

Table S1. Description of included studies according to chronological order. AM = amalgam, BL = baseline, CM = compomer, CR = composite resin, CS = cross sectional, C & S = cotton roll/pellets & suction device/ejectors, GI/GIC = glass ionomer cement, min = minimum, mo = months, NA = not applicable, NR = not reported, nr = number of restorations after dropout, PPB = prospective practice based, RCT = randomized clinical trial, RD = rubber dam, RPB = retrospective practice based, RT = retrospective, Vs = versus, w= weeks, y = years, # = not considered for evaluation in this study, * = only one type of the same class material will be considered for evaluation in this study. Note: The original table has been modified (evaluation method and restorative material type columns have been removed).

STUDY NAME	STUDY DESIGN	NO. OF PATIENTS	AGE OF PATIENTS	LOCATION OF TOOTH	CLASS TYPE	COMPARISON	NO. OF RESTORATIONS	FOLLOW-UP	ISOLATION
BERNARDO, 2007	RCT	472	8-12 y	Permanent posterior	NR	CR Vs AM	Total: 1748 CR: 892, AM: 856	Up to 7 y	RD
SONCINI, 2007	RCT	534	6-10 y	Primary# and permanent posterior	NR	CR/CM# Vs AM	Total: 3304 Primary# - AM: 954, CM: 1088 Permanent - AM: 509, CR: 753	6 mo up to 5 y	RD
OPDAM, 2010	RT	273	23-77 y	Permanent posterior	II and multi-surfaces	CR Vs AM	Total: 1949 CR: 747, AM: 1202	Up to 12 y	NR
KOPPERUD, 2012	PPB	1873	6-57 y	Permanent posterior	II	CR Vs AM	Total: 4030(nr: 2935) CR: 3286, CM: 510, AM: 184, GIC: 50	Up to 5 y	NR
RHO, 2013	RT	140	10-78 y	Permanent posterior	I and II	CR Vs AM	Total: 269 CR: 138, AM: 131	NA	NR
KEMALOGLU, 2016	RCT	25	18-60 y	Permanent posterior	II	CR Vs AM	Total: 50 (nr: 40) CR: 25, AM: 25	2 w(BL), 6 mo, 1 y and 3 y	C & S
LASKE, 2016	RPB	61,121	5-95 y	Permanent posterior	II	CR Vs AM Vs GIC Vs CM	Total: 222,836 CR: 188683, AM: 27893, GIC: 5569, CM: 691	Up to 12 y	NR
PALOTIE, 2017	RPB	3051	25-30 y	Permanent posterior	II	CR Vs AM	Total: 5542 CR: 5169, AM: 373	Up to 13 y	NR
KHARMA, 2018	RCT	15	25-63 y	Molars	I	CR Vs GIC	Total: 50 (nr: 40) CR: 25, GIC: 25	BL, 3 mo, 6 mo and 9 mo	RD
BALKAYA, 2020	RCT	54	20-32 y	Permanent posterior	II	2 types of CR* Vs GIC	Total: 109 (nr: 84) CR(i): 38, GIC: 34, CR(ii) #: 37	1 w (BL), 1 y, 2 y	C & S
GURGAN, 2020	RCT	59	15-37 y	Permanent posterior	I and II	CR Vs GIC	Total: 140 (nr: 124) CR: 70, GIC: 70	1 w (BL), 1 y, 2 y, 3 y, 4 y, 5 y, 6 y, 8 y and 10 y	C & S
ROZNIATOWSKI, 2020	RCT	49	12-20 y	Permanent posterior	II	CR Vs GIC	Total: 100 (nr: 96) CR: 50, GIC: 50	1 y and 2 y	C & S
DA SILVA PEREIRA, 2020	RPB	351	5-29 y	Permanent posterior	I and II	CR Vs AM	Total: 2405 CR: 362, AM: 2043	Annually/ biannually for min 5 y	NR
HATIRLI, 2021	RCT	56	15-18 y	Molars	I	CR Vs GIC	Total: 112 (nr: 106) CR: 56, GIC: 56	1 w (BL), 6 mo, 1 y, and 2 y	C & S
UZEL, 2022	RCT	30	10-12 y	Molars	I and II	CR Vs GIC	Total: 70 (nr: 68) CR: 35, GIC: 35	6 mo, 1 y, 2 y	C & S
BAYAZIT, 2023	RCT	30	15-39 y	Molars	I	3 different types of GIC* Vs CR	Total: 128 (nr: 97) CR: 32, GIC(i): 32, GIC(ii) #: 32, GIC(iii) #: 32	BL, 6 mo, 1 y, 2 y, 3 y and 4 y	C & S
AL-ASMAR, 2023	CS	297	18-50 y	Permanent posterior	I and II	CR Vs AM	Total: 318 CR: 57, AM: 261	NA	NR

Table S2. Survival and failure of composite resin restorations vs amalgam restorations. AM = amalgam, AFR = annual failure rate, CA = rated as clinically acceptable by the authors, CR = composite resin, DO = disto-occlusal restoration, HCR = high caries risk, LCR = low caries risk, min = minimum, MO = mesio-occlusal restoration, MOD = mesio-occlusal-distal restoration, MST = median survival time, NA = not applicable, NR = not reported, NRC = not reported correctly, n.s. = not significant, TFR = total failure rate, y = year. (*) Calculated from the published data available in the study.

STUDY	FOLLOW-UP	SURVIVAL/SUCCESS RATE (%)		ANNUAL FAILURE RATE (%)		P VALUE	
		COMPOSITE RESIN	AMALGAM	COMPOSITE RESIN	AMALGAM		
BERNARDO, 2007	7 y	85.5	94.4	Mean AFR: 2.21	Mean AFR: 0.82	< 0.05	
SONCINI, 2007	5 y	2 y - 85.1* 5 y - 78.1*	2 y - 89.2* 5 y - 84.1*	TFR: Replacement: 2 y - 14.9 5 y - 21.9 Repair: 2 y - 2.8 5 y - 4	TFR: Replacement: 2 y - 10.8 5 y - 15.9 Repair: 2 y - 0.4 5 y - 0.5	Replacement: 2 y - n.s. 5 y - n.s. Repair: 2 y - < 0.05 5 y - NRC	
OPDAM, 2010	12 y	CA: 12 y - 84.7	CA: 12 y - 75.6	Combined risk groups: 5 y - 1.78 12 y - 1.68	Combined risk groups: 5 y - 1.25 12 y - 2.41	Combined risk groups: 5 y - n.s. 12 y - < 0.05	
						HCR	LCR
						5 y - n.s. 12 y - n.s.	5 y - n.s. 12 y - < 0.05
KOPPERUD, 2012	5 y	87.6*	92.9*	Mean AFR: 2.9	Mean AFR: 1.6	< 0.05	
RHO, 2013	NA	MST: 5 y CA: 58	MST: 8.7 y CA: 44.3	NR	NR	Longevity: < 0.05 Clinical performance: n.s.	
KEMALOGLU, 2016	3 y	100	100	0	0	n.s.	
LASKE, 2016	10 y	54*	48*	4.6	5.2	< 0.001	
PALOTIE, 2017	13 y	MST: Molar: MO, DO: 9.2 MOD: 6.3	MST: Molar: MO, DO: 8 MOD: 6.3	Mean AFR: All: 4.2 Mean for molar: 6.1* MO, DO: 5.0 MOD: 7.1	Mean AFR: All: NR Mean for molar: 5* MO, DO: 4.7 MOD: 5.2	In molars: n.s.	
DA SILVA PEREIRA, 2020	5 y	94.5	95	TFR: 5.5	TFR: 5	n.s.	

Table S5. Secondary/Recurrent caries for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, mo = month, n.s. = not significant, y = year. Absolute failures are highlighted in bold.

STUDY	SECONDARY/RECURRENT CARIES (%)												P VALUE
	COMPOSITE RESIN						GLASS IONOMER CEMENT						
KHARMA, 2018	BL	3 mo	6 mo	9 mo			BL	3 mo	6 mo	9 mo			n.s.
	A - 100, B - 0						A - 100, B - 0						
BALKAYA, 2020	BL	1 y	2 y				BL	1 y	2 y				n.s.
	A - 100, C - 0						A - 100, C - 0						
GURGAN, 2020	CLASS I						CLASS I						n.s.
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y	
	A - 100, C - 0						A - 100, C - 0						
	CLASS II						CLASS II						
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y	
A - 100, C - 0						A - 100, C - 0							
HATIRLI, 2021	BL	6 mo	1 y	2 y			BL	6 mo	1 y	2 y			n.s.
	56/0/0/0				51/3/0/0/0		56/0/0/0/0			54/0/0/0/0		50/1/1/0/0	
UZEL, 2022	BL	6 mo	1 y	1.8 y	2 y		BL	6 mo	1 y	1.8 y	2 y		n.s.
	A - 100	A - 100	A - 100	A - 100	A - 97.1 B - 2.9		A - 100	A - 100	A - 100	A - 97.1 B - 2.9	A - 94.1 B - 2.9 C - 2.9		
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y	n.s.
	A - 100, B - 0, C - 0						A - 100, B - 0, C - 0						

Table S7. Retention/Restoration loss for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, mo = month, n.s. = not significant, y = year. (*) Calculated from the published data available in the study. Absolute failures are highlighted in bold.

STUDY	RETENTION/RESTORATION LOSS (%)											P VALUE		
	COMPOSITE RESIN						GLASS IONOMER CEMENT							
	BL	1 y			2 y		BL	1 y		2 y				
BALKAYA, 2020	A - 100 C - 0						A - 100 C - 0		A - 75* C - 25*		A - 71.4* C - 28.6*		< 0.05	
	CLASS I						CLASS I							
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y		
GURGAN, 2020	A - 100 C - 0						A - 100 C - 0					n.s.		
	CLASS II						CLASS II							
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y		
	A - 100 C - 0						A - 100 C - 0		A - 96.1 C - 3.9		A - 96 C - 4		A - 100 C - 0	
	FRACTURE AND RETENTION						FRACTURE AND RETENTION							
	1 y			2 y			1 y			2 y				
ROZNIATOWSKI, 2020	1.000 ± 0.000			1.000 ± 0.000			1.200 ± 0.833			1.042 ± 0.289		n.s.		
	FRACTURE AND RETENTION						FRACTURE AND RETENTION							
	BL	6 mo	1 y		2 y		BL	6 mo	1 y		2 y			
HATIRLI, 2021	56/0/0/0/0		54/2/0/0/0		49/5/0/0/0		56/0/0/0/0		50/3/1/2/0		48/3/1/2/0		n.s.	
	BL	6 mo	1 y	1.8 y	2 y		BL	6 mo	1 y	1.8 y	2 y			
UZEL, 2022	A - 100	A - 100	A - 100	A - 100	A - 100		A - 100	A - 100	A - 94.3 B - 5.7	A - 94.3 B - 5.7	A - 91.2 B - 5.9 C - 2.9		n.s.	
	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y		
BAYAZIT, 2023	A - 100 B - 0 C - 0				A - 96 B - 0 C - 4		A - 100 B - 0 C - 0		A - 96.8 B - 0 C - 3.2		A - 100 B - 0 C - 0		A - 95.7 B - 0 C - 4.3	

Table S9. Postoperative sensitivity/Pain for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, mo = month, n.s. = not significant, y = year. Absolute failures are highlighted in bold.

STUDY	POSTOPERATIVE SENSITIVITY/PAIN (%)											P VALUE	
	COMPOSITE RESIN						GLASS IONOMER CEMENT						
KHARMA, 2018	BL	3 mo	6 mo	9 mo			BL	3 mo	6 mo		9 mo	n.s.	
	A - 100	A - 90						A - 100					
	B - 0	B - 10						B - 0					
GURGAN, 2020	CLASS I						CLASS I					n.s.	
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y		10 y
	A - 100, B - 0, C - 0						A - 100, B - 0, C - 0						
	CLASS II						CLASS II						
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y		10 y
A - 100, B - 0, C - 0						A - 100, B - 0, C - 0							
BALKAYA, 2020	BL	1 y		2 y			BL	1 y		2 y		n.s.	
	A - 100, B - 0, C - 0						A - 100, B - 0, C - 0						
HATIRLI, 2021	BL	6 mo	1 y	2 y			BL	6 mo	1 y	2 y		n.s.	
	56/0/0/0/0			54/0/0/0/0			56/0/0/0/0		54/0/0/0/0		52/0/0/0/0		
UZEL, 2022	BL	6 mo	1 y	1.8 y	2 y		BL	6 mo	1 y	1.8 y	2 y	n.s.	
	A - 100	A - 100	A - 97.1 B - 2.9	A - 97.1 B - 2.9	A - 97.1 B - 2.9		A - 100	A - 100	A - 100	A - 97.1 B - 2.9	A - 97.1 B - 2.9		
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y	n.s.
	A - 100						A - 96.9	A - 100			A - 95.5		
	B - 0						B - 0	B - 0			B - 4.5		
C - 0						C - 3.1	C - 0			C - 0			

Table S11. Marginal defect/Loss of adaptation for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, mo = month, n.s. = not significant, y = year. (*) Calculated from the published data available in the study. Absolute failures are highlighted in bold.

STUDY	MARGINAL DEFECT/ADAPTATION (%)												P VALUE
	COMPOSITE RESIN						GLASS IONOMER CEMENT						
	BL	3 mo	6 mo	9 mo			BL	3 mo	6 mo	9 mo			
KHARMA, 2016	A - 100 B - 0 C - 0						A - 100 B - 0 C - 0						n.s.
GURGAN, 2020	CLASS I						CLASS I						n.s.
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y	
	A - 100	A - 82	A - 74.3	A - 73.6	A - 65.7	A - 68.4	A - 100	A - 84.6	A - 79.4	A - 81.5	A - 74.2	A - 76.3	
	B - 0	B - 18	B - 25.7	B - 26.4	B - 34.3	B - 31.6	B - 0	B - 15.4	B - 20.6	B - 18.5	B - 25.8	B - 23.7	
	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	
	CLASS II						CLASS II						
BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y		
A - 100	A - 82.7	A - 70.3	A - 69.2	A - 56.5	A - 60	A - 100	A - 86.2	A - 76	A - 75	A - 68.1	A - 65.2		
B - 0	B - 17.3	B - 29.7	B - 30.8	B - 43.5	B - 40	B - 0	B - 13.8	B - 24	B - 25	B - 31.9	B - 34.8		
C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0		
BALKAYA, 2020	BL	1 y	2 y				BL	1 y	2 y				< 0.05
	A - 100	A - 94.4*	A - 87.1*				A - 100	A - 62.5*	A - 47.6*				
	B - 0	B - 5.5*	B - 12.9*				B - 0	B - 31.3*	B - 47.6*				
	C - 0	C - 0	C - 0				C - 0	C - 6.3*	C - 4.8*				
ROZNIATOWSKI, 2020	1 y	2 y					1 y	2 y				< 0.05	
	1.042 ± 0.202	1.042 ± 0.202				1.380 ± 0.697	1.396 ± 0.707						
HATIRLI, 2021	6 mo	1 y	2 y				6 mo	1 y	2 y			n.s.	
	54/2/0/0/0	49/7/0/0/0	40/14/0/0/0				51/5/0/0/0	43/10/1/0/0	40/11/1/0/0				
UZEL, 2022	BL	6 mo	1 y	1.8 y	2 y		BL	6 mo	1 y	1.8 y	2 y	n.s.	
	A - 100		A - 94.3 B - 5.7	A - 94.3 B - 5.7	A - 94.1 B - 5.9	A - 100		A - 88.6 B - 11.4	A - 77.1 B - 22.9	A - 70.6 B - 26.5 C - 2.9			
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y	n.s.
	A - 100					A - 95.8	A - 100	A - 96.7	A - 100				
	B - 0					B - 4.2	B - 0	B - 3	B - 0				
	C - 0				C - 0	C - 0	C - 0	C - 0	C - 0				

Table S13. Marginal discoloration for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, GIC = glass ionomer cement, mo = month, n.s. = not significant, y = year. (*) Calculated from the published data available in the study. Absolute failures are highlighted in bold.

STUDY	MARGINAL DISCOLORATION (%)												P VALUE
	COMPOSITE RESIN						GLASS IONOMER CEMENT						
KHARMA, 2016	BL	3 mo	6 mo	9 mo	BL	3 mo	6 mo	9 mo					n.s.
	A - 100 B - 0 C - 0						A - 100 B - 0 C - 0						
GURGAN, 2020	CLASS I						CLASS I						Overall: n.s. Within GIC: < 0.05
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y	
	A - 100	A - 92.3	A - 87.1	A - 86.8	A - 80	A - 76.3	A - 100	A - 92.3	A - 92.3	A - 94.7	A - 91.4	A - 84.2	
	B - 0	B - 7.7	B - 12.9	B - 13.2	B - 20	B - 23.7	B - 0	B - 7.7	B - 7.7	B - 5.3	B - 8.6	B - 15.8	
	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	
	CLASS II						CLASS II						
BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y		
A - 100	A - 93.1	A - 81.4	A - 80.7	A - 60.8	A - 52	A - 100	A - 93.1	A - 92	A - 91.6	A - 63.6	A - 60.8		
B - 0	B - 6.9	B - 18.6	B - 19.3	B - 39.2	B - 48	B - 0	B - 6.9	B - 8	B - 8.4	B - 36.4	B - 39.2		
C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0	C - 0		
BALKAYA, 2020	BL	1 y	2 y	BL	1 y	2 y						n.s.	
	A - 100 B - 0 C - 0	A - 94.4* B - 5.5* C - 0	A - 93.5* B - 6.4* C - 0	A - 100 B - 0 C - 0	A - 96.9* B - 3.1* C - 0	A - 95.2* B - 0 C - 4.8*							
ROZNIATOWSKI, 2020	1 y	2 y	1 y	2 y							< 0.05		
	1.063 ± 0.245	1.208 ± 0.410	1.380 ± 0.725	1.917 ± 0.577									
HATIRLI, 2021	BL	6 mo	1 y	2 y	BL	6 mo	1 y	2 y				< 0.05	
	56/0/0/0	54/2/0/0	34/18/2/0	56/0/0/0	55/1/0/0	52/2/0/0	42/10/0/0						
UZEL, 2022	BL	6 mo	1 y	1.8 y	2 y	BL	6 mo	1 y	1.8 y	2 y			n.s.
	A - 100	A - 97.1	A - 94.3	A - 79.4	A - 100	A - 97.1	A - 97.1	A - 88.6	A - 79.4				
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y	< 0.05
	A - 100 B - 0 C - 0					A - 91.7 B - 8.3 C - 0	A - 100 B - 0 C - 0					A - 81.8 B - 18.2 C - 0	

Table S15. Wear/Loss of anatomic contour for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, GIC = glass ionomer cement, mo = month, NRC = not reported correctly (author was contacted and the fact was verified), n.s. = not significant, y = year. (*) Calculated from the published data available in the study. Absolute failures are highlighted in bold.

STUDY	WEAR/ANATOMIC CONTOUR (%)												P VALUE				
	COMPOSITE RESIN						GLASS IONOMER CEMENT										
KHARMA, 2018	NRC						NRC						n.s.				
GURGAN, 2020	CLASS I						CLASS I						n.s.				
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y					
	A - 100					A - 97.4	A - 100					A - 94.7					
	B - 0					B - 2.6	B - 0					B - 5.3					
	C - 0					C - 0	C - 0					C - 0					
	CLASS II						CLASS II										
BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y						
A - 100					A - 92	A - 100					A - 91.3						
B - 0					B - 8	B - 0					B - 8.7						
C - 0					C - 0	C - 0					C - 0						
BALKAYA, 2020	BL		1 y		2 y		BL		1 y		2 y		< 0.05				
	A - 100		A - 100		A - 100		A - 100		A - 81.3*		A - 71.4*						
	B - 0		B - 0		B - 0		B - 0		B - 12.5*		B - 23.8*						
C - 0		C - 0		C - 0		C - 0		C - 6.3*		C - 4.8*							
HATIRLI, 2021	BL		6 mo		1 y		2 y		BL		6 mo		1 y		2 y		< 0.05
	ANATOMIC CONTOUR (AESTHETIC)								ANATOMIC CONTOUR (AESTHETIC)								
	43/13/0/0/0		43/13/0/0/0		41/15/0/0/0		37/17/0/0/0		40/16/0/0/0		39/17/0/0/0		34/20/0/0/0		22/30/0/0/0		
	WEAR (FUNCTIONAL)								WEAR (FUNCTIONAL)								
	56/0/0/0/0		56/0/0/0/0		56/0/0/0/0		49/5/0/0/0		56/0/0/0/0		55/1/0/0/0		52/2/0/0/0		28/23/1/0/0		
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y	n.s.				
	A - 100					A - 95.8	A - 100					A - 90.9					
	B - 0					B - 0	B - 0					B - 9.1					
C - 0					C - 4.2	C - 0					C - 0						

Table S16. Color match for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, GIC: glass ionomer cement, mo = month, n.s. = not significant, y = year. (*) Calculated from the published data available in the study. Absolute failures are highlighted in bold.

STUDY	COLOR MATCH (%)											P VALUE			
	COMPOSITE RESIN					GLASS IONOMER CEMENT									
KHARMA, 2016	BL	3 mo	6 mo	9 mo		BL	3 mo	6 mo	9 mo		n.s.				
	A - 100 B - 0 C - 0					A - 100 B - 0 C - 0									
GURGAN, 2020	CLASS I					CLASS I					n.s. Within GIC, compared to BL: < 0.05 Class II (B): < 0.05				
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y		6 y	10 y		
	A - 100 B - 0 C - 0				A - 97.1 B - 2.9 C - 0	A - 97.4 B - 2.6 C - 0	A - 100 B - 0 C - 0	A - 97.4 B - 2.6 C - 0	A - 97.3 B - 2.7 C - 0	A - 85.7 B - 14.3 C - 0		A - 84.2 B - 15.8 C - 0			
	CLASS II					CLASS II									
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y		6 y	10 y		
	A - 100 B - 0 C - 0				A - 95.6 B - 4.4 C - 0	A - 96 B - 4 C - 0	A - 100 B - 0 C - 0			A - 86.3 B - 13.7 C - 0		A - 86.6 B - 13.4 C - 0			
BALKAYA, 2020	BL		1 y		2 y		BL		1 y		2 y		< 0.05		
	A - 100 B - 0 C - 0		A - 97.2* B - 2.8* C - 0		A - 100 B - 0 C - 0		A - 0 B - 23.5* C - 76.5*		A - 0 B - 18.8* C - 81.3*		A - 23.8* B - 47.6* C - 28.6*				
UZEL, 2022	BL	6 mo	1 y	1.8 y	2 y		BL	6 mo	1 y	1.8 y	2 y		n.s.		
	A - 100	A - 100	A - 100	A - 100	A - 100		A - 100	A - 100	A - 97.1 B - 2.9	A - 97.1 B - 2.9	A - 94.1 B - 5.9				
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y		BL	6 mo	1 y	1.6 y	2 y	4 y		< 0.05
	A - 100 B - 0 C - 0					A - 95.8 B - 4.2 C - 0		A - 100 B - 0 C - 0					A - 90.9 B - 9.1 C - 0		

Table S18. Surface texture loss/Staining for composite resin vs glass ionomer cement. A = alpha score, B = bravo score, BL = baseline, C = charlie score, mo = month, n.s. = not significant, y = year. (*) Calculated from the published data available in the study. Absolute failures are highlighted in bold.

STUDY	SURFACE TEXTURE/STAINING (%)											P VALUE	
	COMPOSITE RESIN					GLASS IONOMER CEMENT							
KHARMA, 2018	BL	3 mo	6 mo	9 mo		BL	3 mo	6 mo	9 mo			< 0.05	
	A - 100		A - 90	A - 90		A - 100	A - 90	A - 70	A - 70				
	B - 0		B - 10	B - 10		B - 0	B - 5	B - 30	B - 30				
GURGAN, 2020	CLASS I					CLASS I					n.s.		
	BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y		6 y	10 y
	A - 100				A - 97.4	A - 100				A - 92.1			
	B - 0				B - 2.6	B - 0				B - 7.9			
	C - 0				C - 0	C - 0				C - 0			
	CLASS II					CLASS II							
BL	1 y	3 y	4 y	6 y	10 y	BL	1 y	3 y	4 y	6 y	10 y		
A - 100				A - 92	A - 100				A - 87				
B - 0				B - 8	B - 0				B - 13				
C - 0				C - 0	C - 0				C - 0				
BALKAYA, 2020	BL	1 y	2 y			BL	1 y	2 y				< 0.05	
	A - 100					A - 100	A - 68.8*	A - 52.3*					
	B - 0					B - 0	B - 28.1*	B - 38.1*					
C - 0					C - 0	C - 3.1*	C - 9.5*						
HATIRLI, 2021	SURFACE STAINING				SURFACE STAINING				Stain: n.s.				
	BL	6 mo	1 y	2 y	BL	6 mo	1 y	2 y					
	56/0/0/0/0	53/3/0/0/0	50/6/0/0/0	43/10/1/0/0	56/0/0/0/0	53/3/0/0/0	50/4/0/0/0	43/9/0/0/0					
	SURFACE TEXTURE				SURFACE TEXTURE				Texture: < 0.05				
	BL	6 mo	1 y	2 y	BL	6 mo	1 y	2 y					
53/3/0/0/0	46/10/0/0/0	40/16/0/0/0	28/22/4/0/0	54/2/0/0/0	31/25/0/0/0	15/39/0/0/0	5/38/9/0/0						
UZEL, 2022	BL	6 mo	1 y	1.8 y	2 y	BL	6 mo	1 y	1.8 y	2 y	n.s.		
	A - 100	A - 100	A - 100	A - 97.1	A - 91.2	A - 100	A - 100	A - 94.3	A - 85.7	A - 70.6			
				B - 2.9	B - 8.8			B - 5.7	B - 14.3	B - 23.5			
										C - 5.9			
BAYAZIT, 2023	BL	6 mo	1 y	1.6 y	2 y	4 y	BL	6 mo	1 y	1.6 y	2 y	4 y	n.s.
	A - 100				A - 95.8	A - 100				A - 90.9			
	B - 0				B - 4.2	B - 0				B - 9.1			
C - 0				C - 0	C - 0				C - 0				

Table S24. Findings from evaluation of possible risk factors. AM = amalgam, B = broad, CM = compomer, CR = composite resin, GIC = glass ionomer cement, HCR = high caries risk, L = large, LCR = low caries risk, M = medium, N = narrow, n.s. = not significant, OH = oral hygiene, S = small, SE = secondary caries.

STUDY	NO. OF SURFACES INVOLVED/ SIZE OF CAVITY	LOCATION OF TOOTH	TYPE OF TOOTH	GENDER	AGE	CARIES RISK/ ORAL HYGIENE	OPERATOR
BERNARDO, 2007	Higher failure due to SE in CR: - upto 3 surface - all sizes (p < 0.05)	Higher failure due to SE in CR for both arches (p < 0.05)	Higher failure due to SE in CR for molars (p < 0.05)	-	Higher failure in teenagers (n.s.)	Higher failure in poor OH (n.s.)	
SONCINI, 2007	Higher failure in increasing size of the restoration (p < 0.05)	-	-	-	-	-	
OPDAM, 2010	Higher failure in 4 or 5 than 3 surface in AM, HCR group	-	n.s.	-	-	Higher failure in HCR than LCR (p < 0.01)	
KOPPERUD, 2012	Higher failure of CR in: - saucer shaped than in class II restorations (p < 0.01) - deep than shallow cavity (p < 0.01) - N vs M/B size cavity (n.s.)	-	n.s.	n.s.	Higher failure of CR in children and elders than young adults (p < 0.01)	High failure of CR in medium/poor OH than good OH (p < 0.01)	n.s.
RHO, 2013	Higher failure in: - class II than class I in AM (p < 0.05) - class I than class II in CR (n.s.) - class I CR than class I AM (p < 0.05) - class II CR than class II AM (n.s.)	Higher failure in maxillary arch than mandibular arch for both CR and AM (n.s.)	Higher failure in: - molar than premolar in CR (p < 0.001) - molar than premolar in AM (n.s.)	Higher failure in male than female (p < 0.05)	Higher failure in teenagers, 40s and 70s than young adults (p < 0.001)	-	Higher failure in residents and professors than students (p < 0.05)
LASKE, 2016	Higher failure in ≥ 4 than 3 or 2 or 1 surface (p < 0.001)	Higher failure in mandibular than maxillary arch (n.s.)	Higher failure in molar than premolar (p < 0.001)	Higher failure in male than female (p < 0.001)	Higher failure in children and elders than teenagers and adults (p < 0.001)	-	
PALOTIE, 2017	Higher failure in: - 3 than 2 surface in CR (p < 0.001) - 3 than 2 surface in AM (n.s.)	Higher failure in mandibular than maxillary arch (p < 0.001)	Higher failure in molar than premolar (p < 0.001)	-	Since the author believes that age certainly plays a role, young adults were chosen as the study population	-	
DA SILVA PEREIRA, 2020	Higher failure in class II with ≥ 2 faces than class I (p < 0.05)	Higher failure in mandibular than maxillary arch (n.s.)	Higher failure in molar than premolar (n.s.)	Higher failure in female than male (n.s.)	-	-	n.s.
UZEL, 2022	Higher failure in class II than class I (p < 0.05)	-	-	-	-	-	