increase [1,2]. However, there is still a lack of information for the Portuguese population for this issue. This exploratory study aimed to evaluate the relationship between patient perception of OHRQoL and the severity of dental malocclusion in a Portuguese sample.
Materials and methods: This work was approved by the Egas Moniz Ethics Committee. This cross-sectional observational study involved patients that sought orthodontic treatment between January and April 2019, at the Orthodontic Care Consultation of Egas Moniz Dental Clinic (Monte de Caparica – Almada, Portugal). Exclusion criteria were patients with severe diseases, craniofacial abnormalities, cognitive deficits, caries, periodontal diseases, and previous orthodontic treatment history. A total of 19 patients were enrolled in the study. OHRQoL was assessed by application of the Oral Health Impact Profile – Portuguese validated version (OHIP-14) [3] and dental malocclusion through the Index of Complexity, Outcome and Need (ICON) [4]. Based on the ICON score, patients were categorised as: in need of treatment (ICON $>$ 43) or not (ICON $\leq$ 43). Resulting data were submitted to descriptive and inferential statistical analysis.
Results: The sample included 7 (37%) males and 12 (63%) females, with a mean age of 27.9 years. Overall OHIP-14 score ranged from 0 to 49 and ICON score from 13 to 75 (9 (47.4%) subjects with ICON $>$ 43 and 10 (52.6%) with ICON $\leq$ 43). Total OHIP-14 score and all seven median domain scores were not found to be significantly different ($p = .113$ to $p = .968$), when comparing both groups.
Discussion and conclusions: OHRQoL was not found to be significantly different when considering the severity of dental malocclusion. Overall, results highlight a difference between patients' self-perception of clinical condition impact in OHRQoL when compared to a clinical expertise judgement.

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Bacteriophage isolation from human saliva: a pilot study with high school students

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ABSTRACT
Introduction: The microbiome of the human oral cavity is composed of numerous and diverse bacteria, archaea, eukarya and viruses [1]. Bacteriophages (abbreviated phages) are bacterial viruses that can attack and kill a target bacterium within minutes of infection. Very little is known about the impact of phages on the ecology of the oral microbiome and the aetiology of diseases of the oral cavity [2]. The lytic capacity of some phages suggests, that this may be promising antimicrobial agents that could be used to prevent or treat oral diseases [3]. The study aimed to isolate bacteriophages specific for *Streptococcus mutans* (causal agent of dental caries) and *Enterococcus faecalis* (causative agent of persistent apical periodontitis) from human saliva with the engagement of high school students in scientific research.
Materials and methods: Saliva samples were collected from 61 healthy donors, undergraduate students from Valsassina College, Lisbon, Portugal. All samples were examined for the presence of phages using the agar overlay method. The study was approved by the Egas Moniz Ethics Committee (approval number 636) and written informed consent was obtained from all subjects.
Results: Three to five days after inoculation with *E. faecalis*, uniform turbid lysis zones were generated by saliva samples collected from 6 of 61 individuals (9.8%). No plaques for *S. mutans* were evident after direct plating of the material.
Discussion and conclusions: It was possible to isolate *E. faecalis*, but not *S. mutans* bacteriophages. Our data is similar in prevalence to previous studies who also attempted to isolate lytic bacteriophage from oral *E. faecalis* [4]. The presence

of *E. faecalis* phages in the saliva of healthy individuals suggests that they may play a role in the control of this bacterium in the oral cavity.

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Bitemarks analysis of orthodontically treated suspects – an identification approach

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ABSTRACT

Introduction: The advent of tridimensional (3D) technologies brings new and more reliable tools for bitemark analysis [1–7]. This experimental study intends to assess, in a forensic scenario, an identification approach for orthodontically treated suspects.
Materials and methods: 13 Cone Beam Computed Tomographic (CBCT) cranium files were selected from the clinical database of Coimbra Hospital and University Center/Faculty of Medicine of the University of Coimbra. The volunteer patients were recalled to bite an apple (golden delicious 75/80) which was immediately subjected to a CBCT scan. The 3D rendering of every bitemark was compared with the 3D upper dental arches obtained from the CBCT cranium scans of the simulated "suspects". The research team was composed by 5 elements. The matching process consisted on corresponding landmark points in the bitemark and in the subjects' dentition (upper dental arch). 169 comparisons were obtained between the 13 subjects and the 13 apples bitten. The kappa statistics analysis was performed.The study was approved by the Ethics Committee of Medicine's Faculty of the University of Coimbra (CE-048/2017).
Results: Cohen's kappa values varied between 0.834 and 0.882. Fleiss kappa obtained a value of 0.604. The Friedman's test was performed and the normality assumption was not verified ($p > .05$).
Discussion and conclusions: The statistical analysis supports the accuracy and reliability of the methodology and the moderated agreement in classification, for the subject group. The post orthodontic treatment group can be included in bitemark sample in an identification scenario. It should not be an exclusion criteria for sample selection as it is usually performed. This experimental study opens up to new opportunities in forensic sciences regarding post orthodontic patients.

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