**Table S2.** Reason for exclusion of reviews retrieved for the current umbrella review.

| **Reasons for exclusion (for studies with more than 1 reason, only 1 reason will be given)** | **Title, Year and Authors** | **Number of papers** |
|---|---|---|
| Less than 12 months follow-up or follow-up not reported for initial studies | Aiem et al., 2020; Alrashdi et al., 2021; Badar et al., 2019; Dorri et al., 2017; Santos et al., 2016; Schwendicke et al., 2016. | 6 |
| Does not meet inclusion criteria (does not compare the survival of different restorative materials) | Aiem et al., 2017; de Amorim et al., 2012; de Amorim et al., 2018; Duangthip et al., 2016; Pedrotti et al., 2019. | 5 |
| Does not meet inclusion criteria (inclusion of permanent teeth) | Arbildo-Vega et al., 2020; Brunthaler et al., 2003; Demarco et al., 2015; Fron Chabouis et al., 2013; Heintze et al., 2012; Moraschini et al., 2015; Opdam et al., 2014; Paula et al., 2019; Szesz et al., 2017; Worthington et al., 2021. | 10 |
| Does not meet inclusion criteria (inclusion of in vitro studies) | Lenzi et al., 2016. | 1 |
| Wrong outcome (does not evaluate restoration failure in dependence to the chosen restorative material) | Coll et al., 2020; do Amaral et al., 2016; Marquillier et al., 2018; Montedori et al., 2016; Raggio et al., 2016; Ricketts et al., 2013; Schwendicke et al., 2013; Schwendicke et al., 2021; van der Sande et al., 2013; Virupaxi et al., 2020; Wakhloo et al., 2021. | 11 |
| Wrong publication type (i.e., study protocol, conference proceeding, clinical study, retrospective study, literature review, commentary, withdrawal, older version of same paper) | Alkthouki et al., 2020; Attari et al., 2006; Bücher et al., 2015; Burgess et al., 2002; Chadwick, 2001; Cheung et al., 1990; Croll et al., 2002; Curzon & Toumba, 2006; de Gee et al., 1996; Demarco et al., 2012; Dhar et al., 2015; Espelid et al., 1999; Finucane et al., 2019; Frencken et al., 2012a; Frencken et al., 2012b; Full et al., 2013; Gao et al., 2018; Guelmann et al., 2011; Hamouda et al., 2021; Heintze et al., 2015; Hickel et al., 2005; Hilgert et al., 2014; Kilpatrick et al., 1993; Kopel et al., 1997; Krämer et al., 2007a; Krämer et al., 2007b; Levey et al., 2017; Ludovichetti et al., 2021; Manhart et al., 2004; Marks et al., 2010; McComb et al., 2001; Mickenautsch et al., 2009; Mickenautsch et al., 2012; Mjör & Gordan, 1999; Randall et al., 2002; Ricketts et al., 2006; Saber et al., 2019; Santamaria et al., 2020; Schmoeckel et al., 2020; Schwendicke et al., 2017; Seale et al., 2002; Seale et al., 2015; Sidhu & Nicholson, 2016; Smales et al., 2000; Tyas et al., 2000; Waggoner et al., 2002; Waggoner 2015; Yengopal et al., 2009; Yip et al., 2001; Chadwick et al., 2017; Raggio et al., 2013; Foley et al., 2006. | 52 |
| Full-text not retrieved | Jonnes et al., 1999; Kielbassa et al., 2016; Magnusson et al., 1976; Pettar et al., 2011; Santamaria et al., 2018; Schulte et al., 1999; Smales et al., 2002; van de Sande et al., 2016; van Waes et al., 1993. | 9 |
| Total | | 94 |

**Table S3.** Citation matrix for the primary studies included in the reviews of the current umbrella review.

| Review<br>Primary Studies | Siokis et al., 2021 | Chisini et al. 2018 | Delgado et al., 2021 | Dias et al., 2018 | Frenck en et al., 2021 | Kilpatrick et al., 2007 | Mickenautsch et al., 2010 | Mickenautsch et al., 2011 | Ruengrungsom et al., 2018 | Tedesco et al., 2017 | Tedesco et al., 2018 | Pires et al., 2018 | Van t¨Hof et al., 2006 | Innes et al., 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Abo-Hamar et al., 1992 | | | | | | | | | X | | | | | |
| Abo-Hamar et al., 2015 | | X | | | | | | | | | | | | |
| Andersson et al., 1995 | | X | | X | | | | | | | | | | |
| Andersson-Wenckert et al., 2006 | X | | | | | | | | X | | | X | | |
| Attabek et al., 2017 | | | X | | | | | | | | | | | |
| Attin et al., 2001 | | X | | | | | | | | | | | | |
| Atieh et al., 2008 | | | | | | | | | | | | | | X |
| Barr-Agholme et al., 1991 | | | | | | X | | | | | | X | | |
| Borges et al., 2012 | | | | | | | | | | | X | | | |
| Bonifacio et al., 2013 | | | | | | | | | X | | | | | |
| Buecher et al., 2015 | | X | | | | | | | | | | | | |
| Casagrande et al., 2013 | X | | | X | | | | | | | | X | | |
| Cavaheiro et al., 2020 | | | X | | | | | | | | | | | |
| Croll et al., 2001 | | X | | | | | | | X | | | | | |
| Daou et al., 2009 | | | | | | | | X | | | | | | |
| de Amorim et al., 2014 | | X | | | | | | | X | | | | | |
| de Franka et al., 2011 | | | | | | | | | X | | | | | |
| Dermata et al., 2018 | X | | | | | | | | | | | | | |

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| Donly et al., 1999 | | | | | | | | X | | | | | X | | | | | | | | | | | |
| Donmez et al., 2016 | X | | | X | | X | | | | | | | X | | | | | X | | | | | | |
| Dunagthip et al., 2016 | | | | | | | | | | | | | | | | X | | | | | | | | |
| Duggal et al., 2002 | | | X | | | | | X | | | | | | | | | | X | | | | | | |
| Dutta et al., 2001 | | | | | | | | | | | | | | | | | | X | | | | | | |
| Ersin et al., 2006 | | | | | | X | | X | | | | | X | | X | | X | | | | | | | |
| Ersin et al., 2008 | | | | | | | | | | | | | X | | | | | | | | | | | |
| Espelid et al., 1999 | | | X | | | | | | | | | | X | | | | | | | | | | | |
| Frencken et al., 1994 | | | | | | | | | | | | | | | | | | | | X | | | | |
| Folkesson et al., 1999 | | | X | | | | | | | | | | X | | | | | | | | | | | |
| Franzon et al., 2015 | | | X | | | | | | | | | | | | | | | | | | | | | |
| Frencken et al., 2006 | | | | | | | | | | X | | | | | | | | | | | | | | |
| Frencken et al., 2007 | | | | | | | | | | X | | | | | | | | | | | | | | |
| Fuks et al., 2000 | | | | | | X | | X | | | | | X | | | | | | | | | | | |
| Gao et al., 2003 | | | | | | | | | | X | | | | | | | | | | | | | | |
| Giannettei et al., 2018 | | | | X | | | | | | | | | | | | | | | | | | | | |
| Gross et al., 2001 | | | X | | | | | | | | | | | | | | | | | | | | | |
| Hesse et al., 2014 | | | | | | | | | | | | | | | | X | | | | | | | | |
| Hesse et al., 2016a | | | | | | | | | | | | | X | | | | | | | | | | | |
| Hesse et al., 2016b | | | | | | | | | | | | | X | | | | | | | | | | | |
| Hilgert et al., 2014 | | | | | | | X | | | | | | X | | X | | | | | | | | | |
| Holst et al., 1996 | | | X | | | | | | | | | | | | | | | | | | | | | |
| Honkala et al., 2003 | | | | | | | X | X | | X | | | X | | X | | X | | | X | | | | |
| Hubel & Mejare 2003 | X | | X | | | | | | | | | | X | | | | | X | | | | | | |
| Hutcheson et al., 2012 | | | | | | | | | | | | | | | | | | | | | | | X | |
| Hse-wei et al., 1997 | | | | | | | | | | | | | | | | | | X | | | | | | |
| Innes et al., 2011 | | | | | | | | | | | | | | | | X | | | | | | | X | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kavvadia et al., 2004 | | X | | | | X | | | | | | | | | | X | | | | |
| Kemoli et al., 2011 | | | | | | | | | | X | | | | | | | | | | |
| Kemoli et al., 2014 | | | | | | | | | | X | | | | | | | | | | |
| Kilpatrick et al., 1995 | | X | | | | | | | | X | | | | | | | | | | |
| Kitty & Wei, 1997 | | X | | | | | | | | | | | | | | | | | | |
| Kotsanos & Arizos, 2011 | | X | | | | | | | | | | | | | | | | | | |
| Kotsanos & Dionysopoulos 2004 | | | | | | X | | | | | | | | | | | | | | |
| Kraemer & Frankenberger, 2001 | | X | | | | | | | | X | | | | | | | | | | |
| Leith & O'Connell, 2011 | | X | | | | | | | | | | | | | | | | | | |
| Lenzi et al., 2017 | | | X | | | | | | | | | | | | | | | | | |
| Lo et al., 2001 | | | | | | | | | | X | | | | | | | | | | |
| Lo & Holmgren, 2001 | | | | | | | | | | | | | | | | | | X | | |
| Louw et al., 2002 | | | | | | | | | | | | | | X | | | | X | | |
| Luo et al., 1999 | | | | | | | | | | | | | | | | | | X | | |
| Marks et al., 1999 | | | | | | X | | | | | | | | | | X | | | | |
| Mass et al., 1999 | | | | | | X | | | | | | | | | | | | | | |
| Mijan et al., 2014 | | | | | | | | | | | | | | X | | | | | | |
| Molina et al., 2018 | | | | | X | | | | | X | | | | | | | | | | |
| Oldenburg et al., 1987 | | | | | | X | | | | | | | | | | X | | | | |
| Ostlund et al., 1992 | X | | | X | | X | | X | | X | | | | | | | | | | |
| Oter et al., 2018 | | | X | | | | | | | | | | | | | | | | | |
| Pascon et al., 2006 | | | | | | | | | | | | | | | | X | | | | |
| Papagiannoulis et al., 1999 | | X | | | | | | | | | | | | | | | | | | |
| Pereira et al., 2002 | | | | X | | | | | | | | | | | | | | | | |
| Peters et al., 1996 | | X | | | | | | | | | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pinto et al., 2014 | | X | | | | | | | | | | | | |
| Qvist et al., 1997 | | | | | | X | | X | X | | | | | |
| Qvist et al., 2004 | | | | | | X | | | X | | | | | |
| Ram et al., 2003 | | | | | | | | | | | | | | X |
| Roberts et al., 2005 | | X | | | | | | | | | X | | | |
| Rutar et al., 2000 | | X | | | | | | | | | | | | |
| Rutar et al., 2002 | | | | | | | | | X | | | | | |
| Sabbagh et al., 2017 | | | X | | | | | | | | | | | |
| Santamaria et al., 2014 | | | | | | | | | | | X | | | X |
| Santos et al., 2009 | | | | | | | | | | | | | | |
| Santos et al., 2010 | X | | | X | | | | | X | | | X | | |
| Santos et al., 2012 | | | | | | | | | | | X | | | |
| Schueler et al., 2014 | | X | | | | | | | | | | | | |
| Sengul et al., 2015 | X | X | | X | | | | | X | | | X | | |
| Serin et al., 2019 | | | X | | | | | | | | | | | |
| Serpa et al., 2016 | | | | X | | | | | | | | | | |
| Sonicini et al., 2007 | | X | | | | | | | | | | | | |
| Taifour et al., 2002 | | X | | | X | X | X | X | X | X | X | | X | |
| Tal et al., 2017 | | | | | | | | | X | | | | | |
| Tonn et al., 1980 | | | | | | X | | | | | | X | | |
| Van de Dungen et al., 2004 | | | | | | | | | | | X | | | |
| Van Gemert et al., 2007 | | | | | | | | | X | | | | | |
| Walls et al., 1988 | | | | | | X | | | | | | | | |
| Webman et al., 2016 | | X | | | | | | | X | | | | | |
| Welbury et al., 1991 | | | | | | X | | X | | | | X | | |
| Welbury et al., 2000 | X | | | | | | | | | | | X | | |
| Yee et al., 2001 | | | | | | | | | X | | | | X | |

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|---|---|---|---|---|---|---|---|
| Yip et al., 2002 | | | X | | | | X |
| Yip et al., 2001 | | | | | | | X |
| Yu et al., 2004 | X | | X | X | X | X | X |
| Zhi et al., 2012 | | | | | | X | |