

Supplementary file

Additional file 1. Search strategy in PubMed, Scopus and Web of Science

PubMed

#3 Add Search ("in vitro" OR in-vitro) Sort by: PublicationDate Filters: Systematic Reviews; Dental journals 217 02:43:48

#2 Add Search ("in vitro" OR in-vitro) Sort by: PublicationDate Filters: Systematic Reviews 1830 02:43:00

#1 Add Search ("in vitro" OR in-vitro) Sort by: PublicationDate 1625315 02:42:44

Scopus

4 (TITLE-ABS-KEY ("in vitro" OR in-vitro)) AND (TITLE ("systematic review")) AND (LIMIT-TO (SUBJAREA , "DENT"))
211 document results

3 (TITLE-ABS-KEY ("in vitro" OR in-vitro)) AND (TITLE ("systematic review"))
1,473 document results

2 TITLE ("systematic review")
123,035 document results

1 TITLE-ABS-KEY ("in vitro" OR in-vitro)
2,197,383 document results

Web of Science

4 265

#2 AND #1

Refined by: RESEARCH AREAS: (DENTISTRY ORAL SURGERY MEDICINE)
Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years

3 1,845

#2 AND #1

Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years
Edit

2 124,610

TITLE: ("systematic review")

Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years
Edit

1 1,387,765

TOPIC: ("in vitro" OR in-vitro)

Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years

Updated search strategy on 06 January 2022

Scopus

5 (TITLE-ABS-KEY ("in vitro" OR in-vitro)) AND (TITLE ("systematic review"))
AND (LIMIT-TO (SUBJAREA , "dent")) AND (LIMIT-TO (PUBYEAR , 2022) OR
LIMIT-TO (PUBYEAR , 2021))

94 results

4 (TITLE-ABS-KEY ("in vitro" OR in-vitro)) AND (TITLE ("systematic review"))
AND (LIMIT-TO (SUBJAREA , "dent"))

349 results

3 (TITLE-ABS-KEY ("in vitro" OR in-vitro)) AND (TITLE ("systematic review"))

2,478 results

2 TITLE ("systematic review")

186,970 results

1 TITLE-ABS-KEY ("in vitro" OR in-vitro)

2,384,265 results

Web of Science

6 #2 AND #1 and Dentistry Oral Surgery Medicine (Research Areas) and 2021 or 2020
(Publication Years)

121

5 #2 AND #1 and Dentistry Oral Surgery Medicine (Research Areas)

386

4 #2 AND #1

2,985

3 #2 AND #1

2,985

2 "systematic review" (Title)

190,047

1 "in vitro" OR in-vitro (All Fields)

1,575,951

Additional file 2. Criteria used to rate overall confidence in the results of the review (Shea et al. 2017)

Confidence	Rationale
High	<ul style="list-style-type: none"> • <i>No or one non-critical weakness</i>: the systematic review provides an accurate and comprehensive summary of the results of the available studies that address the question of interest
Moderate	<ul style="list-style-type: none"> • <i>More than one non-critical weakness*</i>: the systematic review has more than one weakness but no critical flaws. It may provide an accurate summary of the results of the available studies that were included in the review
Low	<ul style="list-style-type: none"> • <i>One critical flaw with or without non-critical weaknesses</i>: the review has a critical flaw and may not provide an accurate and comprehensive summary of the available studies that address the question of interest
Critical low	<ul style="list-style-type: none"> • <i>More than one critical flaw with or without non-critical weaknesses</i>: the review has more than one critical flaw and should not be relied on to provide an accurate and comprehensive summary of the available studies

*Multiple non-critical weaknesses may diminish confidence in the review and it may be appropriate to move the overall appraisal down from moderate to low confidence.

Additional file 3. Rationale used in the assessment of in-vitro systematic reviews with AMSTAR-2

1. With reference to Item 1 we deleted “Timeframe for follow-up“.
2. In Item 2 we deleted “justification for any deviations from the protocol“.
3. In Item 4 we deleted “searched trial/study registries“ and “included/consulted content experts in the field“. For “Partial Yes” at least three sub-items should be reported.
4. In Item 8 we deleted the whole section “For yes, should also have ALL the following“. For “Partial Yes” at least two sub-items should be reported.
5. Regarding Item 9 the second sub-item was changed to: “lack of blinding of assessors when assessing outcomes“. Hence “patients and” was deleted.
6. Concerning Item 14 we deleted the first part of the second sub-item. Hence the sub-item was changed from “OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review” to “OR discussed the impact of this on the results of the review.”

Additional file 4. List of included systematic reviews of in-vitro dental studies

1. Abduo J, Lyons K, Bennani V, Waddell N, Swain M. Fit of screw-retained fixed implant frameworks fabricated by different methods: a systematic review. *Int J Prosthodont*. 2011;24:207–20.
2. Adnan S, Lone MM, Khan FR, Hussain SM, Nagi SE. Which is the most recommended medium for the storage and transport of avulsed teeth? A systematic review. *Dent Traumatol*. 2018;34:59–70. doi:10.1111/edt.12382.
3. Ahn S-Y, Kim H-C, Kim E. Kinematic Effects of Nickel-Titanium Instruments with Reciprocating or Continuous Rotation Motion: A Systematic Review of In Vitro Studies. *J Endod*. 2016;42:1009–17. doi:10.1016/j.joen.2016.04.002.
4. Almeida CM de, da Rosa WLO, Meereis CTW, Almeida SM de, Ribeiro JS, da Silva AF, Lund RG. Efficacy of antimicrobial agents incorporated in orthodontic bonding systems: a systematic review and meta-analysis. *J Orthod*. 2018;45:79–93. doi:10.1080/14653125.2018.1443872.
5. Almoudi MM, Hussein AS, Abu Hassan MI, Mohamad Zain N. A systematic review on antibacterial activity of zinc against *Streptococcus mutans*. *Saudi Dent J*. 2018;30:283–91. doi:10.1016/j.sdentj.2018.06.003.
6. AlShwaimi E, Bogari D, Ajaj R, Al-Shahrani S, Almas K, Majeed A. In Vitro Antimicrobial Effectiveness of Root Canal Sealers against *Enterococcus faecalis*: A Systematic Review. *J Endod*. 2016;42:1588–97. doi:10.1016/j.joen.2016.08.001.
7. Altmann ASP, Collares FM, Leitune VCB, Samuel SMW. The effect of antimicrobial agents on bond strength of orthodontic adhesives: a meta-analysis of in vitro studies. *Orthodontics & craniofacial research*. 2016;19:1–9. doi:10.1111/ocr.12100.
8. Altmann ASP, Leitune VCB, Collares FM. Influence of Eugenol-based Sealers on Push-out Bond Strength of Fiber Post Luted with Resin Cement: Systematic Review and Meta-analysis. *J Endod*. 2015;41:1418–23. doi:10.1016/j.joen.2015.05.014.
9. Andrade Lima Chaves C de, Machado AL, Vergani CE, Souza RF de, Giampaolo ET. Cytotoxicity of denture base and hard chairside reline materials: A systematic review. *J Prosthet Dent*. 2012;107:114–27. doi:10.1016/S0022-3913(12)60037-7.
10. Archambault A, Lacoursiere R, Badawi H, Major PW, Carey J, Flores-Mir C. Torque expression in stainless steel orthodontic brackets. A systematic review. *Angle Orthod*. 2010;80:201–10. doi:10.2319/080508-352.1.
11. Aurélio IL, Marchionatti AME, Montagner AF, May LG, Soares FZM. Does air particle abrasion affect the flexural strength and phase transformation of Y-TZP? A systematic review and meta-analysis. *Dent Mater*. 2016;32:827–45. doi:10.1016/j.dental.2016.03.021.
12. Bächle M, Kohal RJ. A systematic review of the influence of different titanium surfaces on proliferation, differentiation and protein synthesis of osteoblast-like MG63 cells. *Clin Oral Implants Res*. 2004;15:683–92. doi:10.1111/j.1600-0501.2004.01054.x.
13. Baumgartner S, Koletsi D, Verna C, Eliades T. The Effect of Enamel Sandblasting on Enhancing Bond Strength of Orthodontic Brackets: A Systematic Review and Meta-analysis. *J Adhes Dent*. 2017;19:463–73. doi:10.3290/j.jad.a39279.
14. Behring J, Junker R, Walboomers XF, Chessnut B, Jansen JA. Toward guided tissue and bone regeneration: morphology, attachment, proliferation, and migration of cells cultured on collagen barrier membranes. A systematic review. *Odontology*. 2008;96:1–11. doi:10.1007/s10266-008-0087-y.

15. Bernades KdO, Hilgert LA, Ribeiro APD, Garcia FCP, Pereira PNR. The influence of hemostatic agents on dentin and enamel surfaces and dental bonding: a systematic review. *J Am Dent Assoc.* 2014;145:1120–8. doi:10.14219/jada.2014.84.
16. Bohrer TC, Fontana PE, Lenzi TL, Soares FZM, Rocha RdO. Can Endodontic Irrigating Solutions Influence the Bond Strength of Adhesives to Coronal Dental Substrates? A Systematic Review and Meta-Analysis of In Vitro Studies. *J Adhes Dent.* 2018;20:481–94. doi:10.3290/j.jad.a41633.
17. Caldas IP, Alves GG, Barbosa IB, Scelza P, Noronha F de, Scelza MZ. In vitro cytotoxicity of dental adhesives: A systematic review. *Dent Mater.* 2019;35:195–205. doi:10.1016/j.dental.2018.11.028.
18. Carvalho MFF de, Leijôto-Lannes ACN, Rodrigues MCN de, Nogueira LC, Ferraz NKL, Moreira AN, et al. Viability of Bovine Teeth as a Substrate in Bond Strength Tests: A Systematic Review and Meta-analysis. *J Adhes Dent.* 2018;20:471–9. doi:10.3290/j.jad.a41636.
19. Collares FM, Portella FF, Rodrigues SB, Celeste RK, Leitune VCB, Samuel SMW. The influence of methodological variables on the push-out resistance to dislodgement of root filling materials: a meta-regression analysis. *Int Endod J.* 2016;49:836–49. doi:10.1111/iej.12539.
20. Collares FM, Rodrigues SB, Leitune VC, Celeste RK, Borba de Araújo F, Samuel SM. Chlorhexidine application in adhesive procedures: a meta-regression analysis. *J Adhes Dent.* 2013;15:11–8. doi:10.3290/j.jad.a28732.
21. Coray R, Zeltner M, Özcan M. Fracture strength of implant abutments after fatigue testing: A systematic review and a meta-analysis. *J Mech Behav Biomed Mater.* 2016;62:333–46. doi:10.1016/j.jmbbm.2016.05.011.
22. Corrêa G, Pradebon Brondani L, Sarkis-Onofre R, Dalmolin Bergoli C. Restorative strategies for weakened roots: Systematic review and Meta-analysis of in vitro studies. *BDS.* 2019;22:Process. doi:10.14295/bds.2019.v22i1.1672.
23. Cuevas-Suárez CE, Da Rosa WLdO, Lund RG, Da Silva AF, Piva E. Bonding Performance of Universal Adhesives: An Updated Systematic Review and Meta-Analysis. *J Adhes Dent.* 2019;21:7–26. doi:10.3290/j.jad.a41975.
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41. Kim J-H, Kim KR, Kim S. Critical appraisal of implant impression accuracies: A systematic review. *J Prosthet Dent*. 2015;114:185-92.e1. doi:10.1016/j.prosdent.2015.02.005.
42. Kuik K, Ruiters MHT de, Lange J de, Hoekema A. Fixation methods in sagittal split ramus osteotomy: a systematic review on in vitro biomechanical assessments. *Int J Oral Maxillofac Surg*. 2019;48:56–70. doi:10.1016/j.ijom.2018.06.013.
43. Laaksonen M, Sorsa T, Salo T. Emdogain in carcinogenesis: a systematic review of in vitro studies. *J Oral Sci*. 2010;52:1–11. doi:10.2334/josnusd.52.1.
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45. Lenzi TL, Gimenez T, Tedesco TK, Mendes FM, Rocha RdO, Raggio DP. Adhesive systems for restoring primary teeth: a systematic review and meta-analysis of in vitro studies. *Int J Paediatr Dent*. 2016;26:364–75. doi:10.1111/ipd.12210.
46. Lo Russo L, Caradonna G, Biancardino M, Lillo A de, Troiano G, Guida L. Digital versus conventional workflow for the fabrication of multiunit fixed prostheses: A systematic review and meta-analysis of vertical marginal fit in controlled in vitro studies. *J Prosthet Dent*. 2019;122:435–40. doi:10.1016/j.prosdent.2018.12.001.
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48. Louropoulou A, Slot DE, van der Weijden F. Influence of mechanical instruments on the biocompatibility of titanium dental implants surfaces: a systematic review. *Clin Oral Implants Res*. 2015;26:841–50. doi:10.1111/clr.12365.
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51. Martins FV, Vasques WF, Fonseca EM. How the Variations of the Thickness in Ceramic Restorations of Lithium Disilicate and the Use of Different Photopolymerizers Influence the Degree of Conversion of the Resin Cements: A Systematic Review and Meta-Analysis. *J Prosthodont*. 2019;28:e395-e403. doi:10.1111/jopr.12920.
52. Masarwa N, Mohamed A, Abou-Rabii I, Abu Zaghlan R, Steier L. Longevity of Self-etch Dentin Bonding Adhesives Compared to Etch-and-rinse Dentin Bonding Adhesives: A Systematic Review. *J Evid Based Dent Pract*. 2016;16:96–106. doi:10.1016/j.jebdp.2016.03.003.
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177. Stasic JN, Pfcicer JK, Milicic B, Puač N, Miletic V. Effects of non-thermal atmospheric plasma on dentin wetting and adhesive bonding efficiency: Systematic review and meta-analysis. *J Dent*. 2021;112:103765. doi:10.1016/j.jdent.2021.103765.

178. Tan NCP, Khan A, Antunes E, Miller CM, Sharma D. The effects of physical decontamination methods on zirconia implant surfaces: a systematic review. *J Periodontal Implant Sci*. 2021;51:298–315. doi:10.5051/jpis.2005080254.

179. Teja KV, Ramesh S, Battineni G, Vasundhara KA, Jose J, Janani K. The effect of various in-vitro and ex-vivo parameters on irrigant flow and apical pressure using manual syringe needle irrigation: Systematic review. *Saudi Dent J* 2021. doi:10.1016/j.sdentj.2021.12.001.

180. Thakur J, Parlani S, Shivakumar S, Jajoo K. Accuracy of marginal fit of an implant-supported framework fabricated by 3D printing versus subtractive manufacturing technique: A systematic review and meta-analysis. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2021.05.010.

181. Troconis CCM, Molina Pérez S. Bond strength of self-adhesive flowable resin composites to tooth structure. *Braz. J. Oral Sci*. 2021;20:e213641. doi:10.20396/bjos.v20i00.8663641.

182. Uzunoglu-Özyürek E, Küçükaya Eren S, Karahan S. Contribution of XP-Endo files to the root canal filling removal: A systematic review and meta-analysis of in vitro studies. *Australian endodontic journal : the journal of the Australian Society of Endodontology Inc*. 2021;47:703–14. doi:10.1111/aej.12503.

183. Wang C, Shi Y-F, Xie P-J, Wu J-H. Accuracy of digital complete dentures: A systematic review of in vitro studies. *J Prosthet Dent*. 2021;125:249–56. doi:10.1016/j.prosdent.2020.01.004.

184. Wehner C, Lettner S, Moritz A, Andrukhov O, Rausch-Fan X. Effect of bisphosphonate treatment of titanium surfaces on alkaline phosphatase activity in osteoblasts:

a systematic review and meta-analysis. *BMC Oral Health*. 2020;20:125. doi:10.1186/s12903-020-01089-4.

185. Willis J, Li S, Crean SJ, Barrak FN. Is titanium alloy Ti-6Al-4 V cytotoxic to gingival fibroblasts-A systematic review. *Clin Exp Dent Res*. 2021;7:1037–44. doi:10.1002/cre2.444.

Additional file 5. List of excluded articles after assessment of titles and abstracts

1. Abduo J, Judge RB. Implications of implant framework misfit: a systematic review of biomechanical sequelae. *Int J Oral Maxillofac Implants*. 2014;29:608–21. doi:10.11607/jomi.3418.

Reason: SR including different types of subjects

2. Abduo J, Lyons K, Swain M. Fit of zirconia fixed partial denture: a systematic review. *J Oral Rehabil*. 2010;37:866–76. doi:10.1111/j.1365-2842.2010.02113.x.

Reason: SR including different types of subjects

3. Ahmed T, Rahman NA, Alam MK. Assessment of in vivo bond strength studies of the orthodontic bracket-adhesive system: A systematic review. *Eur J Dent*. 2018;12:602–9. doi:10.4103/ejd.ejd_22_18.

Reason: SR including different types of subjects

4. Akram Z, Rahim ZHA, Taiyeb-Ali TB, Shahdan MSA, Baharuddin NA, Vaithilingam RD, Safii SH. Resistin as potential biomarker for chronic periodontitis: A systematic review and meta-analysis. *Arch Oral Biol*. 2017;73:311–20. doi:10.1016/j.archoralbio.2016.08.016.

Reason: primary in vitro studies were excluded

5. Al-Amleh B, Lyons K, Swain M. Clinical trials in zirconia: a systematic review. *J Oral Rehabil*. 2010;37:641–52. doi:10.1111/j.1365-2842.2010.02094.x.

Reason: SR including different types of subjects

6. Alasiri RA, Algarni HA, Alasiri RA. Ocular hazards of curing light units used in dental practice - A systematic review. *Saudi Dent J*. 2019;31:173–80. doi:10.1016/j.sdentj.2019.02.031.

Reason: SR including different types of subjects

7. Alikhasi M, Alsharbaty MHM, Moharrami M. Digital Implant Impression Technique Accuracy: A Systematic Review. *Implant dentistry*. 2017;26:929–35. doi:10.1097/ID.0000000000000683.

Reason: SR including different types of subjects

8. Almehmadi AH, Alghamdi F. Biomarkers of alveolar bone resorption in gingival crevicular fluid: A systematic review. *Arch Oral Biol*. 2018;93:12–21. doi:10.1016/j.archoralbio.2018.05.004.

Reason: SR including different types of subjects

9. Altaii M, Richards L, Rossi-Fedele G. Histological assessment of regenerative endodontic treatment in animal studies with different scaffolds: A systematic review. *Dent Traumatol.* 2017;33:235–44. doi:10.1111/edt.12338.

Reason: SR including different types of subjects

10. Alzahrani AA. Association between human herpes virus and aggressive periodontitis: A systematic review. *The Saudi Journal for Dental Research.* 2017;8:97–104. doi:10.1016/j.sjdr.2016.06.004.

Reason: primary in vitro studies were excluded

11. Ammari MM, Soviero VM, da Silva Fidalgo TK, Lenzi M, Ferreira DMTP, Mattos CT, et al. Is non-cavitated proximal lesion sealing an effective method for caries control in primary and permanent teeth? A systematic review and meta-analysis. *J Dent.* 2014;42:1217–27. doi:10.1016/j.jdent.2014.07.015.

Reason: SR including different types of subjects

12. Ancira-González L, Esparza-Villalpando V, Garrocho-Rangel A, Pozos-Guillén A. White Spot Lesion Remineralisation Agents in Primary Teeth: A Systematic Review. *Oral Health Prev Dent.* 2018;16:391–400. doi:10.3290/j.ohpd.a41404.

Reason: SR including different types of subjects

13. Anusavice KJ, Kakar K, Ferree N. Which mechanical and physical testing methods are relevant for predicting the clinical performance of ceramic-based dental prostheses? *Clin Oral Implants Res.* 2007;18 Suppl 3:218–31. doi:10.1111/j.1600-0501.2007.01460.x.

Reason: SR including different types of subjects

14. Aragón MLC, Pontes LF, Bichara LM, Flores-Mir C, Normando D. Validity and reliability of intraoral scanners compared to conventional gypsum models measurements: a systematic review. *Eur J Orthod.* 2016;38:429–34. doi:10.1093/ejo/cjw033.

Reason: SR including different types of subjects

15. Avila-Ortiz G, Bartold PM, Giannobile W, Katagiri W, Nares S, Rios H, et al. Biologics and Cell Therapy Tissue Engineering Approaches for the Management of the Edentulous Maxilla: A Systematic Review. *Int J Oral Maxillofac Implants.* 2016;31 Suppl:s121-64. doi:10.11607/jomi.16suppl.g4.

Reason: SR including different types of subjects

16. Azarpazhooh A, Limeback H. Clinical efficacy of casein derivatives: a systematic review of the literature. *Journal of the American Dental Association (1939).* 2008;139:915-24; quiz 994-5. doi:10.14219/jada.archive.2008.0278.

Reason: SR including different types of subjects

17. Azarpazhooh A, Limeback H. The application of ozone in dentistry: a systematic review of literature. *J Dent.* 2008;36:104–16. doi:10.1016/j.jdent.2007.11.008.

Reason: SR including different types of subjects

18. Azarpazhooh A, Main PA. Efficacy of dental prophylaxis (rubber cup) for the prevention of caries and gingivitis: a systematic review of literature. *Br Dent J.* 2009;207:E14; discussion 328-9. doi:10.1038/sj.bdj.2009.899.

Reason: SR including different types of subjects

19. Azarpazhooh A, Main PA. Summary of: Efficacy of dental prophylaxis (rubber cup) for the prevention of caries and gingivitis: a systematic review of literature. *Br Dent J.* 2009;207:328–9. doi:10.1038/sj.bdj.2009.878.

Reason: Other types of study design

20. Azuma MM, Samuel RO, Gomes-Filho JE, Dezan-Junior E, Cintra LTA. The role of IL-6 on apical periodontitis: a systematic review. *Int Endod J.* 2014;47:615–21. doi:10.1111/iej.12196.

Reason: SR including different types of subjects

21. Baig MR. Accuracy of impressions of multiple implants in the edentulous arch: a systematic review. *Int J Oral Maxillofac Implants.* 2014;29:869–80. doi:10.11607/jomi.3233.

Reason: SR including different types of subjects

22. Benetti F, Lemos CAA, Oliveira Gallinari M de, Terayama AM, Briso ALF, Castilho Jacinto R de, et al. Influence of different types of light on the response of the pulp tissue in dental bleaching: a systematic review. *Clin Oral Investig.* 2018;22:1825–37. doi:10.1007/s00784-017-2278-9.

Reason: SR including different types of subjects

23. Bertl K, Parllaku A, Pandis N, Buhlin K, Klinge B, Stavropoulos A. The effect of local and systemic statin use as an adjunct to non-surgical and surgical periodontal therapy-A systematic review and meta-analysis. *J Dent.* 2017;67:18–28. doi:10.1016/j.jdent.2017.08.011.

Reason: SR including different types of subjects

24. Bertolini MM, Del Bel Cury AA, Pizzoloto L, Acapa IRH, Shibli JA, Bordin D. Does traumatic occlusal forces lead to peri-implant bone loss? A systematic review. *Braz Oral Res.* 2019;33:e069. doi:10.1590/1807-3107bor-2019.vol33.0069.

Reason: SR including different types of subjects

25. Bessa-Nogueira RV, Vasconcelos BCE, Niederman R. The methodological quality of systematic reviews comparing temporomandibular joint disorder surgical and non-surgical treatment. *BMC Oral Health*. 2008;8:27. doi:10.1186/1472-6831-8-27.

Reason: primary in vitro studies were excluded

26. Betancourt P, Cantin M, Fuentes R. In vitro and in vivo frequency of MB2 canal in maxillary first molars: a systematic review. *Avances en odontoestomatología*. 2014;30:11–22.

Reason: SR including different types of subjects

27. Betti BF, Everts V, Ket JCF, Tabeian H, Bakker AD, Langenbach GE, Lobbezoo F. Effect of mechanical loading on the metabolic activity of cells in the temporomandibular joint: a systematic review. *Clin Oral Investig*. 2018;22:57–67. doi:10.1007/s00784-017-2189-9.

Reason: SR including different types of subjects

28. Bhaskar V, Chan H-L, MacEachern M, Kripfgans OD. Updates on ultrasound research in implant dentistry: a systematic review of potential clinical indications. *Dentomaxillofac Radiol*. 2018;47:20180076. doi:10.1259/dmfr.20180076.

Reason: SR including different types of subjects

29. Bishti S, Strub JR, Att W. Effect of the implant-abutment interface on peri-implant tissues: a systematic review. *Acta Odontol Scand*. 2014;72:13–25. doi:10.3109/00016357.2013.799712.

Reason: SR including different types of subjects

30. Blázquez-Hinarejos M, Ayuso-Montero R, Jané-Salas E, López-López J. Influence of surface modified dental implant abutments on connective tissue attachment: A systematic review. *Arch Oral Biol*. 2017;80:185–92. doi:10.1016/j.archoralbio.2017.04.020.

Reason: SR including different types of subjects

31. Bohner LOL, Neto PT, Ahmed AS, Mori M, Laganá DC, Sesma N. CEREC Chairside System to Register and Design the Occlusion in Restorative Dentistry: A Systematic Literature Review. *J Esthet Restor Dent*. 2016;28:208–20. doi:10.1111/jerd.12226.

Reason: SR including different types of subjects

32. Borges GÁ, Rêgo DF, Assad DX, Coletta RD, Luca Canto G de, Guerra ENS. In vivo and in vitro effects of curcumin on head and neck carcinoma: a systematic review. *Journal of oral pathology & medicine : official publication of the International Association of Oral Pathologists and the American Academy of Oral Pathology*. 2017;46:3–20. doi:10.1111/jop.12455.

Reason: SR including different types of subjects

33. Boruziniat A, Gharaee S, Sarraf Shirazi A, Majidinia S, Vatanpour M. Evaluation of the efficacy of flowable composite as lining material on microleakage of composite resin restorations: A systematic review and meta-analysis. *Quintessence Int.* 2016;47:93–101. doi:10.3290/j.qi.a35260.

Reason: SR including different types of subjects

34. Bousnaki M, Chatziparaskeva M, Bakopoulou A, Pissiotis A, Koidis P. Variables affecting the fit of zirconia fixed partial dentures: A systematic review. *J Prosthet Dent.* 2020;123:686-692.e8. doi:10.1016/j.prosdent.2019.06.019.

Reason: SR including different types of subjects

35. Bover-Ramos F, Viña-Almunia J, Cervera-Ballester J, Peñarrocha-Diago M, García-Mira B. Accuracy of Implant Placement with Computer-Guided Surgery: A Systematic Review and Meta-Analysis Comparing Cadaver, Clinical, and In Vitro Studies. *Int J Oral Maxillofac Implants.* 2018;33:101–15. doi:10.11607/jomi.5556.

Reason: SR including different types of subjects

36. Brouwer F, Askar H, Paris S, Schwendicke F. Detecting Secondary Caries Lesions: A Systematic Review and Meta-analysis. *J Dent Res.* 2016;95:143–51. doi:10.1177/0022034515611041.

Reason: SR including different types of subjects

37. Bühler J, Amato M, Weiger R, Walter C. A systematic review on the patient perception of periodontal treatment using air polishing devices. *International journal of dental hygiene.* 2016;14:4–14. doi:10.1111/idh.12119.

Reason: SR including different types of subjects

38. Buijs GJ, Stegenga B, Bos RRM. Efficacy and safety of biodegradable osteofixation devices in oral and maxillofacial surgery: a systematic review. *J Dent Res.* 2006;85:980–9. doi:10.1177/154405910608501102.

Reason: SR including different types of subjects

39. Cairo F, Pagliaro U, Nieri M. Treatment of gingival recession with coronally advanced flap procedures: a systematic review. *J Clin Periodontol.* 2008;35:136–62. doi:10.1111/j.1600-051X.2008.01267.x.

Reason: SR including different types of subjects

40. Căpută PE, Retsas A, Kuijk L, Chávez de Paz LE, Boutsoukias C. Ultrasonic Irrigant Activation during Root Canal Treatment: A Systematic Review. *J Endod.* 2019;45:31-44.e13. doi:10.1016/j.joen.2018.09.010.

Reason: SR including different types of subjects

41. Caricasulo R, Malchiodi L, Ghensi P, Fantozzi G, Cucchi A. The influence of implant-abutment connection to peri-implant bone loss: A systematic review and meta-analysis. *Clin Implant Dent Relat Res.* 2018;20:653–64. doi:10.1111/cid.12620.

Reason: SR including different types of subjects

42. Carvalho PHA, Moura LB, Trento GS, Holzinger D, Gabrielli MAC, Gabrielli MFR, Pereira Filho VA. Surgically assisted rapid maxillary expansion: a systematic review of complications. *Int J Oral Maxillofac Surg.* 2020;49:325–32. doi:10.1016/j.ijom.2019.08.011.

Reason: SR including different types of subjects

43. Celentano A, Tran A, Testa C, Thayanantha K, Tan-Orders W, Tan S, et al. The protective effects of Kava (*Piper Methysticum*) constituents in cancers: A systematic review. *Journal of oral pathology & medicine : official publication of the International Association of Oral Pathologists and the American Academy of Oral Pathology.* 2019;48:510–29. doi:10.1111/jop.12900.

Reason: SR including different types of subjects

44. Chang E, Lam E, Shah P, Azarpazhooh A. Cone-beam Computed Tomography for Detecting Vertical Root Fractures in Endodontically Treated Teeth: A Systematic Review. *J Endod.* 2016;42:177–85. doi:10.1016/j.joen.2015.10.005.

Reason: SR including different types of subjects

45. Chibinski AC, Wambier LM, Feltrin J, Loguercio AD, Wambier DS, Reis A. Silver Diamine Fluoride Has Efficacy in Controlling Caries Progression in Primary Teeth: A Systematic Review and Meta-Analysis. *Caries Res.* 2017;51:527–41. doi:10.1159/000478668.

Reason: SR including different types of subjects

46. Cidreira Boaro LC, Pereira Lopes D, Souza ASC de, Lie Nakano E, Ayala Perez MD, Pfeifer CS, Gonçalves F. Clinical performance and chemical-physical properties of bulk fill composites resin -a systematic review and meta-analysis. *Dent Mater.* 2019;35:e249-e264. doi:10.1016/j.dental.2019.07.007.

Reason: SR including different types of subjects

47. Condò R, Cioffi A, Riccio A, Totino M, Condò SG, Cerroni L. Sealants in dentistry: a systematic review of the literature. *Oral Implantol (Rome).* 2013;6:67–74.

Reason: primary in vitro studies were excluded

48. Contrepolis M, Soenen A, Bartala M, Laviolle O. Marginal adaptation of ceramic crowns: a systematic review. *J Prosthet Dent.* 2013;110:447-454.e10. doi:10.1016/j.prosdent.2013.08.003.

Reason: SR including different types of subjects

49. Corica A, Caprioglio A. Meta-analysis of the prevalence of tooth wear in primary dentition. *Eur J Paediatr Dent*. 2014;15:385–8.

Reason: SR including different types of subjects

50. da Veiga AMA, Cunha AC, Ferreira DMTP, da Silva Fidalgo TK, Chianca TK, Reis KR, Maia LC. Longevity of direct and indirect resin composite restorations in permanent posterior teeth: A systematic review and meta-analysis. *J Dent*. 2016;54:1–12. doi:10.1016/j.jdent.2016.08.003.

Reason: SR including different types of subjects

51. Daltoé FP, Mendonça PP, Mantesso A, Deboni MCZ. Can SHED or DPSCs be used to repair/regenerate non-dental tissues? A systematic review of in vivo studies. *Braz Oral Res* 2014. doi:10.1590/1807-3107bor-2014.vol28.0037.

Reason: SR including different types of subjects

52. Del Fabbro M, Afrashtehfar KI, Corbella S, El-Kabbaney A, Perondi I, Taschieri S. In Vivo and In Vitro Effectiveness of Rotary Nickel-Titanium vs Manual Stainless Steel Instruments for Root Canal Therapy: Systematic Review and Meta-analysis. *J Evid Based Dent Pract*. 2018;18:59–69. doi:10.1016/j.jebdp.2017.08.001.

Reason: SR including different types of subjects

53. Deo SD, Shetty SK, Kulloli A, Chavan R, Dholakia P, Ligade S, Dharmarajan G. Efficacy of free gingival graft in the treatment of Miller Class I and Class II localized gingival recessions: A systematic review. *J Indian Soc Periodontol*. 2019;23:93–9. doi:10.4103/jisp.jisp_102_18.

Reason: SR including different types of subjects

54. Dietschi D, Duc O, Krejci I, Sadan A. Biomechanical considerations for the restoration of endodontically treated teeth: a systematic review of the literature, Part II (Evaluation of fatigue behavior, interfaces, and in vivo studies). *Quintessence Int*. 2008;39:117–29.

Reason: SR including different types of subjects

55. do Amaral GS, Negrini T, Maltz M, Arthur RA. Restorative materials containing antimicrobial agents: is there evidence for their antimicrobial and anticaries effects? A systematic review. *Aust Dent J*. 2016;61:6–15. doi:10.1111/adj.12338.

Reason: SR including different types of subjects

56. Draenert ME, Jakob M, Kunzelmann K-H, Hickel R. The prevalence of tooth hypersensitivity following periodontal therapy with special reference to root scaling. A systematic review of the literature. *Am J Dent*. 2013;26:21–7.

Reason: SR including different types of subjects

57. Dutra D, Pereira G, Kantorski KZ, Valandro LF, Zanatta FB. Does Finishing and Polishing of Restorative Materials Affect Bacterial Adhesion and Biofilm Formation? A Systematic Review. *Oper Dent*. 2018;43:E37-E52. doi:10.2341/17-073-L.

Reason: SR including different types of subjects

58. Elshiyab SH, Nawafleh N, George R. Survival and testing parameters of zirconia-based crowns under cyclic loading in an aqueous environment: A systematic review. *J Investig Clin Dent* 2017. doi:10.1111/jicd.12261.

Reason: SR including different types of subjects

59. Emara R, Elhennawy K, Schwendicke F. Effects of calcium silicate cements on dental pulp cells: A systematic review. *J Dent*. 2018;77:18–36. doi:10.1016/j.jdent.2018.08.003.

Reason: SR including different types of subjects

60. Eramo S, Natali A, Pinna R, Milia E. Dental pulp regeneration via cell homing. *Int Endod J*. 2018;51:405–19. doi:10.1111/iej.12868.

Reason: SR including different types of subjects

61. Fleming PS, Eliades T, Katsaros C, Pandis N. Curing lights for orthodontic bonding: a systematic review and meta-analysis. *Am J Orthod Dentofacial Orthop*. 2013;143:S92-103. doi:10.1016/j.ajodo.2012.07.018.

Reason: SR including different types of subjects

62. Flügge T, van der Meer WJ, Gonzalez BG, Vach K, Wismeijer D, Wang P. The accuracy of different dental impression techniques for implant-supported dental prostheses: A systematic review and meta-analysis. *Clin Oral Implants Res*. 2018;29 Suppl 16:374–92. doi:10.1111/clr.13273.

Reason: SR including different types of subjects

63. Fonseca J-M, Troconis C-C, Palmier N-R, Gomes-Silva W, Paglioni M-D, Araújo A-L, et al. The impact of head and neck radiotherapy on the dentine-enamel junction: a systematic review. *Med Oral Patol Oral Cir Bucal*. 2020;25:e96-e105. doi:10.4317/medoral.23212.

Reason: SR including different types of subjects

64. Fontanari LA, Pimentel Lopes De Oliveira GJ, Durigan Basso TL, Marcantonio Junior E, Perez Orrico SR, Cezar Sampaio JE. The influence of different implant surfaces on osseointegration in diabetes: a systematic review of the literature. *Minerva Stomatol*. 2014;63:127–33.

Reason: primary in vitro studies were excluded

65. Gadkari N, Bawane S, Chopra R, Bhate K, Kulkarni D. Comparative evaluation of 2-point vs 3-point fixation in the treatment of zygomaticomaxillary complex fractures - A

systematic review. *Journal of cranio-maxillo-facial surgery : official publication of the European Association for Cranio-Maxillo-Facial Surgery*. 2019;47:1542–50. doi:10.1016/j.jcms.2019.07.009.

Reason: SR including different types of subjects

66. Ghanem A, Abduljabbar T, Akram Z, Vohra F, Kellesarian SV, Javed F. A systematic review and meta-analysis of pre-clinical studies assessing the effect of nicotine on osseointegration. *Int J Oral Maxillofac Surg*. 2017;46:496–502. doi:10.1016/j.ijom.2016.12.003.

Reason: SR including different types of subjects

67. Giannobile WV, Somerman MJ. Growth and amelogenin-like factors in periodontal wound healing. A systematic review. *Ann Periodontol*. 2003;8:193–204. doi:10.1902/annals.2003.8.1.193.

Reason: primary in vitro studies were excluded

68. Gibson G, Jurasic MM, Wehler CJ, Jones JA. Supplemental fluoride use for moderate and high caries risk adults: a systematic review. *J Public Health Dent*. 2011;71:171–84.

Reason: primary in vitro studies were excluded

69. Goiato MC, Pellizzer EP, da Silva EVF, Da Bonatto LR, dos Santos DM. Is the internal connection more efficient than external connection in mechanical, biological, and esthetical point of views? A systematic review. *Oral Maxillofac Surg*. 2015;19:229–42. doi:10.1007/s10006-015-0494-5.

Reason: SR including different types of subjects

70. Gomez J, Tellez M, Pretty IA, Ellwood RP, Ismail AI. Non-cavitated carious lesions detection methods: a systematic review. *Community Dent Oral Epidemiol*. 2013;41:54–66. doi:10.1111/cdoe.12021.

Reason: SR including different types of subjects

71. Govare N, Contrepois M. Endocrowns: A systematic review. *J Prosthet Dent*. 2020;123:411-418.e9. doi:10.1016/j.prosdent.2019.04.009.

Reason: SR including different types of subjects

72. Gracis S, Michalakis K, Vigolo P, Vult von Steyern P, Zwahlen M, Sailer I. Internal vs. external connections for abutments/reconstructions: a systematic review. *Clin Oral Implants Res*. 2012;23 Suppl 6:202–16. doi:10.1111/j.1600-0501.2012.02556.x.

Reason: SR including different types of subjects

73. Graziani F, Gennai S, Cei S, Ducci F, Discepoli N, Carmignani A, Tonetti M. Does enamel matrix derivative application provide additional clinical benefits in residual periodontal pockets associated with suprabony defects? A systematic review and meta-analysis of randomized clinical trials. *J Clin Periodontol*. 2014;41:377–86. doi:10.1111/jcpe.12218.

Reason: SR including different types of subjects

74. Grisa A, Veitz-Keenan A. Is osteoporosis a risk factor for implant survival or failure? *Evidence-based dentistry*. 2018;19:51–2. doi:10.1038/sj.ebd.6401307.

Reason: SR including different types of subjects

75. Hamama HHH, Yiu CKY, Burrow MF, King NM. Systematic Review and Meta-Analysis of Randomized Clinical Trials on Chemomechanical Caries Removal. *Oper Dent*. 2015;40:E167-78. doi:10.2341/14-021-LIT.

Reason: SR including different types of subjects

76. Hasanzade M, Shirani M, Afrashtehfar KI, Naseri P, Alikhasi M. In Vivo and In Vitro Comparison of Internal and Marginal Fit of Digital and Conventional Impressions for Full-Coverage Fixed Restorations: A Systematic Review and Meta-analysis. *J Evid Based Dent Pract*. 2019;19:236–54. doi:10.1016/j.jebdp.2019.04.003.

Reason: SR including different types of subjects

77. Heydecke G, Peters MC. The restoration of endodontically treated, single-rooted teeth with cast or direct posts and cores: a systematic review. *J Prosthet Dent*. 2002;87:380–6. doi:10.1067/mpr.2002.123848.

Reason: SR including different types of subjects

78. Hmaidouch R, Weigl P. Tooth wear against ceramic crowns in posterior region: a systematic literature review. *Int J Oral Sci*. 2013;5:183–90. doi:10.1038/ijos.2013.73.

Reason: SR including different types of subjects

79. Höchli D, Hersberger-Zurfluh M, Papageorgiou SN, Eliades T. Interventions for orthodontically induced white spot lesions: a systematic review and meta-analysis. *Eur J Orthod*. 2017;39:122–33. doi:10.1093/ejo/cjw065.

Reason: SR including different types of subjects

80. Hosseinpour S, Ghazizadeh Ahsaie M, Rezai Rad M, Baghani MT, Motamedian SR, Khojasteh A. Application of selected scaffolds for bone tissue engineering: a systematic review. *Oral Maxillofac Surg*. 2017;21:109–29. doi:10.1007/s10006-017-0608-3.

Reason: SR including different types of subjects

81. Hoxha A, Gillam DG, Bushby AJ, Agha A, Patel MP. Layered Double Hydroxide Fluoride Release in Dental Applications: A Systematic Review. *Dent J (Basel)* 2019. doi:10.3390/dj7030087.

Reason: SR including different types of subjects

82. Isfeld D, Lagravere M, Leon-Salazar V, Flores-Mir C. Novel methodologies and technologies to assess mid-palatal suture maturation: a systematic review. *Head Face Med.* 2017;13:13. doi:10.1186/s13005-017-0144-2.

Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: Other types of study design

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: primary in vitro studies were excluded

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Reason: SR including different types of subjects

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Reason: Other types of study design

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Reason: SR including different types of subjects

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Reason: Other types of study design

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: Other types of study design

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

167. Verweij JP, Jongkees FA, Anssari Moin D, Wismeijer D, van Merkesteyn JPR. Autotransplantation of teeth using computer-aided rapid prototyping of a three-dimensional replica of the donor tooth: a systematic literature review. *Int J Oral Maxillofac Surg*. 2017;46:1466–74. doi:10.1016/j.ijom.2017.04.008.

Reason: SR including different types of subjects

168. Wenz HJ, Bartsch J, Wolfart S, Kern M. Osseointegration and clinical success of zirconia dental implants: a systematic review. *Int J Prosthodont*. 2008;21:27–36.

Reason: SR including different types of subjects

169. Wenzel A, Møystad A. Work flow with digital intraoral radiography: a systematic review. *Acta Odontol Scand*. 2010;68:106–14. doi:10.3109/00016350903514426.

Reason: SR including different types of subjects

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Reason: SR including different types of subjects

171. Yaqoob A, Al Shehrani I, Alfarsi M, Baba S, Kanji MA, Hussain MW. PANORAMA OF IMPRESSION TECHNIQUES IN FIXED PARTIAL DENTURES. A SYSTEMATIC REVIEW. *International Journal of MEDICAL DENTISTRY*. 2018;22:70–84.

Reason: SR including different types of subjects

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Reason: SR including different types of subjects

173. Al-Dabbagh RA. Survival and success of endocrowns: A systematic review and meta-analysis. *J Prosthet Dent*. 2021;125:415.e1-415.e9. doi:10.1016/j.prosdent.2020.01.011.

Reason: SR including different types of subjects

174. Alenezi A, Chrcanovic B. Effects of the local administration of antibiotics on bone formation on implant surface in animal models: A systematic review and meta-analysis. *Jpn Dent Sci Rev*. 2020;56:177–83. doi:10.1016/j.jdsr.2020.09.003.

Reason: SR including different types of subjects

175. Alfayez AA, Alduhaymi AA, Almulhim EA, Assiri MY, Ansari SH. Effect of various antibacterial materials in dental composites: a systematic review.

Reason: SR including different types of subjects

176. Alzahrani KM. Implant Bio-mechanics for Successful Implant Therapy: A Systematic Review. *J Int Soc Prev Community Dent.* 2020;10:700–14. doi:10.4103/jispcd.JISPCD_138_20.

Reason: SR including different types of subjects

177. Andhare P, Datana S, Agarwal SS, Chopra SS. Comparison of in vivo and in vitro force decay of elastomeric chains/modules: a systematic review and meta analysis. *J World Fed Orthod.* 2021;10:155–62. doi:10.1016/j.ejwf.2021.07.003.

Reason: SR including different types of subjects

178. Assiri H, Dawasaz AA, Alahmari A, Asiri Z. Cone beam computed tomography (CBCT) in periodontal diseases: a Systematic review based on the efficacy model. *BMC Oral Health.* 2020;20:191. doi:10.1186/s12903-020-01106-6.

Reason: SR including different types of subjects

179. Attavar SH, Hegde MN. Effect of Irrigants and Irrigating Devices on Disinfection of Root Canal System: A Systematic Review. *Journal of Advanced Oral Research.* 2021;12:181–6. doi:10.1177/23202068211015878.

Reason: SR including different types of subjects

180. Behera, K., Nasim, I. Effect of nanoparticles based root canal disinfectants on enterococcus faecalis-a systematic review. *International Journal of Dentistry and Oral Science.* 2021;pp. 2898-2904.

Reason: SR including different types of subjects

181. Bernabeu-Mira JC, Soto-Peñaloza D, Peñarrocha-Diago M, Camacho-Alonso F, Rivas-Ballester R, Peñarrocha-Oltra D. Low-speed drilling without irrigation versus conventional drilling for dental implant osteotomy preparation: a systematic review. *Clin Oral Investig.* 2021;25:4251–67. doi:10.1007/s00784-021-03939-z.

Reason: SR including different types of subjects

182. Bousnaki M, Chatziparaskeva M, Bakopoulou A, Pissiotis A, Koidis P. Variables affecting the fit of zirconia fixed partial dentures: A systematic review. *J Prosthet Dent.* 2020;123:686-692.e8. doi:10.1016/j.prosdent.2019.06.019.

Reason: SR including different types of subjects

183. Burgueño-Barris G, Camps-Font O, Figueiredo R, Valmaseda-Castellón E. The Influence of Implantoplasty on Surface Roughness, Biofilm Formation, and Biocompatibility of Titanium Implants: A Systematic Review. *Int J Oral Maxillofac Implants.* 2021;36:e111–e119. doi:10.11607/jomi.8785.

Reason: SR including different types of subjects

184. Carneiro Pereira AL, Bezerra de Medeiros AK, Sousa Santos K de, Oliveira de Almeida É, Seabra Barbosa GA, da Fonte Porto Carreiro A. Accuracy of CAD-CAM systems for removable partial denture framework fabrication: A systematic review. *J Prosthet Dent.* 2021;125:241–8. doi:10.1016/j.prosdent.2020.01.003.

Reason: SR including different types of subjects

185. Carneiro Pereira AL, Souza Curinga MR, Melo Segundo HV, da Fonte Porto Carreiro A. Factors that influence the accuracy of intraoral scanning of total edentulous arches rehabilitated with multiple implants: A systematic review. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2021.09.001.

Reason: SR including different types of subjects

186. Carvalho PHA, Moura LB, Trento GS, Holzinger D, Gabrielli MAC, Gabrielli MFR, Pereira Filho VA. Surgically assisted rapid maxillary expansion: a systematic review of complications. *Int J Oral Maxillofac Surg.* 2020;49:325–32. doi:10.1016/j.ijom.2019.08.011.

Reason: primary in vitro studies were excluded

187. Cavalheiro CP, Scherer H, Imparato JCP, Collares FM, Lenzi TL. Use of flowable resin composite as an intermediate layer in class II restorations: a systematic review and meta-analysis. *Clin Oral Investig.* 2021;25:5629–39. doi:10.1007/s00784-021-04090-5.

Reason: SR including different types of subjects

188. Coll JA, Vargas K, Marghalani AA, Chen C-Y, AlShamali S, Dhar V, Crystal YO. A Systematic Review and Meta-Analysis of Nonvital Pulp Therapy for Primary Teeth. *Pediatr Dent.* 2020;42:256–461.

Reason: SR including different types of subjects

189. Cronshaw M, Parker S, Anagnostaki E, Mylona V, Lynch E, Grootveld M. Photobiomodulation Dose Parameters in Dentistry: A Systematic Review and Meta-Analysis. *Dent J (Basel)* 2020. doi:10.3390/dj8040114.

Reason: SR including different types of subjects

190. da Silva CL, Cavaleiro CP, Gimenez T, Imparato JCP, Bussadori SK, Lenzi TL. Bonding Performance of Universal and Contemporary Adhesives in Primary Teeth: A Systematic Review and Network Meta-Analysis of In Vitro Studies. *Pediatr Dent*. 2021;43:170–7.

Reason: SR including different types of subjects

191. Fakhruddin KS, Egusa H, Ngo HC, Panduwawala C, Pesee S, Samaranayake LP. Clinical efficacy and the antimicrobial potential of silver formulations in arresting dental caries: a systematic review. *BMC Oral Health*. 2020;20:160. doi:10.1186/s12903-020-01133-3.

Reason: SR including different types of subjects

192. Fernandez MDS, Guedes MIF, Langa GPJ, Rösing CK, Cavagni J, Muniz FWMG. Virucidal efficacy of chlorhexidine: a systematic review. *Odontology* 2021. doi:10.1007/s10266-021-00660-x.

Reason: SR including different types of subjects

193. Figueredo CA, Abdelhay N, Figueredo CM, Catunda R, Gibson MP. The impact of vaping on periodontitis: A systematic review. *Clin Exp Dent Res*. 2021;7:376–84. doi:10.1002/cre2.360.

Reason: SR including different types of subjects

194. Gao WM, Geng W, Yan YW, Wang Y. Antagonist Wear Of Zirconia Fixed Restorations In Vitro And In Vivo- A Systematic Review. *Int J Prosthodont*. 2021;34:492–504. doi:10.11607/ijp.6984.

Reason: SR including different types of subjects

195. Gareb B, van Bakelen NB, Dijkstra PU, Vissink A, Bos RRM, van Minnen B. Biodegradable versus titanium osteosynthesis in maxillofacial traumatology: a systematic review with meta-analysis and trial sequential analysis. *Int J Oral Maxillofac Surg*. 2020;49:914–31. doi:10.1016/j.ijom.2019.11.009.

Reason: SR including different types of subjects

196. Gaur S, Agnihotri R. Application of Adipose Tissue Stem Cells in Regenerative Dentistry: A Systematic Review. *J Int Soc Prev Community Dent.* 2021;11:266–71. doi:10.4103/jispcd.JISPCD_43_21.

Reason: SR including different types of subjects

197. Gizani S, Kloukos D, Papadimitriou A, Roumani T, Twetman S. Is Bleaching Effective in Managing Post-orthodontic White-spot Lesions? A Systematic Review. *Oral Health Prev Dent.* 2020;18:2–10. doi:10.3290/j.ohpd.a44113.

Reason: SR including different types of subjects

198. Gómez-Aguirre JN, Argueta-Figueroa L, Castro-Gutiérrez MEM, Torres-Rosas R. Effects of interproximal enamel reduction techniques used for orthodontics: A systematic review. *Orthod Craniofac Res* 2021. doi:10.1111/ocr.12555.

Reason: SR including different types of subjects

199. González FJ, Requena E, Miralles L, Sanz JL, Barberá J, Enciso JJ, et al. Adjuvant Effect of Titanium Brushes in Peri-Implant Surgical Treatment: A Systematic Review. *Dent J (Basel)* 2021. doi:10.3390/dj9080084.

Reason: primary in vitro studies were excluded

200. Govare N, Contrepolis M. Endocrowns: A systematic review. *J Prosthet Dent.* 2020;123:411-418.e9. doi:10.1016/j.prosdent.2019.04.009.

Reason: SR including different types of subjects

201. Govindaraj A, Dinesh SS. Effect of Chlorhexidine Varnish and Fluoride Varnish on White Spot Lesions in Orthodontic Patients- a Systematic Review. *TODENTJ.* 2021;15:151–9. doi:10.2174/1874210602115010151.

Reason: SR including different types of subjects

202. Grymak A, Aarts JM, Ma S, Waddell JN, Choi JJE. Wear Behavior of Occlusal Splint Materials Manufactured By Various Methods: A Systematic Review. *J Prosthodont* 2021. doi:10.1111/jopr.13432.

Reason: SR including different types of subjects

203. Hasanzade, M., Aminikhah, M., Afrashtehfar, K.I., Alikhasi, M. Marginal and internal adaptation of single crowns and fixed dental prostheses by using digital and conventional workflows: A systematic review and meta-analysis. 2021:360–8.

Reason: SR including different types of subjects

204. Hong D-W, Lin X-J, Wiegand A, Yu H. Does delayed toothbrushing after the consumption of erosive foodstuffs or beverages decrease erosive tooth wear? A systematic review and meta-analysis. *Clin Oral Investig*. 2020;24:4169–83. doi:10.1007/s00784-020-03614-9.

Reason: SR including different types of subjects

205. Hynková K, Sarao SK, Voborná I, Levin L. Effect of assessor's sex on visual color matching in dentistry: A systematic review of the literature. *J Esthet Restor Dent* 2021. doi:10.1111/jerd.12839.

Reason: SR including different types of subjects

206. Janjic Rankovic M, Kapor S, Khazaei Y, Crispin A, Schüller I, Krause F, et al. Systematic review and meta-analysis of diagnostic studies of proximal surface caries. *Clin Oral Investig*. 2021;25:6069–79. doi:10.1007/s00784-021-04113-1.

Reason: SR including different types of subjects

207. Jayaraman J, Nagendrababu V, Pulikkotil SJ, Veetil SK, Dhar V. Effectiveness of formocresol and ferric sulfate as pulpotomy material in primary molars: a systematic review and meta-analysis with trial sequential analysis of randomized clinical trials. *Quintessence Int*. 2020;51:38–48. doi:10.3290/j.qi.a43617.

Reason: SR including different types of subjects

208. Jorba-García A, González-Barnadas A, Camps-Font O, Figueiredo R, Valmaseda-Castellón E. Accuracy assessment of dynamic computer-aided implant placement: a systematic review and meta-analysis. *Clin Oral Investig*. 2021;25:2479–94. doi:10.1007/s00784-021-03833-8.

Reason: SR including different types of subjects

209. Josic U, Sebold M, Lins RBE, Savovic J, Mazzitelli C, Maravic T, et al. Does immediate dentin sealing influence postoperative sensitivity in teeth restored with indirect restorations? A systematic review and meta-analysis. *J Esthet Restor Dent* 2021. doi:10.1111/jerd.12841.

Reason: SR including different types of subjects

210. Kachhara S, Nallaswamy D, Ganapathy DM, Sivaswamy V, Rajaraman V. Assessment of intraoral scanning technology for multiple implant impressions - A systematic review and meta-analysis. *J Indian Prosthodont Soc*. 2020;20:141–52. doi:10.4103/jips.jips_379_19.

Reason: SR including different types of subjects

211. Kapor S, Rankovic MJ, Khazaei Y, Crispin A, Schüller I, Krause F, et al. Systematic review and meta-analysis of diagnostic methods for occlusal surface caries. *Clin Oral Investig*. 2021;25:4801–15. doi:10.1007/s00784-021-04024-1.

Reason: SR including different types of subjects

212. Khan AR, Fida M, Gul M. Decalcification and bond failure rate in resin modified glass ionomer cement versus conventional composite for orthodontic bonding: A systematic review & meta-analysis. *Int Orthod*. 2020;18:32–40. doi:10.1016/j.ortho.2019.10.003.

Reason: SR including different types of subjects

213. Khouly I, Braun RS, Silvestre T, Musa W, Miron RJ, Demyati A. Efficacy of antibiotic prophylaxis in intraoral bone grafting procedures: a systematic review and meta-analysis. *Int J Oral Maxillofac Surg*. 2020;49:250–63. doi:10.1016/j.ijom.2019.07.003.

Reason: SR including different types of subjects

214. Limeback H, Enax J, Meyer F. Biomimetic hydroxyapatite and caries prevention: a systematic review and meta-analysis. *Can J Dent Hyg*. 2021;55:148–59.

Reason: SR including different types of subjects

215. Lin Z, Strauss FJ, Lang NP, Sculean A, Salvi GE, Stähli A. Efficacy of laser monotherapy or non-surgical mechanical instrumentation in the management of untreated periodontitis patients. A systematic review and meta-analysis. *Clin Oral Investig*. 2021;25:375–91. doi:10.1007/s00784-020-03584-y.

Reason: SR including different types of subjects

216. Maru V, Dixit U, Patil RSB, Parekh R. Cytotoxicity and Bioactivity of Mineral Trioxide Aggregate and Bioactive Endodontic Type Cements: A Systematic Review. *Int J Clin Pediatr Dent*. 2021;14:30–9. doi:10.5005/jp-journals-10005-1880.

Reason: SR including different types of subjects

217. Morsy N, El Kateb M, Azer A, Fathalla S. Fit of zirconia fixed partial dentures fabricated from conventional impressions and digital scans: A systematic review and meta-analysis. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2021.08.025.

Reason: SR including different types of subjects

218. Nithyanandham, S., Sivaswamy, V., Thangavelu, L. Evaluation Of The Clinical Effectiveness Of The Conometric Concept - A Systematic Review. *IJDOS*. 2014:2918–23. doi:10.19070/2377-8075-21000572.

Reason: SR including different types of subjects

219. Nivedhitha S. Comparing The Effectiveness Of Various Irrigant Activation Techniques With Conventional Needle Irrigation - A Systematic Review. *IJDOS*. 2014:2626–31. doi:10.19070/2377-8075-21000514.

Reason: SR including different types of subjects

220. Ortiz MIG, Melo Alencar C de, Paula BLF de, Magno MB, Maia LC, Silva CM. Accuracy of near-infrared light transillumination (NILT) compared to bitewing radiograph for detection of interproximal caries in the permanent dentition: A systematic review and meta-analysis. *J Dent.* 2020;98:103351. doi:10.1016/j.jdent.2020.103351.

Reason: SR including different types of subjects

221. Pan Y, Tsoi JKH, Lam WYH, Pow EHN. Implant framework misfit: A systematic review on assessment methods and clinical complications. *Clin Implant Dent Relat Res.* 2021;23:244–58. doi:10.1111/cid.12968.

Reason: SR including different types of subjects

222. Paños-Crespo A, Sánchez-Torres A, Gay-Escoda C. Retrograde filling material in periapical surgery: a systematic review. *Med Oral Patol Oral Cir Bucal.* 2021;26:e422-e429. doi:10.4317/medoral.24262.

Reason: SR including different types of subjects

223. Paspaspyridakos P, Vazouras K, Chen Y-W, Kotina E, Natto Z, Kang K, Chochlidakis K. Digital vs Conventional Implant Impressions: A Systematic Review and Meta-Analysis. *J Prosthodont.* 2020;29:660–78. doi:10.1111/jopr.13211.

Reason: SR including different types of subjects

224. Pordeus MD, Santiago Junior JF, Venante HS, Da Bringel Costa RM, Chappuis Chocano AP, Porto VC. Computer-aided technology for fabricating removable partial denture frameworks: A systematic review and meta-analysis. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2020.06.006.

Reason: SR including different types of subjects

225. PradeepKumar AR, Shemesh H, Nivedhitha MS, Hashir MMJ, Arockiam S, Uma Maheswari TN, Natanasabapathy V. Diagnosis of Vertical Root Fractures by Cone-beam Computed Tomography in Root-filled Teeth with Confirmation by Direct Visualization: A Systematic Review and Meta-Analysis. *J Endod.* 2021;47:1198–214. doi:10.1016/j.joen.2021.04.022.

Reason: primary in vitro studies were excluded

226. Quigley NP, Loo DSS, Choy C, Ha WN. Clinical efficacy of methods for bonding to zirconia: A systematic review. *J Prosthet Dent.* 2021;125:231–40. doi:10.1016/j.prosdent.2019.12.017.

Reason: SR including different types of subjects

227. Rajwani AR, Hawes SND, To A, Quaranta A, Rincon Aguilar JC. Effectiveness of Manual Toothbrushing Techniques on Plaque and Gingivitis: A Systematic Review. *Oral Health Prev Dent.* 2020;18:843–54. doi:10.3290/j.ohpd.a45354.

Reason: SR including different types of subjects

228. Romo-Huerta MJ, Del Cervantes-Urenda AR, Velasco-Neri J, Torres-Bugarín O, Valdivia ADCM. Genotoxicity Associated with Residual Monomers in Restorative Dentistry: A Systematic Review. *Oral Health Prev Dent.* 2021;19:471–80. doi:10.3290/j.ohpd.b2081469.

Reason: SR including different types of subjects

229. Sabour A, El Helou M, Roger-Leroi V, Bauer C. Release and toxicity of bisphenol-A (BPA) contained in orthodontic adhesives: A systematic review. *Int Orthod.* 2021;19:1–14. doi:10.1016/j.ortho.2020.11.002.

Reason: SR including different types of subjects

230. Salvi GE, Stähli A, Schmidt JC, Ramseier CA, Sculean A, Walter C. Adjunctive laser or antimicrobial photodynamic therapy to non-surgical mechanical instrumentation in patients with untreated periodontitis: A systematic review and meta-analysis. *J Clin Periodontol.* 2020;47 Suppl 22:176–98. doi:10.1111/jcpe.13236.

Reason: SR including different types of subjects

231. Sanches IB, Metzker TC, Kappler R, Oliveira MV, Carvalho AO, Castor Xisto Lima EM. Marginal adaptation of CAD-CAM and heat-pressed lithium disilicate crowns: A systematic review and meta-analysis. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2021.03.021.

Reason: SR including different types of subjects

232. Sarafidou K, Vasileiadi G, Louvrou MK, Moldovani E, Koidis P, Kokoti M, Bakopoulou A. Screwmentable implant-supported prostheses: A systematic review. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2021.08.027.

Reason: SR including different types of subjects

233. Schmutzler A, Rauch A, Nitschke I, Lethaus B, Hahnel S. CLEANING OF REMOVABLE DENTAL PROSTHESES - A SYSTEMATIC REVIEW. *J Evid Based Dent Pract.* 2021;21:101644. doi:10.1016/j.jebdp.2021.101644.

Reason: SR including different types of subjects

234. Sousa CA de, Taborda MBB, Momesso GAC, Rocha EP, Dos Santos PH, Santiago-Júnior JF, Assunção WG. Materials Sealing Preventing Biofilm Formation in Implant/Abutment Joints: Which Is the Most Effective? A Systematic Review and Meta-Analysis. *J Oral Implantol.* 2020;46:163–71. doi:10.1563/aaid-joi-D-19-00121.

Reason: SR including different types of subjects

235. Srinivasan M, Kamnoedboon P, McKenna G, Angst L, Schimmel M, Özcan M, Müller F. CAD-CAM removable complete dentures: A systematic review and meta-analysis of

trueness of fit, biocompatibility, mechanical properties, surface characteristics, color stability, time-cost analysis, clinical and patient-reported outcomes. *J Dent.* 2021;113:103777. doi:10.1016/j.jdent.2021.103777.

Reason: SR including different types of subjects

236. Tieh MT, Waddell JN, Choi JJE. Optical Properties and Color Stability of Denture Teeth-A Systematic Review. *J Prosthodont* 2021. doi:10.1111/jopr.13429.

Reason: SR including different types of subjects

237. Tonprasong W, Inokoshi M, Shimizubata M, Yamamoto M, Hatano K, Minakuchi S. Impact of direct restorative dental materials on surface root caries treatment. Evidence based and current materials development: A systematic review. *Jpn Dent Sci Rev.* 2022;58:13–30. doi:10.1016/j.jdsr.2021.11.004.

Reason: SR including different types of subjects

238. van Acker JWG, Pauwels NS, Cauwels RGEC, Rajasekharan S. Outcomes of different radioprotective precautions in children undergoing dental radiography: a systematic review. *Eur Arch Paediatr Dent.* 2020;21:463–508. doi:10.1007/s40368-020-00544-8.

Reason: SR including different types of subjects

239. Verma SK, Dev Kumar B, Chaurasia A, Dubey D. Effectiveness of mouthwash against viruses: 2020 perspective. A systematic review. *Minerva Dent Oral Sci.* 2021;70:206–13. doi:10.23736/S2724-6329.21.04418-6.

Reason: SR including different types of subjects

240. Wang F, Li C, Zhang S, Liu H. Role of TiO₂ Nanotubes on the Surface of Implants in Osseointegration in Animal Models: A Systematic Review and Meta-Analysis. *J Prosthodont.* 2020;29:501–10. doi:10.1111/jopr.13163.

Reason: SR including different types of subjects

241. Wiegand A, Lechte C, Kanzow P. Adhesion to eroded enamel and dentin: systematic review and meta-analysis. *Dent Mater.* 2021;37:1845–53. doi:10.1016/j.dental.2021.09.014.

Reason: SR including different types of subjects

242. Wulfman C, Naveau A, Rignon-Bret C. Digital scanning for complete-arch implant-supported restorations: A systematic review. *J Prosthet Dent.* 2020;124:161–7. doi:10.1016/j.prosdent.2019.06.014.

Reason: SR including different types of subjects

243. Yu X, Han Y, Wang J. Is an internal tapered connection more efficient than an internal nontapered connection? A systematic review and meta-analysis. *J Prosthet Dent.* 2020;124:431–8. doi:10.1016/j.prosdent.2019.07.018.

Reason: SR including different types of subjects

Additional file 6. List of excluded articles after full-text assessment

1. Abdullah N, Al-Marzooq F, Mohamad S, Abd Rahman N, Chi Ngo H, Perera Samaranayake L. Intraoral appliances for in situ oral biofilm growth: a systematic review. *J Oral Microbiol.* 2019;11:1647757. doi:10.1080/20002297.2019.1647757.

Reason: SR including different types of subjects

2. Abduo J, Yin L. Fits of Implant Zirconia Custom Abutments and Frameworks: A Systematic Review and Meta-Analyses. *Int J Oral Maxillofac Implants.* 2019;34:99–114. doi:10.11607/jomi.6657.

Reason: Unclear type of study design included

3. Atieh MA, Alsabeeha N, Duncan WJ. Stability of tapered and parallel-walled dental implants: A systematic review and meta-analysis. *Clinical implant dentistry and related research.* 2018;20:634–45. doi:10.1111/cid.12623.

Reason: SR including different types of subjects

4. Attin T, Hannig C, Wiegand A, Attin R. Effect of bleaching on restorative materials and restorations--a systematic review. *Dent Mater.* 2004;20:852–61. doi:10.1016/j.dental.2004.04.002.

Reason: Unclear type of study design included

5. Azarpazhooh A, Main PA. Is there a risk of harm or toxicity in the placement of pit and fissure sealant materials? A systematic review. *J Can Dent Assoc.* 2008;74:179–83.

Reason: SR including different types of subjects

6. Bader JD, Shugars DA. A systematic review of the performance of a laser fluorescence device for detecting caries. *J Am Dent Assoc.* 2004;135:1413–26. doi:10.14219/jada.archive.2004.0051.

Reason: SR including different types of subjects

7. Bader JD, Shugars DA, Bonito AJ. A systematic review of the performance of methods for identifying carious lesions. *Journal of public health dentistry.* 2002;62:201–13. doi:10.1111/j.1752-7325.2002.tb03446.x.

Reason: SR including different types of subjects

8. Batista VEdS, Santiago Junior JF, Almeida DAdF, Lopes LFdTP, Verri FR, Pellizzer EP. The effect of offset implant configuration on bone stress distribution: a systematic review. *J Prosthodont*. 2015;24:93–9. doi:10.1111/jopr.12221.

Reason: Unclear type of study design included

9. Behdin S, Monje A, Lin G-H, Edwards B, Othman A, Wang H-L. Effectiveness of Laser Application for Periodontal Surgical Therapy: Systematic Review and Meta-Analysis. *Journal of periodontology*. 2015;86:1352–63. doi:10.1902/jop.2015.150212.

Reason: SR including different types of subjects

10. Bellinaso MD, Soares FZM, Rocha RdO. Do bulk-fill resins decrease the restorative time in posterior teeth? A systematic review and meta-analysis of in vitro studies. *J Investig Clin Dent*. 2019;10:e12463. doi:10.1111/jicd.12463.

Reason: SR including different types of subjects

11. Berchier CE, Slot DE, van der Weijden GA. The efficacy of 0.12% chlorhexidine mouthrinse compared with 0.2% on plaque accumulation and periodontal parameters: a systematic review. *J Clin Periodontol*. 2010;37:829–39. doi:10.1111/j.1600-051X.2010.01575.x.

Reason: SR including different types of subjects

12. Bohner L, Gamba DD, Hanisch M, Marcio BS, Tortamano Neto P, Laganá DC, Sesma N. Accuracy of digital technologies for the scanning of facial, skeletal, and intraoral tissues: A systematic review. *J Prosthet Dent*. 2019;121:246–51. doi:10.1016/j.prosdent.2018.01.015.

Reason: SR including different types of subjects

13. Braga RR, Ballester RY, Ferracane JL. Factors involved in the development of polymerization shrinkage stress in resin-composites: a systematic review. *Dent Mater*. 2005;21:962–70. doi:10.1016/j.dental.2005.04.018.

Reason: Unclear type of study design included

14. Brian HC, Lam OL, Jagannathan N, Botelho MG. A Systematic Review of Amalgam Bonded Restorations: In vitro and Clinical Findings. *J Contemp Dent Pract*. 2018;19:1013–24.

Reason: SR including different types of subjects

15. Bühler J, Amato M, Weiger R, Walter C. A systematic review on the effects of air polishing devices on oral tissues. *Int J Dent Hyg*. 2016;14:15–28. doi:10.1111/idh.12120.

Reason: SR including different types of subjects

16. CERUSO FM, BARNABA P, MAZZOLENI S, OTTRIA L, GARGARI M, ZUCCON A, et al. Implant-abutment connections on single crowns: a systematic review. *Oral Implantol (Rome)*. 2017;10:349–53. doi:10.11138/orl/2017.10.4.349.

Reason: SR including different types of subjects

17. Chisini LA, Conde MCM, Grazioli G, Martin ASS, Carvalho RV de, Nör JE, Demarco FF. Venous Blood Derivatives as FBS-Substitutes for Mesenchymal Stem Cells: A Systematic Scoping Review. *Braz Dent J*. 2017;28:657–68. doi:10.1590/0103-6440201701646.

Reason: SR including different types of subjects

18. Chochlidakis KM, Papaspyridakos P, Geminiani A, Chen C-J, Feng IJ, Ercoli C. Digital versus conventional impressions for fixed prosthodontics: A systematic review and meta-analysis. *J Prosthet Dent*. 2016;116:184-190.e12. doi:10.1016/j.prosdent.2015.12.017.

Reason: SR including different types of subjects

19. Choi IGG, Cortes ARG, Arita ES, Georgetti MAP. Comparison of conventional imaging techniques and CBCT for periodontal evaluation: A systematic review. *Imaging Sci Dent*. 2018;48:79–86. doi:10.5624/isd.2018.48.2.79.

Reason: SR including different types of subjects

20. Cocco AR, Da Rosa WLdO, Da Silva AF, Lund RG, Piva E. A systematic review about antibacterial monomers used in dental adhesive systems: Current status and further prospects. *Dent Mater*. 2015;31:1345–62. doi:10.1016/j.dental.2015.08.155.

Reason: SR including different types of subjects

21. Conde MCM, Chisini LA, Demarco FF, Nör JE, Casagrande L, Tarquinio SBC. Stem cell-based pulp tissue engineering: variables enrolled in translation from the bench to the bedside, a systematic review of literature. *Int Endod J*. 2016;49:543–50. doi:10.1111/iej.12489.

Reason: SR including different types of subjects

22. Conejo J, Kobayashi T, Anadioti E, Blatz MB. Performance of CAD/CAM monolithic ceramic Implant-supported restorations bonded to titanium inserts: A systematic review. *Eur J Oral Implantol*. 2017;10 Suppl 1:139–46.

Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

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Reason: Full-text not available

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: Unclear type of study design included

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Reason: SR including different types of subjects

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Reason: Unclear type of study design included

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

93. Fonseca J-M, Troconis C-C, Palmier N-R, Gomes-Silva W, Paglioni M-D, Araújo A-L, et al. The impact of head and neck radiotherapy on the dentine-enamel junction: a systematic review. *Med Oral Patol Oral Cir Bucal*. 2020;25:e96-e105. doi:10.4317/medoral.23212.

Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

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Reason: SR including different types of subjects

97. Ranjan, S., Ranjan, M. Antibacterial effectiveness of rotary and reciprocating systems on microbial load reduction in retreatment cases-a systematic review. *International Journal of Dentistry and Oral Science*. 2021;pp. 3710-3717.

Reason: Full-text not available

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Reason: SR including different types of subjects

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Reason: SR not related to interventions

100. Shah N, Badwaik P, Sheth VH, Bhatnagar V, Bhanushali N, Patil P. Effect of different finish line preparations on the marginal and internal adaptation of cobalt-chromium metal alloy copings fabricated by using CAD-CAM technology: A systematic review and meta-analysis. *J Prosthet Dent* 2021. doi:10.1016/j.prosdent.2021.06.030.

Reason: Full-text not available

101. Sivakumar N. Antibacterial Effect Of Nanocoating Of Orthodontic Archwires - A Systematic Review. *IJDOS*. 2014:2244–50. doi:10.19070/2377-8075-21000444.

Reason: SR including different types of subjects

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Reason: Unclear type of study design included

Additional file 7: Assessment of AMSTAR-2 items in 185 systematic reviews of in-vitro studies published in dentistry

Systematic review	AMSTAR-2 items																Total n (%)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Abduo et al. 2011(1)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	n	y: 0(0) py: 2(15,4) n: 11(84,6)
Adnan et al. 2018(2)	y	y	n	py	y	y	n	y	y	n	NMA	NMA	y	y	NMA	y	y: 9(69,2) py: 1(7,7) n: 3(23,1)
Ahn et al. 2016(3)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	y	y: 1(7,7) py: 2(15,4) n: 10(76,9)
de Almeida et al. 2018(4)	y	y	n	py	y	n	n	y	py	n	n	y	y	n	n	y	y: 7(43,75) py: 2(12,5) n: 7(43,75)
Almoudi et al. 2018(5)	n	n	n	py	y	y	n	y	n	n	NMA	NMA	n	n	NMA	y	y: 4(30,8) py: 1(7,7) n: 8(61,5)
AlShwaimi et al. 2016(6)	y	py	n	py	y	n	y	y	n	n	NMA	NMA	y	y	NMA	y	y: 7(53,8) py: 2(15,4) n: 4(30,8)
Altmann et al. 2016(7)	n	py	n	py	y	y	y	py	n	n	y	y	n	y	y	n	y: 7(43,75) py: 3(18,75) n: 6(37,5)
Altmann et al. 2015(8)	y	y	n	py	y	n	y	y	n	n	y	y	n	y	n	y	y: 9(56,25) py: 1(6,25) n: 6(37,5)
de Andrade Lima Chaves et al. 2012(9)	n	py	n	py	n	n	y	py	n	n	y	n	n	y	n	n	y: 3(18,75) py: 3(18,75) n: 10(62,5)
Archambault et al. 2010(10)	n	n	n	py	n	n	y	py	n	n	NMA	NMA	n	n	NMA	n	y: 1(7,7) py: 2(15,4) n: 10(76,9)
Aurélio et al. 2016(11)	y	y	n	py	y	n	n	y	py	n	y	y	y	y	n	n	y: 8(50) py: 2(12,5) n: 6(37,5)
Bächle M et al. 2004(12)	y	n	n	py	n	n	n	y	n	n	NMA	NMA	n	y	NMA	n	y: 3(23,1) py: 1(7,7) n: 9(69,2)
Baumgartner et al. 2017(13)	y	y	n	y	y	y	n	y	py	n	y	y	y	y	n	n	y: 10(62,5) py: 1(6,25) n: 5(31,25)
Behring et al. 2008(14)	y	n	n	n	n	n	n	py	n	n	NMA	NMA	n	n	NMA	n	y: 1(7,7) py: 1(7,7) n: 11(84,6)
Bernades Kde et al. 2014(15)	y	n	n	py	n	n	n	y	n	n	NMA	NMA	n	n	NMA	y	y: 3(23,1) py: 1(7,7) n: 9(69,2)
Bohrer et al. 2018(16)	y	py	n	py	y	y	n	y	py	n	y	y	y	y	n	n	y: 8(50) py: 3(18,75) n: 5(31,25)
Caldas et al. 2019(17)	y	py	n	py	y	y	n	y	n	n	NMA	NMA	n	y	NMA	y	y: 6(46,2) py: 2(15,4) n: 5(38,5)
de Carvalho et al.	y	y	n	py	y	n	y	y	y	n	y	y	y	y	n	n	y: 10(62,5)

2018(18)																	py: 1(6,25) n: 5(31,25)
Collares et al. 2016(19)	n	py	n	py	n	y	n	py	n	n	y	n	n	y	n	y	y: 4(25) py: 3(18,75) n: 9(56,25)
Collares et al. 2013(20)	n	py	n	py	n	y	n	py	n	n	y	n	n	y	n	n	y: 3(18,75) py: 3(18,75) n: 10(62,5)
Coray et al. 2016(21)	y	py	n	py	y	n	y	y	n	n	n	n	n	n	n	n	y: 4(25) py: 2(12,5) n: 10(62,5)
Corrêa et al. 2019(22)	y	py	n	py	y	y	n	y	py	n	y	y	y	y	n	n	y: 8(50) py: 3(18,75) n: 5(31,25)
Cuevas-Suárez et al. 2019(23)	n	y	n	py	y	n	y	py	py	n	y	y	n	y	n	n	y: 6(37,5) py: 3(18,75) n: 7(43,75)
Cury et al. 2019(24)	y	py	n	y	y	y	n	y	y	n	NMA	NMA	y	y	NMA	y	y: 9(69,2) py: 1(7,7) n: 3(23,1)
Davoudi et al. 2019(25)	y	py	n	py	y	y	n	py	y	n	NMA	NMA	n	y	NMA	n	y: 5(31,25) py: 3(18,75) n: 5(31,25)
Dumbryte et al. 2018(26)	y	y	n	py	y	y	y	y	y	n	y	y	y	y	n	y	y: 12(75) py: 1(6,25) n: 3(18,75)
Ehsani et al. 2009(27)	n	py	n	py	n	n	y	py	n	n	NMA	NMA	n	n	NMA	n	y: 1(7,7) py: 3(23,1) n: 9(69,2)
Ekambaram et al. 2015(28)	y	py	n	py	n	n	y	y	n	n	NMA	NMA	n	n	NMA	n	y: 3(23,1) py: 2(15,4) n: 8(61,5)
Ferreira et al. 2017(29)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	y	y: 1(7,7) py: 2(15,4) n: 10(76,9)
Finnema et al. 2010(30)	n	py	n	py	n	y	n	py	n	n	y	n	n	y	n	y	y: 4(25) py: 3(18,75) n: 9(56,25)
García-Sanz et al. 2018(31)	n	y	n	y	y	n	n	py	n	n	y	y	y	y	y	y	y: 9(56,25) py: 1(6,25) n: 6(37,5)
Gorman et al. 2016(32)	y	n	n	y	n	y	n	py	y	y	NMA	NMA	n	n	NMA	y	y: 6(46,2) py: 1(7,7) n: 6(46,2)
Goujat et al. 2019(33)	y	py	n	py	y	n	n	y	py	n	NMA	NMA	Y	Y	NMA	y	y: 6(46,2) py: 3(23,1) n: 4(30,8)
Grewal Bach et al. 2014(34)	y	n	n	py	y	n	y	n	n	n	NMA	NMA	n	n	NMA	n	y: 3(23,1) py: 1(7,7) n: 9(69,2)
Holliday et al. 2019(35)	y	py	n	y	y	n	y	py	y	y	NMA	NMA	y	y	NMA	y	y: 9(69,2) py: 2(15,4) n: 2(15,4)
Iliadi et al. 2019(36)	y	y	n	y	y	n	n	y	py	n	y	y	y	y	n	y	y: 10(62,5) py: 1(6,25) n: 5(31,25)
Isolan et al. 2015(37)	y	y	n	py	y	n	y	y	py	n	y	y	y	y	n	n	y: 9(56,25) py: 2(12,5) n: 5(31,25)
Kaczor et al. 2018(38)	y	y	n	py	y	n	n	y	py	n	y	y	y	n	n	y	y: 8(50) py: 2(12,5)

																	n: 6(37,5)
Kaizer et al. 2014(39)	y	py	n	py	y	y	y	y	n	n	NMA	NMA	n	y	NMA	n	y: 6(46,2) py: 2(15,4) n: 5(38,5)
Kaufmann et al. 2018(40)	y	py	n	py	y	n	y	y	n	n	NMA	NMA	n	n	NMA	y	y: 5(38,5) py: 2(15,4) n: 6(46,2)
Kim et al. 2015(41)	y	n	n	py	y	y	y	py	n	n	NMA	NMA	n	n	NMA	n	y: 4(30,8) py: 2(15,4) n: 7(53,8)
Kuik et al. 2019(42)	y	py	n	py	n	n	py	y	n	n	NMA	NMA	n	y	NMA	y	y: 4(30,8) py: 3(23,1) n: 6(46,2)
Laaksonen et al. 2010(43)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	y	y: 1(7,7) py: 2(15,4) n: 10(76,9)
Lee et al. 2008(44)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	n	y: 0(0) py: 2(15,4) n: 11(84,6)
Lenzi et al. 2016(45)	n	y	n	py	y	n	n	py	py	n	y	y	y	y	n	y	y: 7(43,75) py: 3(18,75) n: 6(37,5)
Lo Russo et al. 2019(46)	y	py	n	py	y	y	n	y	n	n	y	n	n	y	n	n	y: 6(37,5) py: 2(12,5) n: 8(50)
Lombardo et al. 2019(47)	n	py	n	py	y	n	n	py	n	n	n	n	n	n	n	n	y: 1(6,25) py: 3(18,75) n: 12(75)
Louropoulou et al. 2015(48)	y	y	n	py	y	y	y	y	py	n	NMA	NMA	y	y	NMA	y	y: 9(69,2) py: 2(15,4) n: 2(15,4)
Marchionatti et al. 2018(49)	y	py	n	py	y	y	n	y	y	n	y	y	y	y	n	n	y: 9(56,25) py: 2(12,5) n: 5(31,25)
Martins et al. 2019(50)	y	y	n	py	y	n	n	y	py	n	y	y	n	y	n	y	y: 8(50) py: 2(12,5) n: 6(37,5)
Martins et al. 2019(51)	y	y	n	py	y	n	n	y	py	n	y	y	n	y	n	y	y: 8(50) py: 2(12,5) n: 6(37,5)
Masarwa et al. 2016(52)	y	y	n	n	n	n	n	py	py	n	y	y	y	y	y	n	y: 7(43,75) py: 2(12,5) n: 7(43,75)
de Mello et al. 2018(53)	y	py	n	py	y	n	y	y	n	n	n	n	y	n	n	y	y: 6(37,5) py: 2(12,5) n: 8(50)
Mello et al. 2019(54)	y	py	n	py	y	y	y	y	y	y	y	n	n	y	n	y	y: 10(62,5) py: 2(12,5) n: 4(25)
Menezes-Silva et al. 2019(55)	y	py	n	py	y	n	n	py	py	n	NMA	NMA	n	n	NMA	n	y: 2(15,4) py: 4(30,8) n: 7(53,8)
Moharrami et al. 2019(56)	y	n	n	py	y	n	y	y	n	n	NMA	NMA	n	n	NMA	y	y: 5(38,5) py: 1(7,7) n: 7(53,8)
Moraes et al. 2015(57)	n	y	n	py	y	n	y	py	py	n	y	y	y	y	n	y	y: 8(50) py: 3(18,75) n: 5(31,25)
Moreira et al. 2015(58)	n	n	n	py	n	y	n	y	n	n	NMA	NMA	n	n	NMA	n	y: 2(15,4) py: 1(7,7)

																	n: 10(76,9)
Możyńska et al. 2017(59)	n	py	n	py	y	n	n	py	py	n	NMA	NMA	y	y	NMA	y	y: 4(30,8) py: 4(30,8) n: 5(38,5)
Nagendrababu et al. 2018(60)	y	py	n	py	y	y	y	y	n	n	NMA	NMA	n	y	NMA	y	y: 7(53,8) py: 2 (15,4) n: 4(30,8)
Nassar et al. 2011(61)	y	n	n	py	y	n	n	y	n	n	NMA	NMA	n	n	NMA	n	y: 3(23,1) py: 1(7,7) n: 9(69,2)
Nawafleh et al. 2016(62)	n	n	n	py	y	n	y	py	n	n	NMA	NMA	n	y	NMA	y	y: 4(30,8) py: 2(15,4) n: 7(53,8)
Neelakantan et al. 2018(63)	y	py	n	py	y	y	y	y	py	n	NMA	NMA	y	y	NMA	y	y: 8(61,5) py: 3(23,1) n: 2(15,4)
Ntrouka et al. 2011(64)	n	y	n	py	y	y	y	py	py	n	NMA	NMA	y	y	NMA	y	y: 7(53,8) py: 3(23,1) n: 3(23,1)
Oliveira et al. 2018(65)	y	py	n	py	y	n	y	y	py	n	NMA	NMA	y	y	NMA	y	y: 7(53,8) py: 3(23,1) n: 3(23,1)
Oliveira et al. 2020(66)	y	y	n	py	y	y	n	y	py	n	y	y	y	y	n	n	y: 9(56,25) py: 2(12,5) n: 5(31,25)
Osmanovic et al. 2018(67)	y	py	n	py	n	n	n	y	py	n	NMA	NMA	n	n	NMA	y	y: 3(23,1) py: 3(23,1) n: 7(53,8)
Özcan et al. 2015(68)	n	py	n	py	y	y	n	n	n	n	n	n	n	n	n	n	y: 2(12,5) py: 2(12,5) n: 12(75)
Özcan et al. 2018(69)	y	py	n	py	y	y	n	y	n	n	NMA	NMA	n	n	NMA	y	y: 5(38,5) py: 2(15,4) n: 6(46,2)
Özcan et al. 2018(70)	y	n	n	n	n	n	n	y	n	n	NMA	NMA	n	n	NMA	y	y: 3(23,1) py: 0(0) n: 10(76,9)
Papia et al. 2014(71)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	n	y: 0(0) py: 2(15,4) n: 11(84,6)
Pardal-Peláez et al. 2017(72)	y	n	n	py	n	n	n	y	n	n	NMA	NMA	n	n	NMA	y	y: 3(23,1) py: 1(7,7) n: 9(69,2)
Parikh et al. 2019(73)	y	py	n	py	n	y	n	y	y	n	NMA	NMA	y	y	NMA	y	y: 7(53,8) py: 2(15,4) n: 4(30,8)
Passos et al. 2015(74)	n	py	n	py	y	n	n	py	n	n	NMA	NMA	n	y	NMA	y	y: 3(23,1) py: 3(23,1) n: 7(53,8)
Passos et al. 2014(75)	n	n	n	py	y	n	n	py	n	n	NMA	NMA	n	n	NMA	y	y: 2(15,4) py: 2(15,4) n: 9(69,2)
Perroni et al. 2018(76)	y	py	n	py	y	n	y	y	y	y	NMA	NMA	n	n	NMA	y	y: 7(53,8) py: 2(15,4) n: 4(30,8)
Pinho MM et al. 2017(77)	y	n	n	py	y	y	n	y	n	n	NMA	NMA	n	n	NMA	y	y: 5(38,5) py: 1(7,7) n: 7(53,8)
Pires et al. 2018(78)	y	y	n	py	y	y	n	y	y	n	y	y	y	y	n	n	y: 10(62,5) py: 1(6,25)

																		n: 5(31,25)
Reis et al. 2017(79)	y	n	n	py	y	y	n	y	n	n	NMA	NMA	n	n	NMA	y		y: 5 (38,5) py: 1(7,7) n: 7(53,8)
Resende et al. 2020(80)	y	py	n	py	n	n	n	y	y	n	NMA	NMA	y	y	NMA	y		y: 6(46,2) py: 2(15,4) n: 5(38,5)
Rodrigues et al. 2019(81)	y	y	n	py	y	y	n	y	y	y	y	y	y	y	n	n		y: 11(68,75) py: 1(6,25) n: 4(25)
Rosa et al. 2015(82)	n	y	n	py	y	n	y	py	py	n	n	y	n	n	n	n		y: 4(25) py: 3(18,75) n: 9(56,25)
Samiei et al. 2019(83)	n	py	n	py	y	y	n	py	py	n	NMA	NMA	n	n	NMA	y		y: 3(23,1) py: 4(30,8) n: 6(46,2)
Sarkis-Onofre et al. 2014(84)	y	y	n	py	y	n	n	y	py	n	y	y	y	y	n	y		y: 9(56,25) py: 2(12,5) n: 5(31,25)
Shahmiri et al. 2018(85)	y	n	n	py	n	n	y	y	n	n	NMA	NMA	n	n	NMA	n		y: 3(23,1) py: 1(7,7) n: 9(69,2)
Shahravan et al. 2007(86)	y	py	n	n	n	n	py	y	n	n	y	n	n	y	y	n		y: 5(31,25) py: 2(12,5) n: 9(56,25)
Silva et al. 2019(87)	y	y	n	y	y	y	y	y	n	n	y	y	y	y	n	n		y: 11(68,75) py: 0(0) n: 5(31,25)
Silva et al. 2018(88)	y	py	n	y	y	y	y	y	n	n	NMA	NMA	y	n	NMA	n		y: 7(53,8) py: 1(7,7) n: 5(38,5)
Skupien et al. 2015(89)	y	n	n	py	y	y	n	py	n	n	NMA	NMA	n	y	NMA	y		y: 5(38,5) py: 2(15,4) n: 6(46,2)
Soares et al. 2016(90)	y	y	n	py	y	n	y	y	py	n	y	y	y	y	n	n		y: 9(56,25) py: 2(12,5) n: 5(31,25)
Solanki et al. 2018(91)	y	py	n	py	y	y	n	n	n	y	NMA	NMA	n	n	NMA	y		y: 5(38,5) py: 2(15,4) n: 6(46,2)
de Sousa et al. 2018(92)	y	py	n	py	y	n	n	y	n	n	NMA	NMA	n	n	NMA	y		y: 4(30,8) py: 2(15,4) n: 7(53,8)
Strauss et al. 2020(93)	y	n	n	py	y	y	n	y	n	n	NMA	NMA	n	n	NMA	y		y: 5(38,5) py: 1(7,7) n: 7(53,8)
Tageldin et al. 2016(94)	n	py	n	py	n	n	n	n	n	n	NMA	NMA	n	n	NMA	n		y: 0(0) py: 2(15,4) n: 11(84,6)
Taha et al. 2017(95)	y	y	n	y	n	y	n	y	py	n	NMA	NMA	n	y	NMA	n		y: 6(46,2) py: 1(7,7) n: 6(46,2)
Tavares et al. 2019(96)	y	py	n	y	y	n	n	y	y	n	NMA	NMA	n	n	NMA	y		y: 6(46,2) py: 1(7,7) n: 6(46,2)
Theodosopoulou et al. 2005(97)	y	py	n	n	y	n	y	y	py	n	NMA	NMA	n	y	NMA	n		y: 5 (38,5) py: 2(15,4) n: 6(46,2)
Ting et al. 2016(98)	n	n	n	py	n	y	n	py	n	n	NMA	NMA	n	n	NMA	y		y: 2(15,4) py: 2(15,4)

																		n: 9(69,2)
Tsesis et al. 2015(99)	y	py	n	py	y	y	n	n	y	n	n		y	n	n	n	y	y: 6(37,5) py: 2(12,5) n: 8(50)
Tzanakakis et al. 2016(100)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	n		y: 0(0) py: 2(15,4) n: 11(84,6)
Uzunoglu-Özyürek et al. 2018(101)	y	py	n	py	y	n	y	y	py	n	NMA	NMA	y	y	NMA	y		y: 7(53,8) py: 3(23,1) n: 3(23,1)
Valente et al. 2016(102)	y	y	n	py	y	y	py	y	py	n	y	y	y	y	n	n		y: 9(56,25) py: 3(18,75) n: 4(25)
Virdee et al. 2018(103)	y	y	n	py	y	n	y	y	y	n	y	y	y	y	y	y		y: 12(75) py: 1(6,25) n: 3(18,75)
Western et al. 2016(104)	n	n	n	py	n	n	y	y	n	n	NMA	NMA	n	n	NMA	y		y: 3(23,1) py: 1(7,7) n: 9(69,2)
Yassen et al. 2013(105)	n	n	n	py	n	n	y	py	n	n	NMA	NMA	n	n	NMA	n		y: 1(7,7) py: 2(15,4) n: 10(76,9)
Yaylali et al. 2015(106)	y	py	n	py	y	y	y	y	py	n	NMA	NMA	y	y	NMA	y		y: 8(61,5) py: 3(23,1) n: 2(15,4)
Yu et al. 2019(107)	n	y	n	py	y	n	n	py	n	n	y	y	y	y	n	n		y: 6(37,5) py: 2(12,5) n: 8(50)
Yu et al. 2020(108)	y	y	n	py	y	y	n	y	py	n	y	y	y	y	n	n		y: 9(56,25) py: 2(12,5) n: 5(31,25)
Ahmed et al. 2020(109)	y	py	n	py	y	n	y	y	n	n	NMA	NMA	y	y	NMA	y		y: 7(53,8) py: 2(15,4) n: 4(30,8)
Alammar et al. 2021(110)	y	py	n	py	y	y	y	y	n	n	NMA	NMA	n	y	NMA	y		y: 7(53,8) py: 2(15,4) n: 4(30,8)
Alhajj et al. 2021(111)	y	y	n	py	n	n	n	y	y	n	y	n	y	y	y	y		y: 9(56,25) py: 1(6,25) n: 6(37,5)
Aljomard et al. 2021(112)	n	py	n	py	y	n	n	py	n	n	y	n	n	y	y	y		y: 5(31,25) py: 3(18,75) n: 8(50)
Almeida Bastos et al. 2020(113)	y	py	n	n	y	n	y	y	n	n	y	n	n	y	n	y		y: 7(43,75) py: 1(6,25) n: 8(50)
Al-Thobity et al. 2021(114)	y	y	n	y	n	n	n	y	y	y	y	n	n	y	n	n		y: 8(50) py: 0(0) n: 8(50)
Anita et al. 2021(115)	y	y	n	py	y	y	y	y	py	n	y	y	y	y	y	y		y: 12(75) py: 2(12,5) n: 2(12,5)
Astudillo-Rubio et al. 2018(116)	y	y	n	y	y	y	n	y	py	n	y	n	y	y	y	y		y: 11(68,75) py: 1(6,25) n: 4(25)
Baldion et al. 2020(117)	y	py	n	y	y	y	y	y	py	n	NMA	NMA	y	y	NMA	y		y: 9(69,2) py: 2(15,4) n: 2(15,4)
Bangera et al. 2021(118)	y	y	n	py	y	n	n	y	y	y	y	y	y	y	n	y		y: 11(68,75) py: 1(6,25)

																		n: 4(25)
Bangera et al. 2020(119)	y	y	n	py	y	y	n	y	y	y	y		y	n	y	n		y: 11(68,75) py: 1(6,25) n: 4(25)
Bitencourt et al. 2021(120)	y	n	n	py	n	n	n	n	n	n	n		n	n	n	n		y: 2(12,5) py: 1(6,25) n: 13(81,25)
Bohrer et al. 2021(121)	y	y	n	py	y	y	n	y	py	n	y		n	y	y	n		y: 9(56,25) py: 2(12,5) n: 5(31,25)
Bonzanini et al. 2021(122)	y	y	n	py	y	y	y	y	py	n	y		y	y	y	n		y: 11(68,75) py: 2(12,5) n: 3(18,75)
Carneiro Pereira et al. 2021(123)	n	py	n	py	n	n	n	py	py	n	NMA	NMA	n	y	NMA	n		y: 1(7,7) py: 4(30,8) n: 8(61,5)
Cavalcante-Leão et al. 2021(124)	y	y	n	y	y	y	y	y	y	y	NMA	NMA	n	n	NMA	y		y: 10(76,9) py: 0(0) n: 3(23,1)
Corvino et al. 2020(125)	y	py	n	py	y	y	y	y	py	n	NMA	NMA	y	y	NMA	y		y: 8(61,5) py: 3(23,1) n: 2(15,4)
Costa et al. 2021(126)	y	y	n	n	y	y	n	y	y	n	y		y	y	n	n		y: 10(62,5) py: 0(0) n: 6(37,5)
da Costa et al. 2021(127)	y	py	n	py	n	y	n	y	y	n	NMA	NMA	n	y	NMA	y		y: 6(46,2) py: 2(15,4) n: 5(38,5)
David et al. 2021(128)	y	y	n	py	y	n	n	y	py	n	y		y	n	y	n		y: 7(43,75) py: 2(12,5) n: 7(43,75)
Eswaramurthy et al. 2021(129)	y	py	n	y	y	y	y	y	y	n	NMA	NMA	n	n	NMA	y		y: 8(61,5) py: 1(7,7) n: 4(30,8)
Fathy et al. 2021(130)	n	n	n	py	y	n	n	py	n	n	NMA	NMA	n	n	NMA	n		y: 1(7,7) py: 2(15,4) n: 10(76,9)
Fernández-Barrera et al. 2021(131)	y	y	n	py	y	n	y	y	py	n	y		n	n	n	y		y: 7(43,75) py: 2(12,5) n: 7(43,75)
Ferreira et al. 2021(132)	y	py	n	py	y	y	y	py	py	n	NMA	NMA	y	y	NMA	y		y: 7(53,8) py: 4(30,8) n: 2(15,4)
Fröhlich et al. 2021(133)	y	y	n	py	y	n	y	y	py	n	y		y	y	y	n		y: 10(62,5) py: 2(12,5) n: 4(25)
Fröhlich et al. 2019(134)	y	y	n	py	y	n	y	y	py	n	y		n	y	y	n		y: 9(56,25) py: 2(12,5) n: 5(31,25)
Gerula-Szymanska et al. 2020(135)	y	y	n	py	n	n	n	y	py	n	y		n	n	y	n		y: 6(37,5) py: 2(12,5) n: 8(50)
Golshah et al. 2020(136)	y	py	n	py	y	n	n	y	y	n	y		y	n	n	y		y: 8(50) py: 2(12,5) n: 6(37,5)
Iaculli et al. 2021(137)	y	y	n	py	y	y	y	y	py	n	y		y	y	y	y		y: 12(75) py: 2(12,5) n: 2(12,5)
Jacob et al. 2021(138)	n	y	n	py	n	n	n	py	py	n	y		y	y	y	n		y: 6(37,5) py: 3(18,75)

																		n: 7(43,75)
Janjic et al. 2018(139)	n	n	n	py	y	n	y	py	n	n	NMA	NMA	n	y	NMA	y		y: 4(30,8) py: 2(15,4) n: 7(53,8)
Jurema et al. 2021(140)	y	y	n	y	n	y	n	y	py	n	y	y	y	y	n	n		y: 9(56,25) py: 1(6,25) n: 6(37,5)
Kreve et al. 2021(141)	n	py	n	py	y	n	n	n	n	n	NMA	NMA	n	y	NMA	y		y: 3(23,1) py: 2(15,4) n: 8(61,5)
Kwon et al. 2020(142)	y	py	n	n	y	n	y	y	py	y	n	n	n	y	n	y		y: 7(43,75) py: 2(12,5) n: 7(43,75)
Li et al. 2021(143)	y	py	n	y	y	y	n	y	py	n		y	y	y	n	n		y: 9(56,25) py: 2(12,5) n: 5(31,25)
Li et al. 2019(144)	n	py	n	py	n	n	n	py	py	n	NMA	NMA	y	n	NMA	n		y: 1(7,7) py: 4(30,8) n: 8(61,5)
Lima et al. 2020(145)	y	y	n	py	y	n	y	y	py	n	y	n	n	y	n	y		y: 8(50) py: 2(12,5) n: 6(37,5)
Lin et al. 2021(146)	n	n	n	py	y	n	n	py	n	n	NMA	NMA	n	n	NMA	y		y: 2(15,4) py: 2(15,4) n: 9(69,2)
Mai et al. 2020(147)	y	y	n	py	y	y	n	y	y	n	y	y	y	y	y	n		y: 11(68,75) py: 1(6,25) n: 4(25)
Mendes et al. 2020(148)	y	y	n	py	y	y	n	y	py	n	y	n	y	y	n	n		y: 8(50) py: 2(12,5) n: 6(37,5)
Mishra et al. 2020(149)	n	py	n	py	y	n	n	py	py	n	NMA	NMA	y	y	NMA	y		y: 4(30,8) py: 4(30,8) n: 5(38,5)
Mohamed et al. 2021(150)	y	py	n	py	n	y	n	y	y	n	NMA	NMA	n	y	NMA	y		y: 6(46,2) py: 2(15,4) n: 5(38,5)
Moura et al. 2021(151)	y	y	n	py	y	n	n	y	py	n	y	n	y	y	n	n		y: 7(43,75) py: 2(12,5) n: 7(43,75)
Mustafa et al. 2020(152)	n	n	n	py	n	y	n	py	n	n	NMA	NMA	n	y	NMA	y		y: 3(23,1) py: 2(15,4) n: 8(61,5)
Nimbeni et al. 2021(153)	n	n	n	py	n	n	n	py	n	n	NMA	NMA	n	n	NMA	n		y: 0(0) py: 2(15,4) n: 11(84,6)
Nogueira et al. 2021(154)	y	y	n	py	y	n	n	y	py	n	y	y	y	y	n	n		y: 8(50) py: 2(12,5) n: 6(37,5)
de Oliveira et al. 2021(155)	y	y	n	py	y	y	y	py	y	y	y	n	n	y	n	y		y: 10(62,5) py: 2(12,5) n: 4(25)
de Oliveira Limirio et al. 2021(156)	y	y	n	py	y	y	n	y	y	n	y	y	y	y	n	n		y: 10(62,5) py: 1(6,25) n: 5(31,25)
Özcan et.al. 2014(157)	n	py	n	n	y	y	n	n	n	n	n	n	n	n	n	n		y: 2(12,5) py: 1(6,25) n: 13(81,25)
Parize et al. 2021(158)	y	y	n	py	y	y	y	y	n	n	NMA	NMA	y	y	NMA	y		y: 9(69,2) py: 1(7,7)

																	n: 3(23,1)
Parolia et al. 2020(159)	y	py	n	py	y	y	y	y	py	n	NMA	NMA	y	y	NMA	y	y: 8(61,5) py: 3(23,1) n: 2(15,4)
Paul et al. 2021(160)	y	py	n	py	n	y	y	y	py	n	NMA	NMA	n	y	NMA	y	y: 6(46,2) py: 3(23,1) n: 4(30,8)
Pereira et. al. 2016(161)	y	y	n	py	y	y	n	y	py	n	y	n	y	y	n	n	y: 8(50) py: 2(12,5) n: 6(37,5)
Pires Lopes et al. 2020(162)	n	py	n	py	y	n	y	py	py	n	NMA	NMA	n	n	NMA	n	y: 2(15,4) py: 4(30,8) n: 7(53,8)
Portela et al. 2021(163)	y	py	n	y	y	n	y	y	y	y	NMA	NMA	y	n	NMA	y	y: 9(69,2) py: 1(7,7) n: 3(23,1)
Pourhajibagher et al. 2020(164)	y	y	n	py	n	n	n	py	py	n	y	y	n	y	y	y	y: 7(43,75) py: 3(18,75) n: 6(37,5)
Purger et al. 2021(165)	y	py	n	py	y	n	n	y	py	n	NMA	NMA	y	n	NMA	y	y: 5(38,5) py: 3(23,1) n: 5(38,5)
dos Reis-Prado et al. 2021(166)	y	y	n	py	y	n	y	y	y	n	y	y	y	y	n	y	y: 11(68,75) py: 1(6,25) n: 4(25)
Revilla-León et al. 2021(167)	y	y	n	py	n	y	n	y	y	n	y	y	y	y	y	y	y: 11(68,75) py: 1(6,25) n: 4(25)
Rodríguez-Barragué et al. 2021(168)	y	py	n	py	y	n	y	py	py	n	y	n	y	y	n	y	y: 7(43,75) py: 4(25) n: 5(31,25)
Saeed et al. 2021(169)	y	py	n	py	y	y	n	y	py	n	NMA	NMA	y	n	NMA	y	y: 6(46,2) py: 3(23,1) n: 4(30,8)
Sanz et al. 2020(170)	y	py	n	py	y	y	y	y	y	y	NMA	NMA	n	y	NMA	y	y: 9(69,2) py: 2(15,4) n: 2(15,4)
Sanz et al. 2020(171)	y	py	n	py	y	y	y	y	y	y	NMA	NMA	n	y	NMA	y	y: 9(69,2) py: 2(15,4) n: 2(15,4)
Sanz et al. 2021(172)	y	n	n	py	y	y	n	y	y	y	NMA	NMA	y	n	NMA	y	y: 8(61,5) py: 1(7,7) n: 4(30,8)
Sanz et al. 2021(173)	y	n	n	py	y	y	y	y	y	y	NMA	NMA	y	y	NMA	n	y: 9(69,2) py: 1(7,7) n: 3(23,1)
Savian et al. 2021(174)	y	y	n	py	y	n	n	y	py	n	y	n	y	y	n	y	y: 8(50) py: 2(12,5) n: 6(37,5)
Silva et al. 2021(175)	n	py	n	y	y	y	y	py	py	n	y	y	y	n	n	y	y: 8(50) py: 3(18,75) n: 5(31,25)
Spitz et al. 2020(176)	y	y	n	y	y	n	y	py	y	y	NMA	NMA	y	y	NMA	y	y: 10(76,9) py: 1(7,7) n: 2(15,4)
Stasic et al. 2021(177)	y	y	n	py	n	y	n	y	py	n	y	y	y	y	y	y	y: 10(62,5) py: 2(12,5) n: 4(25)
Tan et al. 2021(178)	y	py	n	py	y	y	n	y	y	y	NMA	NMA	n	y	NMA	y	y: 8(61,5) py: 2(15,4)

																	n: 3(23,1)
Teja et al. 2021(179)	y	py	n	py	n	n	n	y	py	n	NMA	NMA	n	n	NMA	y	y: 3(23,1) py: 3(23,1) n: 7(53,8)
Thakur et al. 2021(180)	y	y	n	py	y	n	n	y	py	n	y	y	y	y	y	y	y: 10(62,5) py: 2(12,5) n: 4(25)
Troconis et al. 2021(181)	y	y	n	py	n	n	n	y	py	n	NMA	NMA	y	y	NMA	n	y: 5(38,5) py: 2(15,4) n: 6(46,2)
Uzunoglu-Özyürek et al. 2021(182)	y	y	n	py	y	n	y	y	py	n	y	n	y	y	n	y	y: 9(56,25) py: 2(12,5) n: 5(31,25)
Wang et al. 2020(183)	y	y	n	py	n	n	n	y	py	n	NMA	NMA	n	y	NMA	n	y: 4(30,8) py: 2(15,4) n: 7(53,8)
Wehner et al. 2020(184)	y	py	n	py	y	y	n	y	n	n	y	n	n	y	y	y	y: 8(50) py: 2(12,5) n: 6(37,5)
Willis et al. 2021(185)	y	n	n	py	n	n	n	y	n	y	NMA	NMA	n	n	NMA	y	y: 4(30,8) py: 1(7,7) n: 8(61,5)

y:yes; py:partial yes; n=no; u:unclear; NMA: no meta-analysis