Prevalence of Periodontitis between 2011 and 2020: Systematic Review and Meta-Analysis

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Introduction

Periodontitis is a chronic inflammatory disease and contributes to the global burden of chronic disease as it is highly prevalent worldwide, representing a public health problem [1,2,3,4].

According to the Global Burden of Disease (GBD), periodontitis was ranked as one of the most prevalent conditions of humankind, between 1990 to 2010 [5,6] , and a recent update until 2019 confirmed that this prevalent is still substantial and worrisome [7].

The prevalence of periodontitis has been reported using different and highly heterogeneous approaches.

The following focused PECO question was addressed: What is the pooled prevalence estimate of periodontitis in epidemiological studies carried out between 2011 and 2020? (Population: among patients assessed in an epidemiological survey; Exposure: Periodontitis; Comparison: periodontal status assessed; Outcome: prevalence).

Material and Methods

Detailed search strategies were conducted without language restrictions, on the following electronic databases: PubMed, Web of Science and LILACS, until December of 2021.

The search algorithm, developed using keywords and the Medical Subject Headings (MeSHs), was: "(periodont* OR "chronic periodontitis" OR (periodontal diseases [MeSH]) OR "attachment loss" OR pocket*) AND (prevalence [MeSH] OR epidemiology [MeSH])".

Epidemiological studies reporting the prevalence of periodontitis conducted between 2011 and 2020 were eligible for inclusion. Studies were grouped according to the periodontal case definition.

Random effects meta-analyses with double arcsine transformation were conducted. Sensitivity subgroup and meta-regression analyses explored the effect of confounding variables to the overall estimates.

The methodological quality of the included studies was carried out using the "Assessing risk of bias in population-based prevalence studies" tool [8].

Results

A total of 81 papers regarding 80 studies were included. The results confirmed a significant difference with confident case definitions **(59.9%)** reporting nearly twice the prevalence than non-confident classifications **(37.5%)**.

Only twenty-five countries (seventeen of which using confident diagnostic criteria) were accounted into the final analyses, without representativeness from Africa and Oceania.

	Prevalence (%)	95% CI	I^2	P-value
Overall	59,9	52.7-67.0	99.1	<0.000001
Case Definition				
EFP/AAP (2018)	52,3	38.2-66.2	99.4	<0.000001
CDC/AAP (2012)	67,9	61.2-74.3	99.3	<0.000001
CDC/AAP (2007)	49,3	41.4-57.2	92.6	<0.000001
AAP (1999)	66,7	61.3-71.8	50.5	<0.000001
Continent				
Asia	58,6	52.4-64.6	96.9	<0.000001
Europe	65,5	48.7-80.5	99.5	<0.000001
North America	65,9	57.3-74.0	92.8	<0.000001
South America	54,8	33.3-75.5	99.4	<0.000001

AAP- American Academy of Periodontology; CDC – Center for Diseases Control; EFP - European Federation of Periodontology

Take-home message

The overall prevalence of periodontitis was nearly 60%, while severe periodontitis was 25%. The use of non-confident case definitions results in an underestimation of almost 50%.

Conclusions

These results exhibit important clinical relevance due to the **enduring high prevalence of periodontitis** compared to the estimates from 1990 to 2010.

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