

Reliability and validity of bite marks analysis: a systematic review

Georgios Kalfountzos ¹

Anastasia Mitsea ¹

Kety Karayianni ¹

Kostas Tsiklakis ¹

¹ Department of Oral Diagnosis and Radiology, Forensic Odontology Unit, NKUA, Greece

Corresponding author:
gkalfou@yahoo.gr

POSTER PRESENTATION

J Forensic Odontostomatol
2017 Nov 1; Supp1(35): 101
ISSN :2219-6749

ABSTRACT

Introduction: An abusive bite is a physical oval / circular injury caused by the dentition of a human or an animal to a human. However, bite marks are unique among physical injuries since they can potentially identify (or exclude) a specific perpetrator. The base of bite mark analysis is the uniqueness of anterior teeth characteristics which can be transferred in the bite injury.

Objective: The aim of this study is to perform a systematic review concerning the reliability and validity of bite marks, including articles that had been published during the last decade.

Material and Methods: The systematic review included all the articles concerning bite mark that have been published from 2006 until today. The article search was performed in 4 electronic databases (PubMed, ScienceDirect, LILACS, and Cochrane Library). Initially MeSH terms were used as keywords. Moreover, the search sensitivity was improved by the use of free text terms as keywords. Specifically, forensic dentistry, human bites, bitemar*, tooth mar*, bite mar*, forensic, bitemar* analysis and bite mar* analysis, applied in 6 different combinations on each search engine. Articles were independently reviewed by three reviewers. A fourth reviewer resolved disagreement between the initial reviewers concerning the evidence type of the article or whether the study met the inclusion criteria. Inclusion criteria of the articles were English language, abusive bite marks, human bite marks. Exclusion criteria included language other than English, review articles, case reports, methodologically inconsistent papers. Initially a total of 708 articles were found. After removing the duplicates 462 articles remained. Additionally, 18 articles in languages other than English were excluded and 305 considered being irrelevant by title. Subsequently, three reviewers evaluated the 139 remaining articles that would be finally included in the review.

Results: Bite mark analysis considered a very complicated and controversial topic among experts in Forensic Dentistry. Several parameters such as location, time since injury, interference of clothing may affect the analysis and interpretation of bite injuries. Subjectivity and experience of the involved forensic dentist mainly affect the reliability of bite mark analysis