

Figure S1 ROC curves of the nomogram for 3-year (A), 5-year (B) and 7-year (C) CSS in the training set and validation set. AUC, area under the curve; CI, confidence interval; CSS, cancer-specific survival; ROC, receiver operating characteristic.

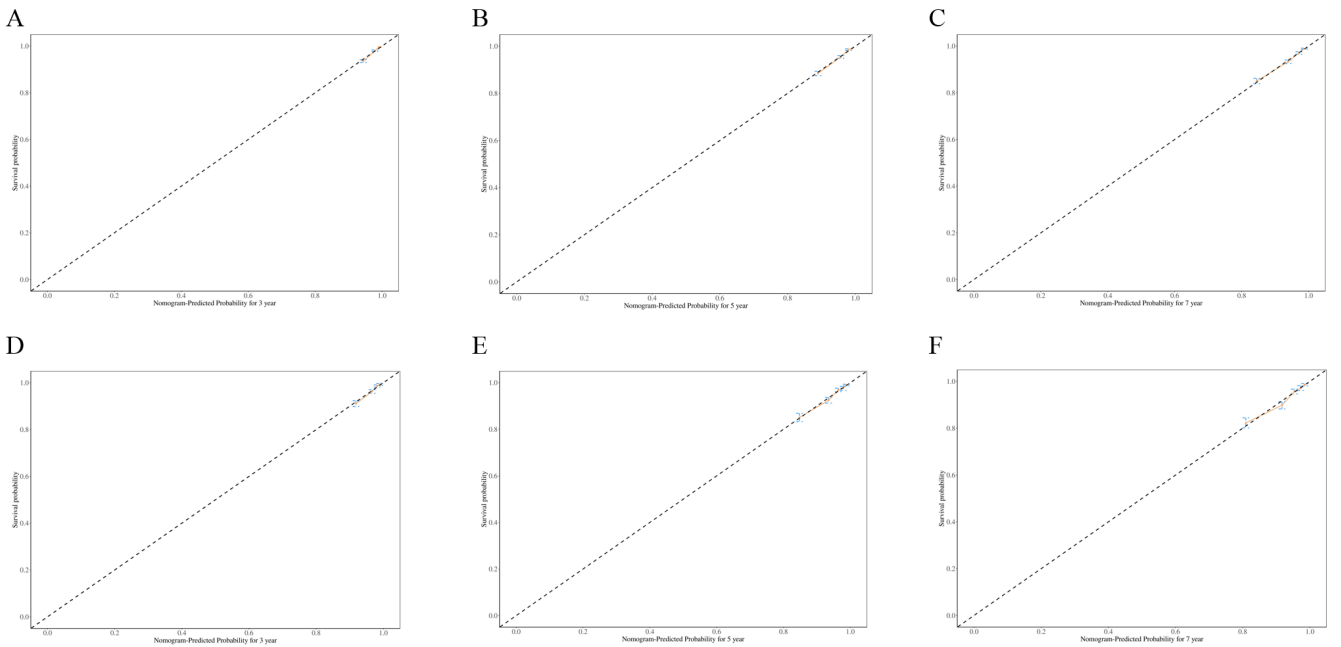


Figure S2 Calibration plots of the training set (A-C) and the validation set (D-F) for 3-year (A,D), 5-year (B,E) and 7-year (C,F) CSS. CSS, cancer-specific survival. AUC, area under the curve; CI, confidence interval; CSS, cancer-specific survival; ROC, receiver operating characteristic.

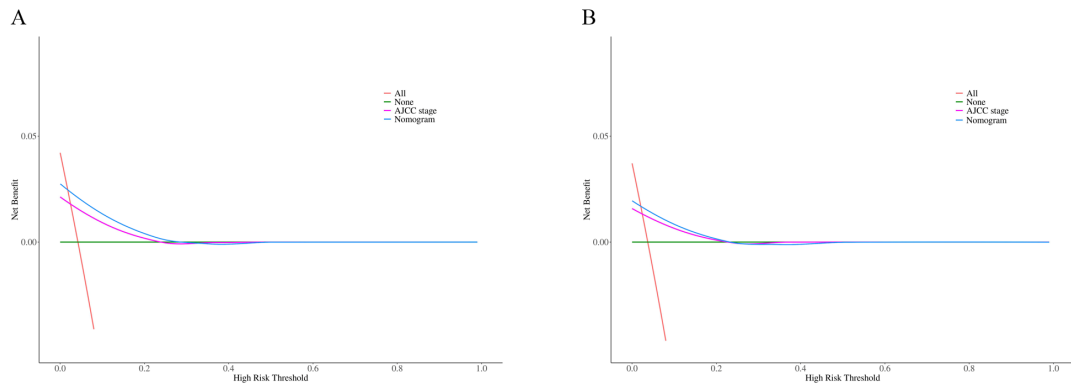


Figure S3 DCA comparing nomogram versus AJCC 7th staging system for CSS prediction: (A) training set; (B) validation set. None = no poor outcomes; All = all patients experience poor outcomes. AJCC, American Joint Committee on Cancer; CSS, cancer-specific survival; DCA, decision curve analysis.

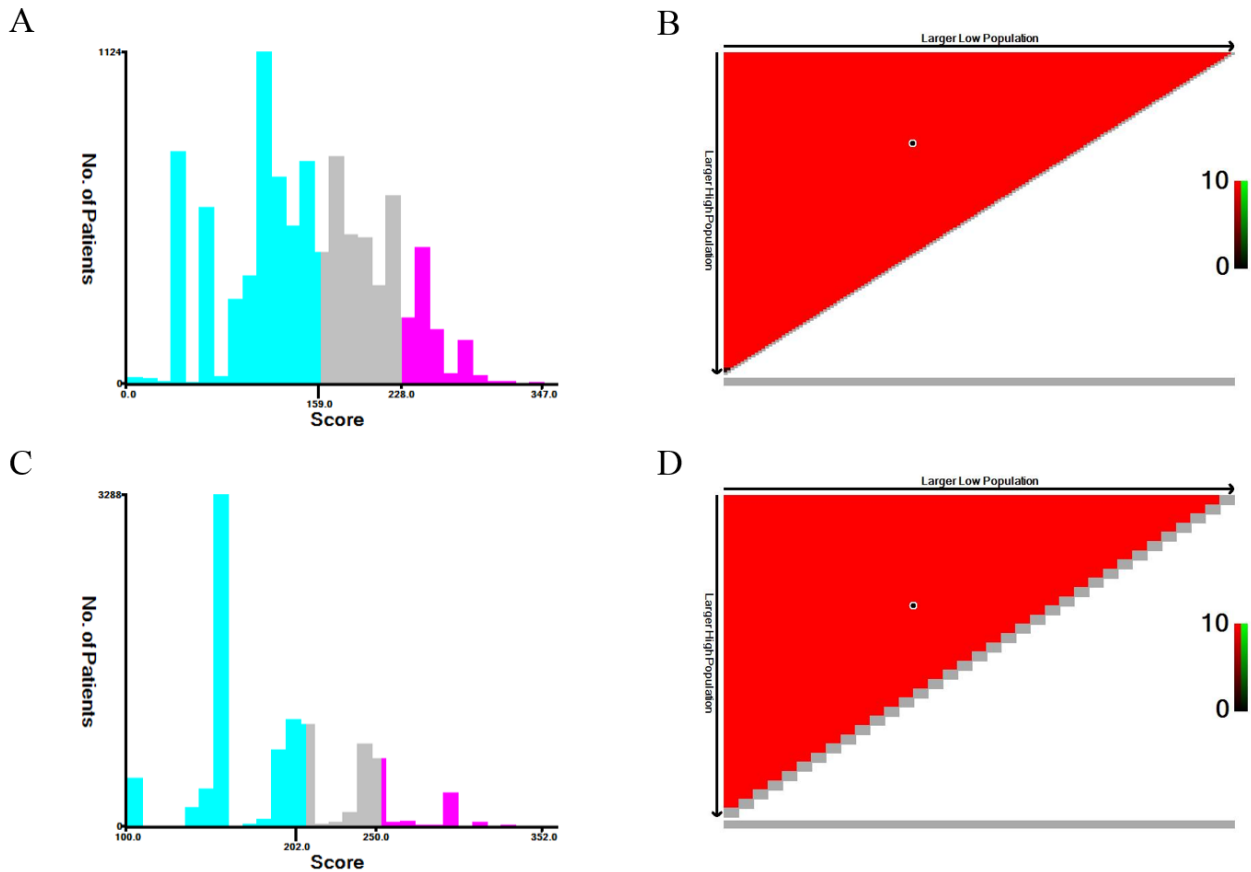


Figure S4 Estimation of the appropriate cut off value for risk score of OS (A,B) and CSS (C,D) by X-tile analysis. CSS, cancer-specific survival; OS, overall survival.

Table S1 The PSM between patients who received adjuvant chemotherapy and those who did not receive adjuvant chemotherapy in the low-risk group for OS

Variable	Before PSM						After PSM					
	Total (n=5,255)	No/unknown (n=3,112)	Yes (n=2,143)	Statistic (χ^2)	P	SMD	Total (n=2,082)	No/unknown (n=1,041)	Yes (n=1,041)	Statistic (χ^2)	P	SMD
Breast subtype, n (%)				1194.021	<0.001					8.328	0.040	
HR-/HER2-	49 (0.93)	21 (0.67)	28 (1.31)			0.056	35 (1.68)	18 (1.73)	17 (1.63)			-0.008
HR-/HER2+	137 (2.61)	20 (0.64)	117 (5.46)			0.212	31 (1.49)	20 (1.92)	11 (1.06)			-0.085
HR+/HER2-	4,180 (79.54)	2,968 (95.37)	1,212 (56.56)			-0.783	1,843 (88.52)	902 (86.65)	941 (90.39)			0.127
HR+/HER2+	889 (16.92)	103 (3.31)	786 (36.68)			0.692	173 (8.31)	101 (9.70)	72 (6.92)			-0.110
ER, n (%)				165.681	<0.001					0.715	0.398	
Negative	229 (4.36)	42 (1.35)	187 (8.73)			0.261	71 (3.41)	39 (3.75)	32 (3.07)			-0.039
Positive	5,026 (95.64)	3,070 (98.65)	1,956 (91.27)			-0.261	2,011 (96.59)	1,002 (96.25)	1,009 (96.93)			0.039
T stage, n (%)				190.962	<0.001					-	0.972	
T1	4,505 (85.73)	2,838 (91.20)	1,667 (77.79)			-0.323	1,683 (80.84)	843 (80.98)	840 (80.69)			-0.007
T2	25 (0.48)	4 (0.13)	21 (0.98)			0.086	6 (0.29)	3 (0.29)	3 (0.29)			0.000
T3	725 (13.8)	270 (8.68)	455 (21.23)			0.307	393 (18.88)	195 (18.73)	198 (19.02)			0.007
N stage, n (%)				397.439	<0.001					1.104	0.293	
N0	4,619 (87.9)	2,967 (95.34)	1,652 (77.09)			-0.434	1,775 (85.25)	896 (86.07)	879 (84.44)			-0.045
N1	636 (12.1)	145 (4.66)	491 (22.91)			0.434	307 (14.75)	145 (13.93)	162 (15.56)			0.045
PR, n (%)				132.206	<0.001					0.394	0.530	
Positive	4,934 (93.89)	3,020 (97.04)	1,914 (89.31)			-0.250	1,949 (93.61)	978 (93.95)	971 (93.28)			-0.027
Negative	321 (6.11)	92 (2.96)	229 (10.69)			0.250	133 (6.39)	63 (6.05)	70 (6.72)			0.027
Grade, n (%)				830.704	<0.001					3.519	0.172	
I	1,795 (34.16)	1,427 (45.85)	368 (17.17)			-0.761	519 (24.93)	278 (26.71)	241 (23.15)			-0.084
II	2,679 (50.98)	1,536 (49.36)	1,143 (53.34)			0.080	1,259 (60.47)	614 (58.98)	645 (61.96)			0.061
III/IV	781 (14.86)	149 (4.79)	632 (29.49)			0.542	304 (14.6)	149 (14.31)	155 (14.89)			0.016
HER2, n (%)				1177.685	<0.001					7.847	0.056	
Positive	1,026 (19.52)	123 (3.95)	903 (42.14)			0.773	204 (9.8)	110 (10.57)	94 (9.03)			-0.135
Negative	4,229 (80.48)	2,989 (96.05)	1,240 (57.86)			-0.773	1,878 (90.2)	931 (89.43)	958 (90.97)			0.135
Sequence number, n (%)				6.077	0.014					0.277	0.599	
One primary only	5,163 (98.25)	3,046 (97.88)	2,117 (98.79)			0.083	2,049 (98.41)	1,026 (98.56)	1,023 (98.27)			-0.022
2nd of two or more primaries	92 (1.75)	66 (2.12)	26 (1.21)			-0.083	33 (1.59)	15 (1.44)	18 (1.73)			0.022
Marital status, n (%)				41.315	<0.001					0.500	0.480	
Married	3,748 (71.32)	2,116 (67.99)	1,632 (76.15)			0.191	1,558 (74.83)	786 (75.50)	772 (74.16)			-0.031
Unmarried	1,507 (28.68)	996 (32.01)	511 (23.85)			-0.191	524 (25.17)	255 (24.50)	269 (25.84)			0.031

OS, overall survival; PSM, propensity score matching.

Table S2 The PSM between patients who received adjuvant chemotherapy and those who did not receive adjuvant chemotherapy in the low-risk group for CSS

Variable	Before PSM						After PSM					
	Total (n=4809)	No/Unknown (n=2744)	Yes (n=2065)	Statistic (χ^2)	P	SMD	Total (n=2028)	No/Unknown (n=1014)	Yes (n=1014)	Statistic (χ^2)	P	SMD
ER, n (%)				378.840	<0.001					4.998	0.251	
Negative	409 (8.5)	47 (1.71)	362 (17.53)			0.416	75 (3.7)	40 (3.94)	35 (3.45)			-0.114
Positive	4400 (91.5)	2697 (98.29)	1703 (82.47)			-0.416	1953 (96.3)	974 (96.06)	993 (96.55)			0.114
Sequence number, n (%)				0.078	0.780					0.018	0.893	
2nd of two or more primaries	127 (2.64)	74 (2.70)	53 (2.57)			-0.008	57 (2.81)	28 (2.76)	29 (2.86)			0.006
One primary only	4682 (97.36)	2670 (97.30)	2012 (97.43)			0.008	1971 (97.19)	986 (97.24)	985 (97.14)			-0.006
Marital status, n (%)				0.084	0.772					8.992	0.006	
Married	3034 (63.09)	1736 (63.27)	1298 (62.86)			-0.008	1166 (57.5)	600 (59.17)	566 (55.81)			-0.201
Unmarried	1775 (36.91)	1008 (36.73)	767 (37.14)			0.008	862 (42.5)	414 (40.83)	448 (44.2)			0.201
Stage, n (%)				-	<0.001					-	0.473	
I	4000 (83.18)	2581 (94.06)	1419 (68.72)			-0.547	1675 (82.59)	844 (83.23)	831 (81.95)			-0.083
II	806 (16.76)	163 (5.94)	643 (31.14)			0.544	351 (17.31)	170 (16.77)	181 (18.05)			0.078
IIIA	3 (0.06)	0 (0.00)	3 (0.15)			0.038	2 (0.1)	0 (0.00)	2 (0.20)			0.044
T stage, n (%)				265.698	<0.001					-	0.037	
T1	4327 (89.98)	2637 (96.10)	1690 (81.84)			-0.370	1792 (88.36)	910 (89.74)	882 (86.98)			-0.082
T2	473 (9.84)	105 (3.83)	368 (17.82)			0.366	233 (11.49)	104 (10.26)	129 (12.72)			0.074
T3	9 (0.19)	2 (0.07)	7 (0.34)			0.046	3 (0.15)	0 (0.00)	3 (0.30)			0.054
N stage, n (%)				395.194	<0.001					4.789	0.291	
N0	4216 (87.67)	2630 (95.85)	1586 (76.80)			-0.451	1767 (87.13)	890 (87.77)	877 (86.45)			-0.092
N1	593 (12.33)	114 (4.15)	479 (23.20)			0.451	261 (12.87)	124 (12.23)	137 (13.55)			0.092
Grade, n (%)				84.748	<0.001					5.545	0.063	
I	1307 (27.18)	660 (24.05)	647 (31.33)			0.157	559 (27.56)	298 (29.39)	261 (25.74)			-0.083
II	1991 (41.4)	1079 (39.32)	912 (44.16)			0.098	892 (43.98)	421 (41.52)	471 (46.45)			0.099
III/IV	1511 (31.42)	1005 (36.63)	506 (24.50)			-0.282	577 (28.45)	295 (29.09)	282 (27.81)			-0.029
PR, n (%)				412.228	<0.001					1.630	0.202	
Positive	4282 (89.04)	2661 (96.98)	1621 (78.50)			-0.450	1879 (92.65)	932 (91.91)	947 (93.39)			0.060
Negative	527 (10.96)	83 (3.02)	444 (21.50)			0.450	149 (7.35)	82 (8.09)	67 (6.61)			-0.060
HER2, n (%)				726.180	<0.001					0.316	0.574	
Positive	815 (16.95)	118 (4.30)	697 (33.75)			0.623	228 (11.24)	118 (11.64)	110 (10.85)			-0.025
Negative	3994 (83.05)	2626 (95.70)	1368 (66.25)			-0.623	1800 (88.76)	896 (88.36)	904 (89.15)			0.025

PSM, propensity score matching; CSS, cancer-specific survival.

Table S3 The PSM between patients who received adjuvant chemotherapy and those who did not receive adjuvant chemotherapy in the middle-risk group for OS

Variable	Before PSM						After PSM					
	Total (n=2192)	Adjuvant chemotherapy after surgery (n=1711)	No/unknown (n=481)	Statistic (χ^2)	P	SMD	Total (n=820)	Adjuvant chemotherapy after surgery (n=410)	No/unknown (n=410)	Statistic (χ^2)	P	SMD
Breast subtype, n (%)				153.238	<0.001					–	1.000	
HR–/HER2–	496 (22.63)	460 (26.88)	36 (7.48)			–0.737	72 (8.78)	36 (8.78)	36 (8.78)			0.000
HR–/HER2+	77 (3.51)	75 (4.38)	2 (0.42)			–0.617	4 (0.49)	2 (0.49)	2 (0.49)			0.000
HR+/HER2–	1459 (66.56)	1026 (59.96)	433 (90.02)			1.003	724 (88.29)	362 (88.29)	362 (88.29)			0.000
HR+/HER2+	160 (7.3)	150 (8.77)	10 (2.08)			–0.469	20 (2.44)	10 (2.44)	10 (2.44)			0.000
ER, n (%)				106.657	<0.001					0.000	1.000	
Negative	609 (27.78)	565 (33.02)	44 (9.15)			–0.828	84 (10.24)	42 (10.24)	42 (10.24)			0.000
Positive	1583 (72.22)	1146 (66.98)	437 (90.85)			0.828	736 (89.76)	368 (89.76)	368 (89.76)			0.000
Stage, n (%)				16.777	<0.001					–	1.000	
I	774 (35.31)	567 (33.14)	207 (43.04)			0.200	328 (40)	164 (40.00)	164 (40.00)			0.000
II	1407 (64.19)	1134 (66.28)	273 (56.76)			–0.192	490 (59.76)	245 (59.76)	245 (59.76)			0.000
IIIA	11 (0.5)	10 (0.58)	1 (0.21)			–0.083	2 (0.24)	1 (0.24)	1 (0.24)			0.000
T stage, n (%)				2.777	0.249					–	1.000	
T1	1021 (46.58)	782 (45.70)	239 (49.69)			0.080	391 (47.68)	195 (47.56)	196 (47.80)			0.005
T2	31 (1.41)	26 (1.52)	5 (1.04)			–0.047	6 (0.73)	3 (0.73)	3 (0.73)			0.000
T3	1140 (52.01)	903 (52.78)	237 (49.27)			–0.070	423 (51.59)	212 (51.71)	211 (51.46)			–0.005
N stage, n (%)				40.595	<0.001					0.000	1.000	
N0	1452 (66.24)	1075 (62.83)	377 (78.38)			0.378	612 (74.63)	306 (74.63)	306 (74.63)			0.000
N1	740 (33.76)	636 (37.17)	104 (21.62)			–0.378	208 (25.37)	104 (25.37)	104 (25.37)			0.000
PR, n (%)				139.566	<0.001					0.010	0.922	
0	1415 (64.55)	995 (58.15)	420 (87.32)			0.876	699 (85.24)	350 (85.37)	349 (85.12)			–0.007
35	777 (35.45)	716 (41.85)	61 (12.68)			–0.876	121 (14.76)	60 (14.63)	61 (14.88)			0.007
Grade, n (%)				–	<0.001					0.005	0.944	
I	2 (0.09)	0 (0.00)	2 (0.42)			0.065						
II	718 (32.76)	461 (26.94)	257 (53.43)			0.531	375 (45.73)	187 (45.61)	188 (45.85)			0.005
III/IV	1472 (67.15)	1250 (73.06)	222 (46.15)			–0.540	445 (54.27)	223 (54.39)	222 (54.15)			–0.005
HER2, n (%)				44.206	<0.001					0.000	1.000	
Positive	237 (10.81)	225 (13.15)	12 (2.49)			–0.683	24 (2.93)	12 (2.93)	12 (2.93)			0.000
Negative	1955 (89.19)	1486 (86.85)	469 (97.51)			0.683	796 (97.07)	398 (97.07)	398 (97.07)			0.000
Sequence number, n (%)				128.427	<0.001					0.014	0.905	
One primary only	2048 (93.43)	1653 (96.61)	395 (82.12)			–0.378	743 (90.61)	372 (90.73)	371 (90.49)			–0.008
2nd of two or more primaries	144 (6.57)	58 (3.39)	86 (17.88)			0.378	77 (9.39)	38 (9.27)	39 (9.51)			0.008
Marital status, n (%)				55.756	<0.001					0.191	0.662	
Married	1118 (51)	945 (55.23)	173 (35.97)			–0.401	292 (35.61)	143 (34.88)	149 (36.34)			0.030
Unmarried	1074 (49)	766 (44.77)	308 (64.03)			0.401	528 (64.39)	267 (65.12)	261 (63.66)			–0.030

OS, overall survival; PSM, propensity score matching.

Table S4 The PSM between patients who received adjuvant chemotherapy and those who did not receive adjuvant chemotherapy in the middle-risk group for CSS

Variable	Before PSM						After PSM					
	Total (n=1718)	No/unknown (n=509)	Yes (n=1209)	Statistic (χ^2)	P	SMD	Total (n=930)	No/unknown (n=465)	Yes (n=465)	Statistic (χ^2)	P	SMD
ER, n (%)				105.799	<0.001					2.151	0.422	
Negative	390 (22.7)	34 (6.68)	356 (29.45)			0.499	80 (8.60)	34 (7.31)	46 (9.89)			0.123
Positive	1328 (77.3)	475 (93.32)	853 (70.55)			-0.499	850 (91.40)	431 (92.69)	419 (90.11)			-0.123
Sequence number 14, n (%)				37.158	<0.001					0.016	0.900	
2nd of two or more primaries	125 (7.28)	67 (13.16)	58 (4.80)			-0.391	69 (7.42)	34 (7.31)	35 (7.53)			0.008
One primary only	1593 (92.72)	442 (86.84)	1151 (95.20)			0.391	861 (92.58)	431 (92.69)	430 (92.47)			-0.008
Marital status, n (%)				0.128	0.721					3.178	0.154	
Married	1025 (59.66)	307 (60.31)	718 (59.39)			-0.019	542 (58.28)	276 (59.35)	266 (57.20)			-0.339
Unmarried	693 (40.34)	202 (39.69)	491 (40.61)			0.019	388 (41.72)	189 (40.65)	199 (42.8)			0.339
Stage, n (%)				5.215	0.074					4.697	0.030	
I	398 (23.17)	128 (25.15)	270 (22.33)			-0.068	218 (23.44)	95 (20.43)	123 (26.45)			0.137
II	1311 (76.31)	381 (74.85)	930 (76.92)			0.049	712 (76.56)	370 (79.57)	342 (73.55)			-0.137
IIIA	9 (0.52)	0 (0.00)	9 (0.74)			0.087						
T stage 18, n (%)				9.729	0.008					4.058	0.131	
T1	605 (35.22)	157 (30.84)	448 (37.06)			0.129	276 (29.68)	124 (26.67)	152 (32.69)			0.128
T2	1082 (62.98)	347 (68.17)	735 (60.79)			-0.151	644 (69.25)	336 (72.26)	308 (66.24)			-0.127
T3	31 (1.8)	5 (0.98)	26 (2.15)			0.081	10 (1.08)	5 (1.08)	5 (1.08)			0.000
N stage 19, n (%)				86.211	<0.001					2.171	0.141	
N0	1137 (66.18)	420 (82.51)	717 (59.31)			-0.472	769 (82.69)	376 (80.86)	393 (84.52)			0.101
N1	581 (33.82)	89 (17.49)	492 (40.69)			0.472	161 (17.31)	89 (19.14)	72 (15.48)			-0.101
Grade, n (%)				13.579	0.001					-	0.051	
I	40 (2.33)	2 (0.39)	38 (3.14)			0.158	3 (0.32)	2 (0.43)	1 (0.22)			-0.046
II	738 (42.96)	211 (41.45)	527 (43.59)			0.043	368 (39.57)	200 (43.01)	168 (36.13)			-0.143
III/IV	940 (54.71)	296 (58.15)	644 (53.27)			-0.098	559 (60.11)	263 (56.56)	296 (63.66)			0.148
PR, n (%)				125.123	<0.001					3.090	0.079	
Positive	1189 (69.21)	450 (88.41)	739 (61.12)			-0.560	793 (85.27)	406 (87.31)	387 (83.23)			-0.109
Negative	529 (30.79)	59 (11.59)	470 (38.88)			0.560	137 (14.73)	59 (12.69)	78 (16.77)			0.109
HER2, n (%)				42.643	<0.001					4.508	0.034	
Positive	108 (6.29)	2 (0.39)	106 (8.77)			0.296	11 (1.18)	2 (0.43)	9 (1.94)			0.109
Negative	1610 (93.71)	507 (99.61)	1103 (91.23)			-0.296	919 (98.82)	463 (99.57)	456 (98.06)			-0.109

PSM, propensity score matching; CSS, cancer-specific survival.

Table S5 The PSM between patients who received neoadjuvant chemotherapy and those who did not receive neoadjuvant chemotherapy in the middle-risk patients group of NCR for OS

Variable	Before PSM						After PSM					
	Total (n=683)	NCR (n=202)	Neoadjuvant therapy not given (n=481)	Statistic (χ^2)	P	SMD	Total (n=262)	NCR (n=131)	Neoadjuvant therapy not given (n=131)	Statistic (χ^2)	P	SMD
Breast Subtype, n (%)				117.437	<0.001					–	0.602	
HR–/HER2–	75 (10.98)	39 (19.31)	36 (7.48)			–0.449	53 (20.23)	30 (22.90)	23 (17.56)			–0.140
HR–/HER2+	19 (2.78)	17 (8.42)	2 (0.42)			–1.243	3 (1.15)	2 (1.53)	1 (0.76)			–0.088
HR+/HER2–	546 (79.94)	113 (55.94)	433 (90.02)			1.137	191 (72.9)	93 (70.99)	98 (74.81)			0.088
HR+/HER2+	43 (6.3)	33 (16.34)	10 (2.08)			–0.999	15 (5.73)	6 (4.58)	9 (6.87)			0.091
ER, n (%)				44.702	<0.001					1.024	0.312	
Negative	103 (15.08)	59 (29.21)	44 (9.15)			–0.696	63 (24.05)	35 (26.72)	28 (21.37)			–0.130
Positive	580 (84.92)	143 (70.79)	437 (90.85)			0.696	199 (75.95)	96 (73.28)	103 (78.63)			0.130
Stage, n (%)				88.434	<0.001					–	0.492	
I	226 (33.09)	19 (9.41)	207 (43.04)			0.679	45 (17.18)	19 (14.50)	26 (19.85)			0.134
II	445 (65.15)	172 (85.15)	273 (56.76)			–0.573	214 (81.68)	110 (83.97)	104 (79.39)			–0.113
IIIA	12 (1.76)	11 (5.45)	1 (0.21)			–1.150	3 (1.15)	2 (1.53)	1 (0.76)			–0.088
PR, n (%)				42.577	<0.001					0.000	1.000	
Positive	553 (80.97)	133 (65.84)	420 (87.32)			0.645	180 (68.7)	90 (68.70)	90 (68.70)			0.000
Negative	130 (19.03)	69 (34.16)	61 (12.68)			–0.645	82 (31.3)	41 (31.30)	41 (31.30)			0.000
Grade, n (%)				–	<0.001					–	0.487	
I	4 (0.59)	2 (0.99)	2 (0.42)			–0.089	2 (0.76)	0 (0.00)	2 (1.53)			0.125
II	335 (49.05)	78 (38.61)	257 (53.43)			0.297	124 (47.33)	61 (46.56)	63 (48.09)			0.031
III/IV	344 (50.37)	122 (60.40)	222 (46.15)			–0.286	136 (51.91)	70 (53.44)	66 (50.38)			–0.061
HER2, n (%)				85.387	<0.001					0.239	0.625	
Positive	62 (9.08)	50 (24.75)	12 (2.49)			–1.427	18 (6.87)	8 (6.11)	10 (7.63)			0.057
Negative	621 (90.92)	152 (75.25)	469 (97.51)			1.427	244 (93.13)	123 (93.89)	121 (92.37)			–0.057
Sequence number, n (%)				33.738	<0.001					1.160	0.281	
One primary only	594 (86.97)	199 (98.51)	395 (82.12)			–0.428	254 (96.95)	129 (98.47)	125 (95.42)			–0.146
2nd of two or more primaries	89 (13.03)	3 (1.49)	86 (17.88)			0.428	8 (3.05)	2 (1.53)	6 (4.58)			0.146
Marital status, n (%)				26.838	<0.001					0.587	0.444	
Married	289 (42.31)	116 (57.43)	173 (35.97)			–0.447	164 (62.6)	79 (60.31)	85 (64.89)			0.096
Unmarried	394 (57.69)	86 (42.57)	308 (64.03)			0.447	98 (37.4)	52 (39.69)	46 (35.11)			–0.096
T stage, n (%)				85.110	<0.001					–	0.183	
T1	273 (39.97)	34 (16.83)	239 (49.69)			0.657	70 (26.72)	29 (22.14)	41 (31.30)			0.198
T2	384 (56.22)	147 (72.77)	237 (49.27)			–0.470	186 (70.99)	98 (74.81)	88 (67.18)			–0.163
T3	26 (3.81)	21 (10.40)	5 (1.04)			–0.923	6 (2.29)	4 (3.05)	2 (1.53)			–0.125
N stage, n (%)				56.303	<0.001					0.750	0.387	
N0	477 (69.84)	100 (49.50)	377 (78.38)			0.701	137 (52.29)	72 (54.96)	65 (49.62)			–0.107
N1	206 (30.16)	102 (50.50)	104 (21.62)			–0.701	125 (47.71)	59 (45.04)	66 (50.38)			0.107

PSM, propensity score matching; OS, overall survival; NCR, non-complete response.

Table S6 The PSM between patients who received neoadjuvant chemotherapy and those who did not receive neoadjuvant chemotherapy in the middle-risk patients group of CR for OS

Variable	Before PSM					After PSM						
	Total (n=714)	Neoadjuvant therapy not given (n=481)	Stated as CR (n=233)	Statistic (χ^2)	P	SMD	Total (n=166)	Neoadjuvant therapy not given (n=83)	Stated as CR (n=83)	Statistic (χ^2)	P	SMD
ER, n (%)				198.928	<0.001					0.869	0.351	
Negative	179 (25.07)	44 (9.15)	135 (57.94)			0.988	80 (48.19)	37 (44.58)	43 (51.81)			0.145
Positive	535 (74.93)	437 (90.85)	98 (42.06)			-0.988	86 (51.81)	46 (55.42)	40 (48.19)			-0.145
Stage, n (%)				-	<0.001					2.469	0.116	
I	240 (33.61)	207 (43.04)	33 (14.16)			-0.828	45 (27.11)	27 (32.53)	18 (21.69)			-0.263
II	468 (65.55)	273 (56.76)	195 (83.69)			0.729	121 (72.89)	56 (67.47)	65 (78.31)			0.263
IIIA	6 (0.84)	1 (0.21)	5 (2.15)			0.134						
T stage, n (%)				65.494	<0.001					-	0.109	
T1	290 (40.62)	239 (49.69)	51 (21.89)			-0.672	56 (33.73)	34 (40.96)	22 (26.51)			-0.328
T2	24 (3.36)	5 (1.04)	19 (8.15)			0.260	5 (3.01)	1 (1.20)	4 (4.82)			0.169
T3	400 (56.02)	237 (49.27)	163 (69.96)			0.451	105 (63.25)	48 (57.83)	57 (68.67)			0.234
N stage, n (%)				6.040	0.014					0.546	0.460	
N0	540 (75.63)	377 (78.38)	163 (69.96)			-0.184	128 (77.11)	62 (74.70)	66 (79.52)			0.119
N1	174 (24.37)	104 (21.62)	70 (30.04)			0.184	38 (22.89)	21 (25.30)	17 (20.48)			-0.119
PR, n (%)				233.184	<0.001					0.024	0.876	
Positive	492 (68.91)	420 (87.32)	72 (30.90)			-1.221	73 (43.98)	37 (44.58)	36 (43.37)			-0.024
Negative	222 (31.09)	61 (12.68)	161 (69.10)			1.221	93 (56.02)	46 (55.42)	47 (56.63)			0.024
Grade, n (%)				-	<0.001					2.715	0.099	
I	2 (0.28)	2 (0.42)	0 (0.00)			-0.079						
II	295 (41.32)	257 (53.43)	38 (16.31)			-1.005	39 (23.49)	15 (18.07)	24 (28.92)			0.239
III/IV	417 (58.4)	222 (46.15)	195 (83.69)			1.016	127 (76.51)	68 (81.93)	59 (71.08)			-0.239
HER2, n (%)				193.935	<0.001					0.066	0.798	
Positive	112 (15.69)	12 (2.49)	100 (42.92)			0.817	17 (10.24)	9 (10.84)	8 (9.64)			-0.041
Negative	602 (84.31)	469 (97.51)	133 (57.08)			-0.817	149 (89.76)	74 (89.16)	75 (90.36)			0.041
Sequence number, n (%)				42.084	<0.001					0.000	1.000	
One primary only	626 (87.68)	395 (82.12)	231 (99.14)			1.845	162 (97.59)	81 (97.59)	81 (97.59)			0.000
2nd of two or more primaries	88 (12.32)	86 (17.88)	2 (0.86)			-1.845	4 (2.41)	2 (2.41)	2 (2.41)			0.000
Marital status, n (%)				69.209	<0.001					0.245	0.621	
Married	334 (46.78)	173 (35.97)	161 (69.10)			0.717	111 (66.87)	57 (68.67)	54 (65.06)			-0.076
Unmarried	380 (53.22)	308 (64.03)	72 (30.90)			-0.717	55 (33.13)	26 (31.33)	29 (34.94)			0.076

PSM, propensity score matching; OS, overall survival; CR, complete response.

Table S7 The PSM between patients who received neoadjuvant chemotherapy and those who did not receive neoadjuvant chemotherapy in the middle-risk patients group of NCR for CSS

Variable	Before PSM						After PSM					
	Total (n=661)	A (n=509)	NCR (n=152)	Statistic (χ^2)	P	SMD	Total (n=273)	A (n=166)	NCR (n=107)	Statistic (χ^2)	P	SMD
ER, n (%)				75.431	<0.001					0.397	0.529	
Negative	85 (12.86)	34 (6.68)	51 (33.55)			0.569	56 (20.51)	32 (19.28)	24 (22.43)			0.076
Positive	576 (87.14)	475 (93.32)	101 (66.45)			-0.569	217 (79.49)	134 (80.72)	83 (77.57)			-0.076
Sequence number 14, n (%)				19.833	<0.001					-	1.000	
2nd of two or more primaries	68 (10.29)	67 (13.16)	1 (0.66)			-1.547	2 (0.73)	1 (0.60)	1 (0.93)			0.035
One primary only	593 (89.71)	442 (86.84)	151 (99.34)			1.547	271 (99.27)	165 (99.40)	106 (99.07)			-0.035
Marital status, n (%)				2.383	0.123					1.304	0.254	
Married	388 (58.7)	307 (60.31)	81 (53.29)			-0.141	152 (55.68)	97 (58.43)	55 (51.40)			-0.141
Unmarried	273 (41.3)	202 (39.69)	71 (46.71)			0.141	121 (44.32)	69 (41.57)	52 (48.60)			0.141
Stage, n (%)				-	<0.001					0.296	0.586	
I	141 (21.33)	128 (25.15)	13 (8.55)			-0.593	37 (13.55)	24 (14.46)	13 (12.15)			-0.071
II	515 (77.91)	381 (74.85)	134 (88.16)			0.412	236 (86.45)	142 (85.54)	94 (87.85)			0.071
IIIA	5 (0.76)	0 (0.00)	5 (3.29)			0.184						
T stage, n (%)				38.705	<0.001					-	0.397	
T1	187 (28.29)	157 (30.84)	30 (19.74)			-0.279	76 (27.84)	51 (30.72)	25 (23.36)			-0.174
T2	453 (68.53)	347 (68.17)	106 (69.74)			0.034	192 (70.33)	112 (67.47)	80 (74.77)			0.168
T3	21 (3.18)	5 (0.98)	16 (10.53)			0.311	5 (1.83)	3 (1.81)	2 (1.87)			0.005
N stage, n (%)				50.123	<0.001					0.317	0.573	
N0	503 (76.1)	420 (82.51)	83 (54.61)			-0.561	179 (65.57)	111 (66.87)	68 (63.55)			-0.069
N1	158 (23.9)	89 (17.49)	69 (45.39)			0.561	94 (34.43)	55 (33.13)	39 (36.45)			0.069
Grade, n (%)				40.220	<0.001					-	0.091	
I	14 (2.12)	2 (0.39)	12 (7.89)			0.278	1 (0.37)	1 (0.60)	0 (0.00)			-0.100
II	289 (43.72)	211 (41.45)	78 (51.32)			0.197	131 (47.99)	72 (43.37)	59 (55.14)			0.237
III/IV	358 (54.16)	296 (58.15)	62 (40.79)			-0.353	141 (51.65)	93 (56.02)	48 (44.86)			-0.224
PR, n (%)				74.626	<0.001					0.921	0.337	
Positive	537 (81.24)	450 (88.41)	87 (57.24)			-0.630	205 (75.09)	128 (77.11)	77 (71.96)			-0.115
Negative	124 (18.76)	59 (11.59)	65 (42.76)			0.630	68 (24.91)	38 (22.89)	30 (28.04)			0.115
HER2, n (%)				69.868	<0.001					0.250	0.617	
Positive	25 (3.78)	2 (0.39)	23 (15.13)			0.411	5 (1.83)	2 (1.20)	3 (2.80)			0.097
Negative	636 (96.22)	507 (99.61)	129 (84.87)			-0.411	268 (98.17)	164 (98.80)	104 (97.20)			-0.097

PSM, propensity score matching; CSS, cancer-specific survival; NCR, non-complete response.

Table S8 The PSM between patients who received neoadjuvant chemotherapy and those who did not receive neoadjuvant chemotherapy in the middle-risk patients group of CR for CSS

Variable	Before PSM						After PSM					
	Total (n=667)	Neoadjuvant therapy not given (n=509)	Stated as complete response (CR) (n=158)	Statistic (χ^2)	P	SMD	Total (n=140)	Neoadjuvant therapy not given (n=91)	Stated as complete response (CR) (n=49)	Statistic (χ^2)	P	SMD
ER, n (%)				277.917	<0.001					3.686	0.055	
Negative	143 (21.44)	34 (6.68)	109 (68.99)			1.347	59 (42.14)	33 (36.26)	26 (53.06)			0.337
Positive	524 (78.56)	475 (93.32)	49 (31.01)			-1.347	81 (57.86)	58 (63.74)	23 (46.94)			-0.337
Sequence number, n (%)				12.518	<0.001					0.000	1.000	
2nd of two or more primaries	72 (10.79)	67 (13.16)	5 (3.16)			-0.571	10 (7.14)	7 (7.69)	3 (6.12)			-0.065
One primary only	595 (89.21)	442 (86.84)	153 (96.84)			0.571	130 (92.86)	84 (92.31)	46 (93.88)			0.065
Marital status, n (%)				2.541	0.111					0.472	0.492	
Married	391 (58.62)	307 (60.31)	84 (53.16)			-0.143	91 (65)	61 (67.03)	30 (61.22)			-0.119
Unmarried	276 (41.38)	202 (39.69)	74 (46.84)			0.143	49 (35)	30 (32.97)	19 (38.78)			0.119
Stage, n (%)				-	<0.001					-	0.519	
I	144 (21.59)	128 (25.15)	16 (10.13)			-0.498	47 (33.57)	31 (34.07)	16 (32.65)			-0.030
II	517 (77.51)	381 (74.85)	136 (86.08)			0.324	92 (65.71)	60 (65.93)	32 (65.31)			-0.013
IIIA	6 (0.9)	0 (0.00)	6 (3.80)			0.199	1 (0.71)	0 (0.00)	1 (2.04)			0.144
T stage, n (%)				43.645	<0.001					1.074	0.585	
T1	181 (27.14)	157 (30.84)	24 (15.19)			-0.436	48 (34.29)	32 (35.16)	16 (32.65)			-0.054
T2	465 (69.72)	347 (68.17)	118 (74.68)			0.150	82 (58.57)	54 (59.34)	28 (57.14)			-0.044
T3	21 (3.15)	5 (0.98)	16 (10.13)			0.303	10 (7.14)	5 (5.49)	5 (10.20)			0.156
N stage, n (%)				22.854	<0.001					0.050	0.824	
N0	522 (78.26)	420 (82.51)	102 (64.56)			-0.375	124 (88.57)	81 (89.01)	43 (87.76)			-0.038
N1	145 (21.74)	89 (17.49)	56 (35.44)			0.375	16 (11.43)	10 (10.99)	6 (12.24)			0.038
Grade, n (%)				30.626	<0.001					-	0.437	
I	13 (1.95)	2 (0.39)	11 (6.96)			0.258	5 (3.57)	2 (2.20)	3 (6.12)			0.164
II	285 (42.73)	211 (41.45)	74 (46.84)			0.108	49 (35)	31 (34.07)	18 (36.73)			0.055
III/IV	369 (55.32)	296 (58.15)	73 (46.20)			-0.240	86 (61.43)	58 (63.74)	28 (57.14)			-0.133
PR, n (%)				266.777	<0.001					2.896	0.089	
Positive	485 (72.71)	450 (88.41)	35 (22.15)			-1.596	68 (48.57)	49 (53.85)	19 (38.78)			-0.309
Negative	182 (27.29)	59 (11.59)	123 (77.85)			1.596	72 (51.43)	42 (46.15)	30 (61.22)			0.309
HER2, n (%)				201.980	<0.001					0.011	0.915	
Positive	62 (9.3)	2 (0.39)	60 (37.97)			0.774	4 (2.86)	2 (2.20)	2 (4.08)			0.095
Negative	605 (90.7)	507 (99.61)	98 (62.03)			-0.774	136 (97.14)	89 (97.80)	47 (95.92)			-0.095

PSM, propensity score matching; CSS, cancer-specific survival; CR, complete response

Table S9 The PSM between patients who received neoadjuvant chemotherapy and those who received adjuvant chemotherapy in the middle-risk patients group of CR for OS

Variable	Before PSM					After PSM						
	Total (n=570)	Neoadjuvant therapy not given (n=432)	Stated as complete response (CR) (n=138)	Statistic (χ^2)	P	SMD	Total (n=268)	Neoadjuvant therapy not given (n=134)	Stated as complete response (CR) (n=134)	Statistic (χ^2)	P	SMD
Breast Subtype, n (%)				–	<0.001					0.243	0.886	
HR–/HER2–	338 (59.3)	240 (55.56)	98 (71.01)			0.341	196 (73.13)	99 (73.88)	97 (72.39)			–0.033
HR–/HER2+	20 (3.51)	10 (2.31)	10 (7.25)			0.190	18 (6.72)	8 (5.97)	10 (7.46)			0.057
HR+/HER2–	203 (35.61)	173 (40.05)	30 (21.74)			–0.444	54 (20.15)	27 (20.15)	27 (20.15)			0.000
HR+/HER2+	9 (1.58)	9 (2.08)	0 (0.00)			–0.168						
ER, n (%)				18.231	<0.001					0.000	1.000	
Negative	359 (62.98)	251 (58.10)	108 (78.26)			0.489	214 (79.85)	107 (79.85)	107 (79.85)			0.000
Positive	211 (37.02)	181 (41.90)	30 (21.74)			–0.489	54 (20.15)	27 (20.15)	27 (20.15)			0.000
Stage, n (%)				10.188	0.006					–	1.000	
I	27 (4.74)	25 (5.79)	2 (1.45)			–0.363	4 (1.49)	2 (1.49)	2 (1.49)			0.000
II	516 (90.53)	392 (90.74)	124 (89.86)			–0.029	245 (91.42)	122 (91.04)	123 (91.79)			0.027
IIIA	27 (4.74)	15 (3.47)	12 (8.70)			0.185	19 (7.09)	10 (7.46)	9 (6.72)			–0.030
T stage, n (%)				15.121	<0.001					–	0.847	
T1	56 (9.82)	51 (11.81)	5 (3.62)			–0.438	9 (3.36)	4 (2.99)	5 (3.73)			0.039
T2	39 (6.84)	22 (5.09)	17 (12.32)			0.220	29 (10.82)	16 (11.94)	13 (9.70)			–0.076
T3	475 (83.33)	359 (83.10)	116 (84.06)			0.026	230 (85.82)	114 (85.07)	116 (86.57)			0.044
N stage, n (%)				0.022	0.881					0.140	0.708	
N0	222 (38.95)	169 (39.12)	53 (38.41)			–0.015	107 (39.93)	55 (41.04)	52 (38.81)			–0.046
N1	348 (61.05)	263 (60.88)	85 (61.59)			0.015	161 (60.07)	79 (58.96)	82 (61.19)			0.046
PR, n (%)				21.484	<0.001					0.095	0.758	
Positive	93 (16.32)	88 (20.37)	5 (3.62)			–0.896	11 (4.1)	6 (4.48)	5 (3.73)			–0.039
Negative	477 (83.68)	344 (79.63)	133 (96.38)			0.896	257 (95.9)	128 (95.52)	129 (96.27)			0.039
Grade, n (%)				0.648	0.421					0.095	0.758	
II	28 (4.91)	23 (5.32)	5 (3.62)			–0.091	11 (4.1)	6 (4.48)	5 (3.73)			–0.039
III/IV	542 (95.09)	409 (94.68)	133 (96.38)			0.091	257 (95.9)	128 (95.52)	129 (96.27)			0.039
HER2, n (%)				1.757	0.185					0.238	0.625	
Positive	29 (5.09)	19 (4.40)	10 (7.25)			0.110	18 (6.72)	8 (5.97)	10 (7.46)			0.057
Negative	541 (94.91)	413 (95.60)	128 (92.75)			–0.110	250 (93.28)	126 (94.03)	124 (92.54)			–0.057
Sequence number, n (%)				6.159	0.013					0.216	0.642	
One primary only	498 (87.37)	369 (85.42)	129 (93.48)			0.327	248 (92.54)	123 (91.79)	125 (93.28)			0.060
2nd of two or more primaries	72 (12.63)	63 (14.58)	9 (6.52)			–0.327	20 (7.46)	11 (8.21)	9 (6.72)			–0.060
Marital status, n (%)				0.965	0.326					0.000	1.000	
Married	159 (27.89)	116 (26.85)	43 (31.16)			0.093	82 (30.6)	41 (30.60)	41 (30.60)			0.000
Unmarried	411 (72.11)	316 (73.15)	95 (68.84)			–0.093	186 (69.4)	93 (69.40)	93 (69.40)			0.000

CR, complete response; OS, overall survival; PSM, propensity score matching.

Table S10 The PSM between patients who received neoadjuvant chemotherapy and those who received adjuvant chemotherapy in the high-risk patients group of NCR for CSS

Variable	Before PSM						After PSM					
	Total (n=532)	Adjuvant chemotherapy (n=432)	Neoadjuvant chemotherapy (n=100)	Statistic (χ^2)	P	SMD	Total (n=184)	Adjuvant chemotherapy (n=92)	Neoadjuvant chemotherapy (n=92)	Statistic (χ^2)	P	SMD
Breast subtype, n (%)				–	0.287					–	1.000	
HR–/HER2–	295 (55.45)	240 (55.56)	55 (55.00)			–0.011	106 (57.61)	53 (57.61)	53 (57.61)			0.000
HR–/HER2+	16 (3.01)	10 (2.31)	6 (6.00)			0.155	6 (3.26)	3 (3.26)	3 (3.26)			0.000
HR+/HER2–	210 (39.47)	173 (40.05)	37 (37.00)			–0.063	67 (36.41)	33 (35.87)	34 (36.96)			0.023
HR+/HER2+	11 (2.07)	9 (2.08)	2 (2.00)			–0.006	5 (2.72)	3 (3.26)	2 (2.17)			–0.075
ER, n (%)				0.281	0.596					0.000	1.000	
Negative	312 (58.65)	251 (58.10)	61 (61.00)			0.059	112 (60.87)	56 (60.87)	56 (60.87)			0.000
Positive	220 (41.35)	181 (41.90)	39 (39.00)			–0.059	72 (39.13)	36 (39.13)	36 (39.13)			0.000
Stage, n (%)				32.303	<0.001					–	1.000	
I	26 (4.89)	25 (5.79)	1 (1.00)			–0.481	1 (0.54)	0 (0.00)	1 (1.09)			0.105
II	473 (88.91)	392 (90.74)	81 (81.00)			–0.248	162 (88.04)	81 (88.04)	81 (88.04)			0.000
IIIA	33 (6.2)	15 (3.47)	18 (18.00)			0.378	21 (11.41)	11 (11.96)	10 (10.87)			–0.035
T stage, n (%)				32.660	<0.001					–	1.000	
T1	56 (10.53)	51 (11.81)	5 (5.00)			–0.312	9 (4.89)	4 (4.35)	5 (5.43)			0.048
T2	44 (8.27)	22 (5.09)	22 (22.00)			0.408	28 (15.22)	14 (15.22)	14 (15.22)			0.000
T3	432 (81.2)	359 (83.10)	73 (73.00)			–0.228	147 (79.89)	74 (80.43)	73 (79.35)			–0.027
N stage, n (%)				8.031	0.005					0.000	1.000	
N0	193 (36.28)	169 (39.12)	24 (24.00)			–0.354	48 (26.09)	24 (26.09)	24 (26.09)			0.000
N1	339 (63.72)	263 (60.88)	76 (76.00)			0.354	136 (73.91)	68 (73.91)	68 (73.91)			0.000
PR, n (%)				8.402	0.004					0.065	0.799	
Positive	96 (18.05)	88 (20.37)	8 (8.00)			–0.456	17 (9.24)	9 (9.78)	8 (8.70)			–0.039
Negative	436 (81.95)	344 (79.63)	92 (92.00)			0.456	167 (90.76)	83 (90.22)	84 (91.30)			0.039
Grade, n (%)				3.052	0.081					0.059	0.809	
II	33 (6.2)	23 (5.32)	10 (10.00)			0.156	19 (10.33)	10 (10.87)	9 (9.78)			–0.037
III/IV	499 (93.8)	409 (94.68)	90 (90.00)			–0.156	165 (89.67)	82 (89.13)	83 (90.22)			0.037
HER2, n (%)				2.187	0.139					0.097	0.756	
Positive	27 (5.08)	19 (4.40)	8 (8.00)			0.133	11 (5.98)	6 (6.52)	5 (5.43)			–0.048
Negative	505 (94.92)	413 (95.60)	92 (92.00)			–0.133	173 (94.02)	86 (93.48)	87 (94.57)			0.048
Sequence number, n (%)				4.087	0.043					0.083	0.774	
One primary only	462 (86.84)	369 (85.42)	93 (93.00)			0.297	171 (92.93)	85 (92.39)	86 (93.48)			0.044
2nd of two or more primaries	70 (13.16)	63 (14.58)	7 (7.00)			–0.297	13 (7.07)	7 (7.61)	6 (6.52)			–0.044
Marital status, n (%)				3.330	0.068					0.096	0.757	
Married	152 (28.57)	116 (26.85)	36 (36.00)			0.191	64 (34.78)	33 (35.87)	31 (33.70)			–0.046
Unmarried	380 (71.43)	316 (73.15)	64 (64.00)			–0.191	120 (65.22)	59 (64.13)	61 (66.30)			0.046

PSM, propensity score matching; CSS, cancer-specific survival; NCR, non-complete response.

Table S11 The PSM between patients who received neoadjuvant chemotherapy and those who received adjuvant chemotherapy in the middle-risk patients group of CR for CSS

Variable	Before PSM						After PSM					
	Total (n=556)	Adjuvant chemotherapy (n=448)	Neoadjuvant chemotherapy (n=108)	Statistic (χ^2)	P	SMD	Total (n=335)	Adjuvant chemotherapy (n=242)	Neoadjuvant chemotherapy (n=93)	Statistic (χ^2)	P	SMD
ER, n (%)				2.315	0.128					0.176	0.675	
Negative	263 (47.3)	219 (48.88)	44 (40.74)			-0.166	143 (42.69)	105 (43.39)	38 (40.86)			-0.051
Positive	293 (52.7)	229 (51.12)	64 (59.26)			0.166	192 (57.31)	137 (56.61)	55 (59.14)			0.051
Sequence number 14, n (%)				0.390	0.532					0.828	0.363	
2nd of two or more primaries	34 (6.12)	26 (5.80)	8 (7.41)			0.061	19 (5.67)	12 (4.96)	7 (7.53)			0.097
One primary only	522 (93.88)	422 (94.20)	100 (92.59)			-0.061	316 (94.33)	230 (95.04)	86 (92.47)			-0.097
Marital status, n (%)				0.049	0.826					0.175	0.675	
Married	309 (55.58)	250 (55.80)	59 (54.63)			-0.024	197 (58.81)	144 (59.50)	53 (56.99)			-0.051
Unmarried	247 (44.42)	198 (44.20)	49 (45.37)			0.024	138 (41.19)	98 (40.50)	40 (43.01)			0.051
Stage, n (%)				52.363	<0.001					-	0.031	
I	8 (1.44)	7 (1.56)	1 (0.93)			-0.066	1 (0.3)	0 (0.00)	1 (1.08)			0.104
II	511 (91.91)	428 (95.54)	83 (76.85)			-0.443	312 (93.13)	230 (95.04)	82 (88.17)			-0.213
IIIA	37 (6.65)	13 (2.90)	24 (22.22)			0.465	22 (6.57)	12 (4.96)	10 (10.75)			0.187
T stage, n (%)				45.084	<0.001					4.246	0.120	
T1	34 (6.12)	30 (6.70)	4 (3.70)			-0.158	14 (4.18)	10 (4.13)	4 (4.30)			0.008
T2	479 (86.15)	400 (89.29)	79 (73.15)			-0.364	297 (88.66)	219 (90.50)	78 (83.87)			-0.180
T3	43 (7.73)	18 (4.02)	25 (23.15)			0.454	24 (7.16)	13 (5.37)	11 (11.83)			0.200
N stage, n (%)				20.920	<0.001					0.126	0.722	
N0	180 (32.37)	165 (36.83)	15 (13.89)			-0.663	58 (17.31)	43 (17.77)	15 (16.13)			-0.045
N1	376 (67.63)	283 (63.17)	93 (86.11)			0.663	277 (82.69)	199 (82.23)	78 (83.87)			0.045
Grade, n (%)				9.808	0.002					0.480	0.488	
II	89 (16.01)	61 (13.62)	28 (25.93)			0.281	64 (19.1)	44 (18.18)	20 (21.51)			0.081
III/IV	467 (83.99)	387 (86.38)	80 (74.07)			-0.281	271 (80.9)	198 (81.82)	73 (78.49)			-0.081
PR, n (%)				1.223	0.269					0.026	0.872	
Positive	191 (34.35)	149 (33.26)	42 (38.89)			0.115	132 (39.4)	96 (39.67)	36 (38.71)			-0.020
Negative	365 (65.65)	299 (66.74)	66 (61.11)			-0.115	203 (60.6)	146 (60.33)	57 (61.29)			0.020
HER2, n (%)				11.970	<0.001					-	0.188	
Positive	6 (1.08)	1 (0.22)	5 (4.63)			0.210	3 (0.9)	1 (0.41)	2 (2.15)			0.120
Negative	550 (98.92)	447 (99.78)	103 (95.37)			-0.210	332 (99.1)	241 (99.59)	91 (97.85)			-0.120

PSM, propensity score matching; CSS, cancer-specific survival; CR, complete response

Table S12 The PSM between patients who received neoadjuvant chemotherapy and those who received adjuvant chemotherapy in the high-risk patients group of NCR for OS

Variable	Before PSM						After PSM					
	Total (n=567)	Adjuvant chemotherapy (n=448)	Neoadjuvant chemotherapy (n=119)	Statistic (χ^2)	P	SMD	Total (n=228)	Adjuvant chemotherapy (n=114)	Neoadjuvant chemotherapy (CR) (n=114)	Statistic (χ^2)	P	SMD
ER, n (%)				11.552	<0.001					0.020	0.888	
Negative	298 (52.56)	219 (48.88)	79 (66.39)			0.371	153 (67.11)	77 (67.54)	76 (66.67)			-0.019
Positive	269 (47.44)	229 (51.12)	40 (33.61)			-0.371	75 (32.89)	37 (32.46)	38 (33.33)			0.019
Sequence number 14, n (%)				0.467	0.494					0.000	1.000	
2nd of two or more primaries	31 (5.47)	26 (5.80)	5 (4.20)			-0.080	9 (3.95)	4 (3.51)	5 (4.39)			0.043
One primary only	536 (94.53)	422 (94.20)	114 (95.80)			0.080	219 (96.05)	110 (96.49)	109 (95.61)			-0.043
Marital status, n (%)				1.178	0.278					0.019	0.892	
Married	323 (56.97)	250 (55.80)	73 (61.34)			0.114	141 (61.84)	70 (61.40)	71 (62.28)			0.018
Unmarried	244 (43.03)	198 (44.20)	46 (38.66)			-0.114	87 (38.16)	44 (38.60)	43 (37.72)			-0.018
Stage, n (%)				-	0.032					0.000	1.000	
I	7 (1.23)	7 (1.56)	0 (0.00)			-0.142						
II	538 (94.89)	428 (95.54)	110 (92.44)			-0.117	220 (96.49)	110 (96.49)	110 (96.49)			0.000
IIIA	22 (3.88)	13 (2.90)	9 (7.56)			0.176	8 (3.51)	4 (3.51)	4 (3.51)			0.000
T stage, n (%)				9.358	0.009					0.000	1.000	
T1	35 (6.17)	30 (6.70)	5 (4.20)			-0.124	10 (4.39)	5 (4.39)	5 (4.39)			0.000
T2	501 (88.36)	400 (89.29)	101 (84.87)			-0.123	202 (88.6)	101 (88.60)	101 (88.60)			0.000
T3	31 (5.47)	18 (4.02)	13 (10.92)			0.221	16 (7.02)	8 (7.02)	8 (7.02)			0.000
N stage, n (%)				0.230	0.632					0.000	1.000	
N0	206 (36.33)	165 (36.83)	41 (34.45)			-0.050	82 (35.96)	41 (35.96)	41 (35.96)			0.000
N1	361 (63.67)	283 (63.17)	78 (65.55)			0.050	146 (64.04)	73 (64.04)	73 (64.04)			0.000
Grade, n (%)				12.084	<0.001					0.000	1.000	
II	93 (16.4)	61 (13.62)	32 (26.89)			0.299	56 (24.56)	28 (24.56)	28 (24.56)			0.000
III/IV	474 (83.6)	387 (86.38)	87 (73.11)			-0.299	172 (75.44)	86 (75.44)	86 (75.44)			0.000
PR, n (%)				21.207	<0.001					0.000	1.000	
Positive	163 (28.75)	149 (33.26)	14 (11.76)			-0.667	28 (12.28)	14 (12.28)	14 (12.28)			0.000
Negative	404 (71.25)	299 (66.74)	105 (88.24)			0.667	200 (87.72)	100 (87.72)	100 (87.72)			0.000
HER2, n (%)				-	0.376					-	1.000	
Positive	2 (0.35)	1 (0.22)	1 (0.84)			0.068	1 (0.44)	0 (0.00)	1 (0.88)			0.094
Negative	565 (99.65)	447 (99.78)	118 (99.16)			-0.068	227 (99.56)	114 (100.00)	113 (99.12)			-0.094

PSM, propensity score matching; OS, overall survival; NCR, non-complete response.