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Failure rates of Class V restorations in the management of root caries in adults- A systematic review and meta-analysis

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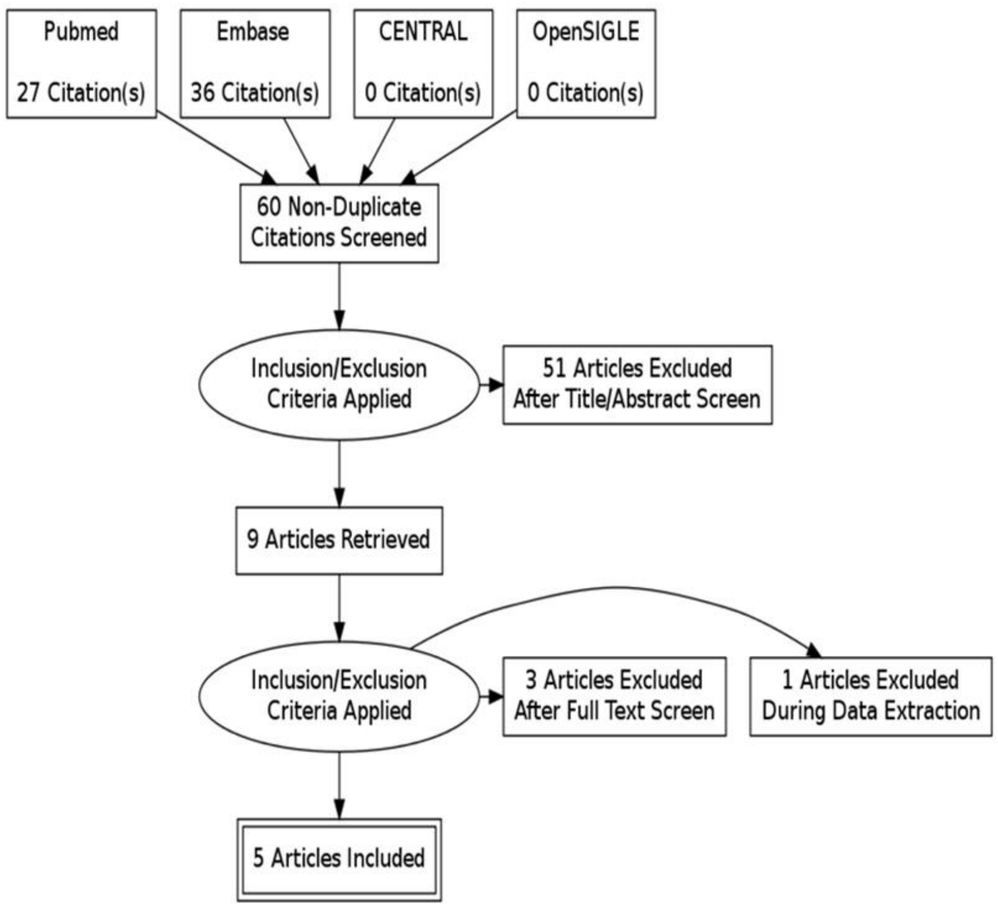


Aim

To compare cumulative failure and recurrent caries rates of different restorative materials in carious class V lesions on the root surfaces of adult patients.

Methods

The electronic databases of PubMed, Embase, Cochrane Register of Controlled Trials (CENTRAL), and the grey literature database of OpenSIGLE were searched. The search terms entered into PubMed were; “root caries” [Mesh] AND restorat*.



Five studies met the pre-defined inclusion criteria. In total, 629 restorations were placed on the root surfaces of 304 participants.

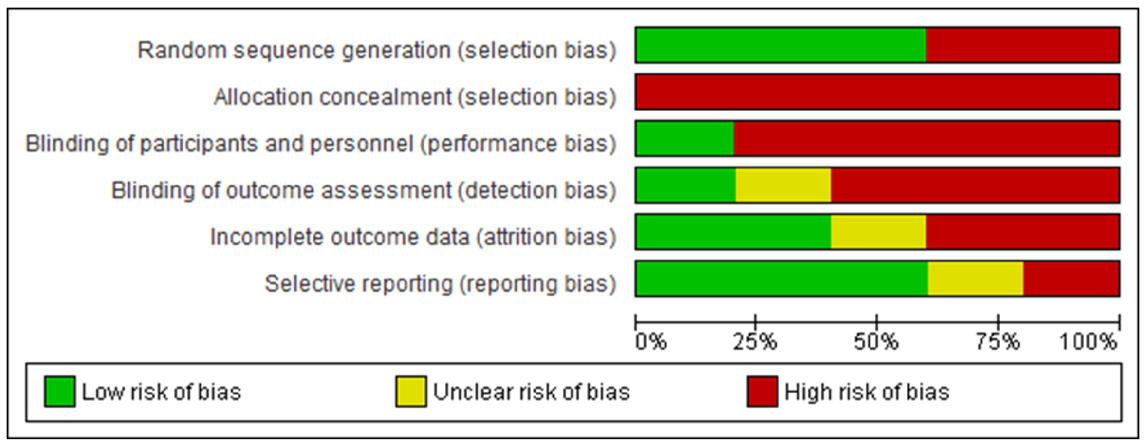
Characteristics of included studies

	De Moor, 2011	Lo, 2006	McComb, 2002	Wood, 1993	Levy, 1990
Country	Belgium	China	Canada	Canada	United States
Participants (n)	35 (28 M, 7 F)	103 (31 M, 72F)	45	36	50 (24 M, 26 F)
Type of Participants	Post-radiation xerostomic adults with ≥ 3 lesions in same arch	Elders living in residential or nursing homes	Post-radiation xerostomic adults with ≥ 3 lesions in same arch	Post-radiation xerostomic adults with ≥2 lesions in same sextant	Adult volunteers with active root caries
Interventions	GIC* RMGIC* Composite	GIC RMGIC	GIC RMGIC Composite	GIC Amalgam	GIC Composite
Allocated restorations	30 GIC 30 RMGIC 30 Composite	78 GIC 84 RMGIC	50 GIC 50 RMGIC 50 Composite	54 GIC 54 Amalgam	45 GIC 59 Composite
No. of restorations assessed at 12 months	28 GIC 28 RMGIC 28 Composite	64 GIC 68 RMGIC	35 GIC 44 RMGIC 44 Composite	Not reported	Not reported
No. of restorations assessed at 24 months	27 GIC 27 RMGIC 27 Composite	59 GIC 63 RMGIC	28 GIC 21 RMGIC 20 Composite	35 GIC 35 Amalgam	33 GIC 44 Composite

*GIC- Glass ionomer cement, RMGIC- Resin modified glass ionomer cement

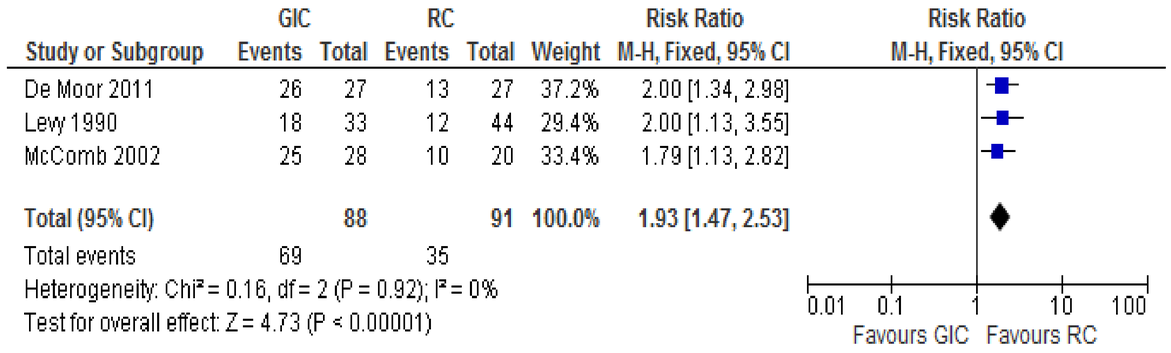
Results

Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies

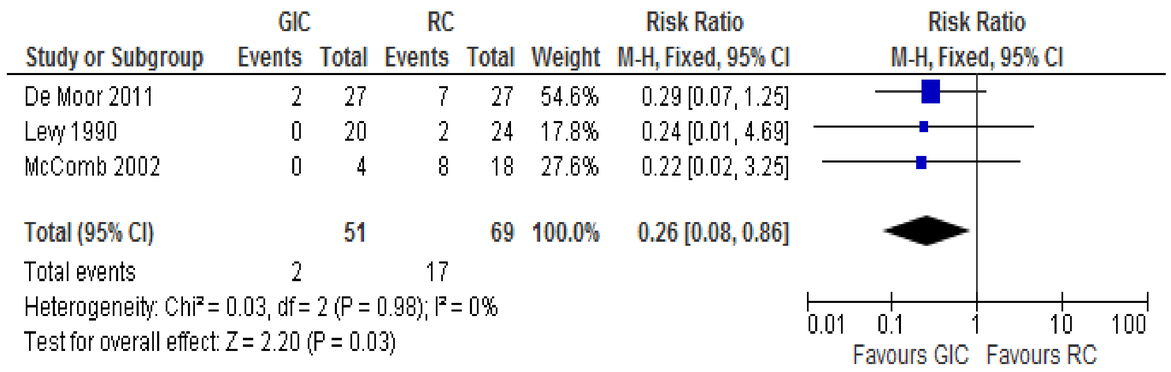


Resin composite showed a statistically significant lower cumulative failure rate at 24 months than either GIC or RMGIC. However, GIC showed a statistically significant lower recurrent caries rate at 24 months than resin composite.

Intervention: Glass ionomer cement vs Resin composite
Outcome: Cumulative failure rates at 24 months



Intervention: Glass ionomer cement vs Resin composite
Outcome: Failure due to marginal caries at 24 months



Conclusions

There is a need for more randomized controlled trials in this area before any recommendations can be made. Most of the studies identified in this systematic review treated post-radiation, xerostomic patients which are not typical of the general population. In addition, increased adherence to CONSORT guidelines when reporting clinical trials would facilitate future systematic review.

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