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## **Title/Question**

Is there an association between oral health-related quality of life and Alzheimer's disease?

## **Authors**

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## **A Commentary on**

Ming Y, Hsu SW, Yen YY, Lan SJ. Association of oral health-related quality of life and Alzheimer disease: A systematic review. *J Prosthet Dent.* 2019 Nov 18. pii: S0022-3913(19)30545-1. doi: 10.1016/j.prosdent.2019.08.015. [Epub ahead of print]

## **Data sources**

PubMed, MEDLINE, EMBASE, CINAHL, Cochrane Library database, and ProQuest databases were searched.

## **Study selection**

Observational and non-randomised studies in English language were considered for inclusion. Two reviewers independently selected the relevant studies. Any disagreement was resolved by discussion with a third reviewer. The outcome of interest for this review was oral health-related quality of life (OHRQoL) in patients with Alzheimer's disease.

## **Data extraction and synthesis**

Data extraction was conducted independently by two reviewers. Critical appraisal was conducted by two reviewers using the Joanna Briggs Institute (JBI) Meta-Analysis of Statistics Assessment and Review Instrument.

## **Results**

Six studies were included in the review, of which five were cross-sectional and one was a non-randomized controlled trial. OHRQoL was measured by the Oral Health Impact Profile (OHIP) in one study and the Geriatric Oral Health Assessment Index (GOHAI) in the other five included studies. All six studies were judged as methodologically strong. When the results of 4 studies which used the GOHAI were pooled together in a meta-analysis, no statistically significant differences in the GOHAI scores between patients with Alzheimer's disease and controls were found (SMD:0.09; 95%CI: -0.66 to 0.85).

## **Conclusions**

The results of this review showed no significant difference in OHRQoL between patients with Alzheimer's disease and healthy controls.

**GRADE Rating:** Moderate

## **Commentary**

Alzheimer's disease (AD) is the most common cause of dementia among the elderly. It is characterised by a progressive degeneration in the peripheral neurological system and accounts for 60% to 80% of all dementias.<sup>1</sup> There is a growing concern that the number of patients affected by AD may double or triple in the next few

decades due to the rapid increase of the elderly population.<sup>2</sup> Evidence suggests as AD progresses, oral health declines. Patients with AD (especially in the later stages of the disease), may present with poor oral hygiene, high levels of caries and periodontal disease, difficulty wearing dentures and inability to cope with dental care.<sup>2-4</sup> It is plausible that the above may negatively affect the patient's quality of life.

The aim of this systematic review and meta-analysis was to answer the question: "Is the Oral health related quality of life (OHRQoL) of patients with Alzheimer's disease (AD) worse than that of their non-AD peers?". For the appraisal of the present systematic review, we used the CASP (Critical Appraisal Skill Programme) Systematic Review Checklist and the PRISMA 2009 checklist.

The protocol of the review was not registered a priori on any database. Only a short description of the search terms used was presented. An example of a detailed search strategy was not provided. The review included only studies in English language. Furthermore, papers were retrieved from electronic database searching only, whilst the grey literature was not searched. As a result, there is an increased risk of publication bias. The authors, however, provided adequate information on the process they followed for the study selection which was presented in a PRISMA flowchart. The study selection was completed independently by two reviewers and any disagreement was resolved by consulting a third reviewer. No quantitative measure of reviewer agreement was presented. Interestingly, the authors only included studies that used the Oral Health Impact Profile (OHIP) and the Geriatric Oral Health Assessment Index (GOHAI) to measure OHRQoL. It is unclear why this decision was made and whether the reviewers identified studies that used some other OHRQoL instrument.

Quality assessment was performed independently by three reviewers using the Joanna Briggs Institute (JBI) Meta-analysis of Statistics Assessment and Review Instrument. Although all the studies were judged as methodologically strong, details of the risk of bias assessment results were not provided. Data extraction was conducted independently by two reviewers. The authors provided detailed description of the characteristics of the included studies and their results. The standard mean difference (SMD) of OHRQoL between participants with AD and non-AD controls was the primary outcome of effect. The results of 4 of the studies which used the GOHAI were pooled statistically in a meta-analysis. The meta-analysis, presented in a forest plot diagram, showed no significant difference between the GOHAI scores for participants with AD and controls (SMD: 0.09, 95% CI: -0.66 to 0.85). As acknowledged by the authors, limitations of this review include the cross-sectional nature of the included studies and their small sample size. The small sample size of the included studies, may have not allowed for sub-group analysis but it would have been interesting to explore if the perception of OHRQoL differs between the patient at the early and middle stage of the disease and those at the late stage.

The authors also extracted data related to factors that may affect the OHRQoL in patients with AD. They suggested that the number of teeth (fewer than 5 natural teeth), the number of carious teeth (more than 2 molar teeth), poor periodontal health (PD>4mm and gingival bleeding) and the poor condition of dentures negatively influence OHRQoL. Therefore, detection of oral disease and appropriate prevention and intervention in the early stages of the disease (AD) may ensure that adequate oral and nutritional health is maintained. This could improve the quality of life of these patients and could prevent deterioration of oral health in the later stages

of the disease when dental treatment may be difficult. The Faculty of General dental Practitioners has published a set of guidelines: “Dementia-Friendly Dentistry: Good Practice Guidelines” which can enable dental professionals to understand dementia and its implications for dental practice, as well as to adapt their patient management and clinical decisions accordingly. This set of guidelines can be accessed free of charge on: <https://www.fgdp.org.uk/guidance-standards/dementia-friendly-dentistry>

### Practice Points

- **The present review found no significant difference between the self-perceived oral health-related quality of life between patients with Alzheimer’s disease and those without. Oral health-related quality of life can be affected by the presence of active caries and periodontal disease, the number of missing teeth and the quality of prosthesis.**
- **Continuing education and training of caregivers on oral health can facilitate early detection and timely treatment of oral conditions among patients with Alzheimer’s disease.**

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