**Project title:**

Systematic review on the prevalence and associated factors of oro-facial pain: an investigation of population-based epidemiological studies

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Project summary:
A literature research will be carried out to identify papers which present data on the prevalence of oro-facial pain (OFP) in general or according to associated risk factors such as age, gender or socio-economic factors. The present review aims to present the data of the literature published after 31st of December 1998 and to summarise it if possible. It should provide an overview of the current research on the prevalence of OFP and contribute to improve the understanding of its aetiology by examining associated risk factors.

Background/Project description:

Rationale:
The term OFP includes pain which arise on the face or in the oral region. Pains which are located within the boundaries of the face are defined as facial pain. ‘The face is the anterior aspect of the head from the forehead to the chin and from one ear to the other’[1]. This review will differentiate between headache and facial pain and only examine data of facial pain if single data is presented by the studies. Headache also contains pain in the area of the forehead, but its origin is described as more profoundly than the frontal bones [2]. Oral pain refers to pains within the mouth including the masticatory apparatus and structures of the nervous system [3]. Dental causes are often responsible for OFP but there are many other disorders which affect the face and mouth. The aetiology of OFP is still insufficiently understood and many factors are potentially related to its appearance. Anatomical, physiological and psychological aspects need to be considered in the treatment of OFP [4]. The multifactorial aetiology of pain in the face and mouth often results in late diagnosis and insufficient treatment [5]. ‘The systematic review of population-based epidemiological studies of oro-facial pain’ written by Macfarlane et al and published in 2001 evaluated studies which were published up to 31st of December 1998. It summarises the epidemiological literature to give an overview on the prevalence and associated risk factors of OFP. It draws the conclusion that the prevalence varies considerably between the studies ranging from 1% to 48%. This is partly caused by different definitions of OFP. However with a median prevalence of 13% OFP is an important issue of the present and an update of the paper stated above is necessary to outline the recent developments [6].

Objectives:
To conduct a systematic review of epidemiological literature published after 31st of December 1998 to determine the prevalence and factors related to OFP.

Methodology:
We will follow the Cochrane Collaboration PRISMA Statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses [7]) for reporting observational studies and meta-analysis of observational studies and also consider the Consensus Statement [8]. The quality assessment will be based on the STROBE (STrengthening the Reporting of Observational studies in Epidemiology) guideline [9]. The present review aims to update the ‘Systematic review of population-based epidemiological studies of oro-facial pain’ written by Macfarlane et al and published in 2001 therefore its methodology is similar in some aspects.
Types of publication:
The review will include studies on humans published in English language after 31st of December 1998 of which full paper copies were available. Letters, editorials, PhD theses and abstracts will be excluded.

Types of studies:
The review will be restricted to observational studies (cross-sectional surveys, cohorts and case-control studies) and literature reviews. Clinical trials of treatment, case reports, case series, studies of predictors of treatment outcome, occupational studies and experimental laboratory studies will be excluded.

Population:
Only population based studies of adults (18 years and older) will be selected. In regard to the definition of population-based studies the study sample should be considered as representative of the general population. Epidemiological studies will be excluded in which the participants were selected from special groups, such as occupational or clinical populations because they are probably not representative of the entire population.

Disease definition:
Studies will be included if they present data on OFP either self-reported or professionally confirmed. The literature search will be carried out for OFP in general and by specific diagnosis (atypical odontalgia, phantom tooth pain, oral dysesthesia, atypical facial pain, temporomandibular joint disorders, trigeminal neuralgia).

Exposure:
Studies which examined associated risk factors will be included if the factors were assessed using interviews or questionnaires (self-reported exposure). Factors which had to be diagnosed by a specialist will be excluded (e.g. magnetic resonance imaging).

Search strategy:
Relevant studies will be identified by searching the following data bases: MEDLINE (1996- Oct Week 3 2012); EMBASE (1996- 2012 Week 43) and CINAHL. Search terms used in the previous review from 2001 will be adopted: Epidemiological terms (incidence, prevalence, data collection, epidemiological methods, risk factors) will be combined with diagnostic terms (atypical odontalgia, phantom tooth pain, oral dysesthesia, atypical facial pain, stomatodynia, glossopyrosis, sore tongue, glossodynia, burning tongue, tic douloureux, facial arthromyalgia, facial- pain, temporomandibular-joint-disorders, facial-neuralgia, trigeminal-neuralgia, myofacial-pain-syndromes, cranio-mandibular-disorders, burning-mouth-syndrome, temporo-mandibular-joint dysfunction-syndrome). References of all relevant studies will be screened to discover additional relevant publications and to improve the sensitivity of the search. Because no additional papers were found during the hand search of the journals ‘Pain’ and ‘Community Dentistry and Oral Epidemiology’ for the time 1994-1998 in the previous review from 2001, other papers will be screened this time. The journals ‘Journal of dental research’ and ‘Journal of Public Health Dentistry’ will be chosen due to a lack of resources to scan.
more journals. The selection criteria are based on the potential pertinence to the issue and the current availability at the University of Aberdeen.

The following search strategy will be used and revised appropriately for each database:

1. *Incidence/
2. *Prevalence/
3. *Data Collection/is, mt, sn [Instrumentation, Methods, Statistics & Numerical Data]
4. *Epidemiologic Methods/
5. *Risk Factors/
6. *Facial Pain/ or *Hyperalgesia/ or *Facial Neuralgia/
7. *Trigeminal Nerve/ or *Facial Pain/ or *Sensation Disorders/ or *Stomatognathic Diseases/ or *Pain, Intractable/
8. *Burning Mouth Syndrome/ or *Stomatitis/ or *Glossitis/
9. *Trigeminal Neuralgia/ or *Facial Pain/
10. *Facial Pain/ or *Burning Mouth Syndrome/ or *Glossitis/
11. *Glossalgia/
12. *Tongue Diseases/
13. *Glossalgia/
14. *Glossitis/ or *Glossalgia/ or *Burning Mouth Syndrome/ or *Glossitis, Benign Migratory/
15. *Trigeminal Neuralgia/
16. *Malocclusion/ or *Temporomandibular Joint Dysfunction Syndrome/ or *Mandibular Diseases/
17. *Facial Pain/
18. *Temporomandibular Joint Disorders/
19. *Facial Neuralgia/
20. *Trigeminal Neuralgia/
21. *Facial Neuralgia/
22. *Craniomandibular Disorders/ or *Masticatory Muscles/ or *Temporomandibular Joint Disorders/ or *Temporomandibular Joint Dysfunction Syndrome/
23. *Burning Mouth Syndrome/
24. *Temporomandibular Joint Disorders/ or *Temporomandibular Joint Dysfunction Syndrome/
25. 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24
26. incidence.tw.
27. prevalence.tw.
28. data collection.tw.
29. epidemiologic methods.tw.
30. risk factors.tw.
31. 1 or 2 or 3 or 4 or 5 or 26 or 27 or 28 or 29 or 30
32. 25 and 31
33. limit 32 to (english language and humans and yr="1999 -Current" and ("all adult (19 plus years)" or "adolescent (13 to 18 years)") and (journal article or meta analysis or "review"))
34. limit 33 to (autobiography or case reports or clinical trial, all or comment or congresses or controlled clinical trial or editorial or lectures or letter or randomized controlled trial)
35. 33 not 34
Data extraction

The literature search will be carried out by one author who will pre-exclude all papers in which the study design obviously not fulfil the inclusion criteria or which’s title is irrelevant for the issue. The author will be including in all inconclusive cases. Afterwards the abstracts of the revealed studies will be screened for relevance. When the abstract will not provide enough information or when no abstract will be available the full text will be checked on relevance. Full reports will also be obtained for any study that appears to meet the inclusion criteria. The in-/exclusion of a study will be discussed with a second person if necessary. The data collection form will be based on the data which also were extracted in the review from 2001. For each paper the following information will be extracted: year of publication, country of study, sample size, population and characteristics, age and gender, participation rate, method of investigation (postal questionnaire, telephone interview, clinical examination) and outcome (time period disease is referred to: current; past month; 3 months, 6 months, self reported or diagnosed, definition of OFP), overall prevalence and prevalence by age and gender or potential risk factors (socio-economic factors, local-mechanical factors, co-morbidities, psychological factors and other factors). Studies with missing data will be included if the missing information is not necessary for appropriate conclusions.

Quality assessment

Two reviewers will independently assess the quality of each full text using a checklist based on the STROBE statement (2007) [9]. The results of both reviewers will be compared using kappa statistic and 95% confidence interval (CI). One reviewer will assess 10 papers for a second time one month after the first evaluation to estimate the intra-rater reliability.

Data management and analysis:

Results of quality assessment and information about the studies will be entered into SPSS statistical package. Statistical analysis will include descriptive statistics, and, if possible, meta-analysis.

Ethical considerations:

The systematic review contains and summarises data of epidemiological studies which were conducted in a previous time. It addresses the general population and is therefore not focused on a special group. OFP does not belong to the topics which need a special sensitivity. The systematic review could be helpful to evaluate the current importance of the symptom and to work out further needs in the field of OFP study.
References:


