofacial characteristics often cause bullying, which is manifested as verbal aggression with offensive comments toward the victim. It includes teasing about the color, shape and position of the teeth, bone structures and other facial features, such as the texture, size and shape of the lips, nose and chin, found in people with different classes of malocclusion. In patients with malocclusion, verbal abuse decreases their self-esteem, and thereby reduces their quality of life in the social and emotional environment, producing short- and long-term psychological problems that limit personal and social development.<sup>25</sup> Support groups should be created to stop bullying in order to avoid psychological damage to both victims and bullies.

### Effect of bullying on the quality of life

As mentioned previously, bullying significantly affects the short- and long-term physical and emotional quality of life. In a study including 336 adolescents aged 10–14 years, it was stated that 12.8% suffered from bullying due to functional limitations, physical incompetence and physical appearance; this abuse had a negative impact

on their self-esteem.<sup>26</sup> After orthodontic treatment, schoolchildren showed a slight increase in self-esteem as compared to adults, a remarkable point to be taken into consideration for the benefit of patients.<sup>27</sup>

Tooth decay may also cause bullying, being significant among adolescents, and leading to poor academic and social performance.<sup>28</sup> Anxiety is a consequence of rejection<sup>29</sup> by groups of students treating others in an unpleasant way and making jokes about their appearance; it leads to low scores in health-related quality of life, reduced self-esteem and poor mental health.<sup>30</sup> Bullying must be managed and controlled by authorities and parents.

### Strategies to control bullying

The consequences of traditional face-to-face bullying are similar to those of cyberbullying, with both being considerable public health problems that result in psychological conflict. Therefore, to reduce the prevalence of bullying among children and teenagers, strategies for the prevention and control of this phenomenon must be applied.<sup>31</sup> Young children confront bullying by informing their parents after fighting with the aggressor or having tried to ask a friend for help, or surrendering to their bully. Thus, according to the affective relationships present at home, adults play an important role in stopping or preventing bullying. It has been shown that a child raised in a warm home with positive affective relationships and support among household members is protected against harassment by a perpetrator. A study by Lee and Ju evaluated the prevention of bullying with the application of the program developed by F.D. Alsaker, known as the Bernese Program against Victimization in Kindergarten and Elementary School, which focuses on educating teachers about handling bullying among young children.<sup>32</sup>

Strategies such as role playing, victims facing bullying and group support for teenagers as well as the information provided to guide parents can promote prevention and awareness about the adverse effects of being a victim of bullying. These strategies provide victims with skills to defend themselves, which results in a reduction of up to 67% in victimization and 50% in the number of aggressors.<sup>33</sup> Nonetheless, despite the use of these strategies, it has been observed that some teenagers continue to be victims of bullying over time, remaining vulnerable throughout their lives.<sup>33,34</sup>

Despite similarities between traditional and cybernetic bullying, specific strategies are needed for each class of bullying. The Media Heroes (Medienhelden) program, which was initially developed to control traditional bullying, has shown encouraging results for treating cyberbullying as well.<sup>35</sup> The program was found to significantly reduce traditional bullying by promoting understanding, the recognition of risk and consequences, and by providing techniques that allow individuals to defend themselves against perpetrators.<sup>35</sup>

Programs aimed at combating bullying among children and teenagers should be elaborated from the questions directed at students about how they perceive bullying in order to develop adequate programs to learn how to control emotions, promote empathy among peers, and design school policies against traditional and cybernetic bullying.<sup>36,37</sup>

Finally, it is important to point out that the cross-cultural aspects concerning appearance can trigger bullying in relation to maxillary alterations, such as severe malocclusion. Society must be made aware of this problem and respect behaviors toward others should be promoted. Furthermore, medical practitioners, including psychiatrists and dentists, can play an important role in fighting bullying. Dentists can help with improving esthetics by treating maxillary alterations, and can also refer patients to other health professionals when necessary. The scientific literature has described the influence of some socio-demographic variables on bullying and how they can increase the risk of such behavior, especially among gender identity minorities and certain racial groups, and in particular age periods, such as adolescence.<sup>38-51</sup> All the above issues must be considered by society and more strategies are needed to improve the quality of life for all, as stated in a bulletin from the World Health Organization (WHO), which points out that bullying prevention strategies can help governments ensure safe and healthy learning and working conditions while reducing expenditures on bullying-related injuries and ill health.<sup>52</sup>

## Conclusions

This systematic review demonstrates how dentofacial characteristics and facial profiles can lead to different forms of self-reported bullying. It describes the alterations present in patients with different classes of malocclusion and those observed in the soft tissues of the face, lips, lip contour, chin, and nose, producing functional deterioration.

Facial profiles are very important at different levels of personal development, raising self-concept and self-confidence, and the ability to adequately interact in personal and social areas. All the people involved in bullying (both the attackers and their victims) suffer the consequences of traditional and cybernetic bullying. Therefore, bullying among either adults or children must be prevented and stopped by the development of systems, applications, talks, videos, and images to raise awareness and involve society, families, victims, bullies, and medical professionals. Among the latter, dentists play an important role in the analysis of alterations in the oral cavity, providing orthodontic treatment and referring to other medical specialties when necessary.

## Ethics approval and consent to participate

The study protocol was approved by the Ethics Committee for Systematic Reviews at the Scientific University of the South (Universidad Científica del Sur), Lima, Peru (No. 640-2020-PREB8).

## Data availability


The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.


## Consent for publication

Not applicable.

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