

PROSPERO International prospective register of systematic reviews

The prevalence of oropharyngeal dysphagia in adults presenting with temporomandibular disorders: a systematic review and meta-analysis

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Review question(s)

What is the prevalence of oropharyngeal dysphagia in adults presenting with temporomandibular disorders?

Searches

Electronic databases to be searched:

1. EMBASE (inception - November 2016),
2. PubMed (inception - November 2016),
3. CINAHL (inception - November 2016),
4. Web of Science (inception - November 2016),
5. Elsevier Scopus (inception - November 2016),
6. Science Direct (inception - November 2016),
7. AMED (inception - November 2016),
8. The Cochrane Database of Systematic Reviews (inception - November 2016),
9. ProQuest Dissertations and Theses A & I (inception - November 2016), and
10. Google Scholar (inception - November 2016).

Authors will not apply any language or date restrictions within searches.

Conference proceedings to be searched: Conference proceedings of the annual congresses of the International Association for Dental Research (published in The Journal of Dental Research) and the European Society for Swallowing Disorders (published in Dysphagia) will be hand-searched by ÓG and PK.

Reference lists to be searched: ÓG will search reference lists of included studies to screen for the presence of any novel citations which were not identified by the initial systematic search strategy.

Types of study to be included

Inclusion criteria: All published/unpublished studies which provide original data regarding the prevalence of signs/symptoms of oropharyngeal dysphagia in adults presenting with TMDs will be eligible for inclusion.

Exclusion criteria: Case reports will not be considered eligible for inclusion in analyses.

Condition or domain being studied

Temporomandibular disorders (TMDs) are a range of heterogeneous conditions characterised by pain and dysfunction of the temporomandibular joint (TMJ) complex, due to alterations in the structure and/or function of the TMJ, wider masticatory system, and/or osseous components (Di Fabio, 1997; Morales & Cornelius, 2015; Cooper & Kleinberg, 2007; McNeill, Mohl, Rugh & Tanaka, 1990). TMDs are frequently characterised by diverse profiles of clinical signs and symptoms (Di Fabio, 1997), including pain and dysfunction of the TMJ and muscles of mastication, headache, and limitations of mandibular movement (Morales & Cornelius, 2015; Nassif, 2001; Tuz, Onder & Kisinisi, 2003; Zulgarnian, Kahn, Khattab, 1998; Liu & Steinkeler, 2013). TMDs can result in signs and symptoms of oropharyngeal dysphagia (Ueno et al., 2003; Roy, Stemple, Merrill & Thomas, 2007; Bessa-Nogueira et al., 2008; Lin et al., 2007), which is an umbrella term used to describe a range of difficulties which an individual may experience in the transference of food and/or fluids from the oral cavity to the abdomen, in conjunction with associated emotional, cognitive, sensory and/or motor issues (Tanner, 2006). Of late, research has emphasised the need for investigations regarding the prevalence of difficulties in feeding, eating, drinking, and swallowing caused by TMDs in order to aid in the development of effective treatment plans, strategic resource allocation and policy planning (Haketa et al., 2006). Therefore, the purpose of this research is to estimate the prevalence of signs and symptoms of oropharyngeal dysphagia as reported by adult patients presenting with a range of TMDs via the conducting of a systematic review and meta-analysis.

Participants/ population

Inclusion criteria: The author will include adult (aged 18 years and over) humans of any gender and race seen in any setting who are presenting with TMDs as diagnosed using the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) (Schiffman et al., 2014) which are also characterised by signs/symptoms of oropharyngeal dysphagia. No limits relating to severity, disease duration or disease levels will be applied. All published/unpublished studies will be eligible for inclusion if they present original prevalence figures for the condition of interest (TMDs), or if authors provide data to calculate prevalence on request.

Exclusion criteria: As this intended study aims to investigate the prevalence of oropharyngeal dysphagia within patients presenting with TMDs diagnosed as per the RDC/TMD protocol (Schiffman et al., 2014), individuals will therefore be excluded if they are diagnosed with conditions not listed under this system. As such, studies will be excluded if they present data related solely to individuals experiencing comorbid mandibular conditions (e.g.: mandibular orthopaedic trauma, head and neck cancer, or neurological disease) which affects functioning in the mandibular region, or histories of syndromic mandibular characteristics (e.g.: congenital malformations of the mandible with associated growth disorders, micrognathia, cleft palate, etc.). Participants will be excluded if they present with a history of rheumatoid arthritis (RA), as this condition can impact negatively upon the typical structure of the TMJ complex and can induce signs and symptoms of RA-related OD. Studies will also be excluded if they present data relating solely to children, if they present mixed demographic data which cannot be stratified as required, or if primary authors do not reply to researchers following two contact attempts regarding missing/omitted data. Case reports will also not be considered for inclusion.

Intervention(s), exposure(s)

Not relevant.

Comparator(s)/ control

Not relevant.

Context

Authors will include research conducted in any setting or location.

Outcome(s)

Primary outcomes

Primary outcomes:

1. The prevalence of impaired ability to swallow, as reported subjectively or detected objectively using clinical, radiological or endoscopic assessment.

2. The prevalence of impaired masticatory ability, as reported subjectively or detected objectively using clinical, radiological or endoscopic assessment.
3. The prevalence of pain on mastication, as reported by the patient.
4. The prevalence of fatigue on mastication, as reported by the patient.

Secondary outcomes

Secondary outcomes:

1. The prevalence of diet modification by patients in response to signs and symptoms of oropharyngeal dysphagia due to TMDs.
2. The prevalence of weight loss due to oropharyngeal dysphagia due to TMDs.

Data extraction, (selection and coding)

Database searching: IH will design and pilot a systematic search strategy to apply across all databases. Searches of 10 electronic databases (EMBASE, PubMed, CINAHL, Web of Science, Elsevier Scopus, Science Direct, The Cochrane Database of Systematic Reviews, AMED, ProQuest Dissertations and Theses A & I, and Google Scholar) will be subsequently conducted by ÓG and PK. Hand-searches of the annual scientific meetings of the International Association for Dental Research (published in The Journal of Dental Research) and the European Society for Swallowing Disorders (published in Dysphagia) will also be completed by ÓG and PK.

Screening: Following duplicate deletion, double screening of titles and abstracts will be conducted by ÓG and PK, to exclude obviously ineligible results. Following this, articles identified as potentially relevant will be subsequently screened for eligibility by ÓG and PK. ÓG will scan reference lists of included studies to identify further relevant articles. A third independent reviewer, MW, will mediate disagreements if they occur. References will be managed using bibliographic management system Zotero (www.zotero.org).

Coding: ÓG and MW will utilise an electronic data extraction form to extract data from included studies. Data will be extracted regarding: study design, setting, participant demographics, outcome measurement, prevalence figures and statistical robustness. Descriptive analysis will initially be accomplished using Excel (Microsoft Corporation) spreadsheets, with subsequent exportation to statistical software, as appropriate. ÓG and MW will address missing/unclear data by contacting authors for studies published within the last ten years. Studies will be excluded in the case of no response following two contact attempts if critical information pertaining to prevalence is missing.

Risk of bias (quality) assessment

The methodological quality of identified eligible studies will be evaluated independently by ÓG and MW using the Down's and Black method for assessing the methodological quality of research (Downs & Black, 1998). This tool will be modified to omit criteria pertaining to aspects of intervention, adverse events, blinding and randomization as these will not be relevant to data extraction or meta-analysis. An amended version of the Joanna Briggs Institute's Critical Appraisal Checklist for Reporting Prevalence Data (Munn et al., 2014) and Boyle's (Boyle, 1998) method of evaluating prevalence studies will be used as a supplementary measure of methodological quality and risk of bias.

Strategy for data synthesis

The characteristics of included studies will be presented descriptively in order to discuss their methodological designs, the sources of assessment data and the participants recruited, among other tenets. The unit of analysis will be the individual patients recruited within the primary studies. The eligible subjects from included studies will be pooled and subsequently statistically analysed. Meta-analysis of prevalence estimates via calculation of risk ratio and 95% confidence intervals will be conducted by ÓG and LZ using electronic statistical packages if sufficient homogeneity (as indicated via Chi-squared test of homogeneity) is present. Authors plan to utilize forest plots to display overall prevalence estimates.

Analysis of subgroups or subsets

If sufficient numbers of articles are identified, authors intend to conduct subgroup analyses considering the diagnostic category, age, and gender of participants, alongside the disease duration of TMD. Stratification by methodological

quality will be conducted, if appropriate.

Dissemination plans

Authors intend to submit this study, in its completed form, for publication in appropriate peer-reviewed international journals. Also, the primary author intends to present results at the annual congress of European Society for Swallowing Disorders.

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None

Conflicts of interest

None known

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Country

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Subject indexing assigned by CRD

Subject index terms

Adult; Deglutition; Deglutition Disorders; Humans; Prevalence; Temporomandibular Joint Disorders

Stage of review

Ongoing

Date of registration in PROSPERO

04 November 2016

Date of publication of this revision

04 November 2016

Stage of review at time of this submission

Preliminary searches

Started

Yes

Completed

No

Piloting of the study selection process

No

No

Formal screening of search results against eligibility criteria

No

No

Data extraction

No

No

Risk of bias (quality) assessment

No

No

Data analysis

No

No

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