Should dentists recommend sugar-free chewing gum to help prevent decay?

BDJ Team is pleased to be sharing content from sister publication *Evidence-Based Dentistry (EBD)*. *EBD* delivers the best available evidence on the latest developments in oral health. In this summary review, **Duncan Parker-Groves**¹ provides a commentary on *A Systematic Review and Meta-Analysis of the Role of Sugar-Free Chewing Gum in Dental Caries (JDR Clin Trans Res 2020; 5: 214-223)* written by Newton JT, Awojobi O, Nasseripour M *et al*.

Practice points

- Dental healthcare professionals can recommend SFG as an adjunct to OH regimes that are already in place, as no adverse effects are noted.
- Caution should be used to ensure that patients are aware that SFG is not a replacement for good OH.

Abstract

Data sources The following electronic databases were searched: MEDLINE, EMBASE, PsycINFO, Scopus, WoS, AMED, CENTRAL Open alongside the Open Grey database and Cochrane Library of systematic reviews. In addition, reference lists of included studies and systematic reviews were searched.

Study selection Initial screening was undertaken by two independent reviewers against the PICO and inclusion/exclusion criteria. Discrepancies between reviewers were resolved by a third reviewer.

Data extraction and synthesis Data were extracted from included studies using a standardised form. Three summary measures were calculated: prevented fraction (PF); standardised mean difference (SMD); and standardised effect size (ES). Where concerns about incomplete data were encountered, authors were contacted to provide clarification; if data were not able to be completed, the study was excluded.

Results Following screening, 38 selected manuscripts explored the impact of sugar-free gum (SFG) across all aspects of oral health. From this, data was extracted from 12 studies with dental caries outcomes included; of these, eight explored xylitol gum as the intervention and were analysed separately. A significant

reduction in caries incidence was found with the use of SFGs – PF of 28% (95%CI 7%–48%). In the eight trials that used xylitol-only gum as the basis of the intervention, the PF increased to 33% (95% CI 4%–61%). No adverse effects were recorded. There was a high level of heterogeneity among the trials included.

Conclusions The use of SFG was shown to have a significant, but tentative, effect in reducing the incidence of caries, compared to those who do not or use other sugar-free alternatives. The authors comment that a considerable degree of variability was noted between the trials reviewed. Further research is required in this field to provide robust empirical evidence.

Commentary

The use of sugar-free gum (SFG) is increasing in popularity across the globe, due in part to robust marketing campaigns combined with a social desire to reduce halitosis and improve oral health. It is emerging as an adjunct to oral hygiene (OH) regimes and caries prevention, due to its mechanical plaque removal, saliva stimulation and as a carrier for bacteriostatic agents: xylitol and sorbitol.^{1,2}

Regulatory bodies, such as the European Commission, European Food Safety Authority and FDI World Dental Federation recognise and support the benefits offered by the use of SFG, although the evidence body to date is relatively weak.

Over the past 40 years, numerous studies and literature reviews have been conducted into the benefits of SFG and caries incidence. Recently, research has been conducted into the economic benefit (in the UK and worldwide) of the increased consumption of SFG,³ leading to regulators reviewing policies, considering the inclusion of SFG in oral health guidelines. The data that are being used to extrapolate the benefits, both economically and orally, are extremely limited, with global modelling being based on four studies,^{4,5,6,7} while UK modelling is based on a single study from 2001 (Machiulskiene *et al.*).

This review provides a current review of the existing literature, allowing practitioners to act with an evidence base when recommending SFG to their patients.

References

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