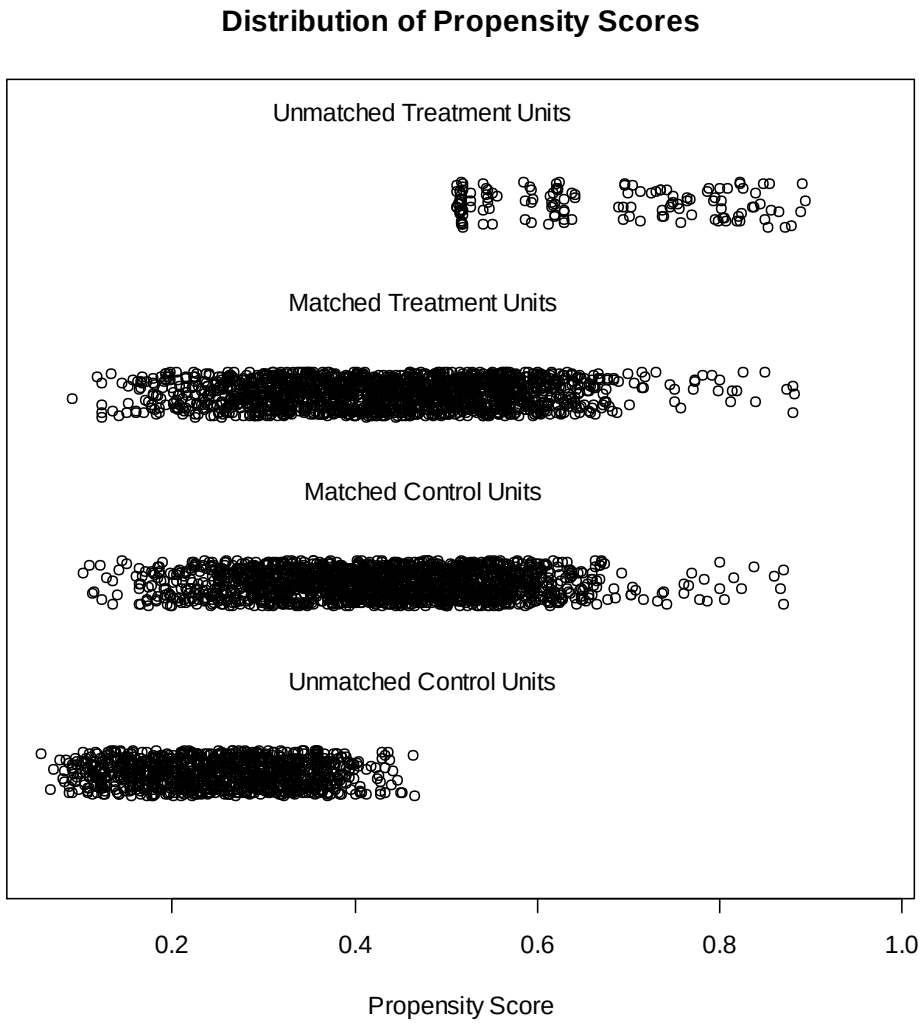
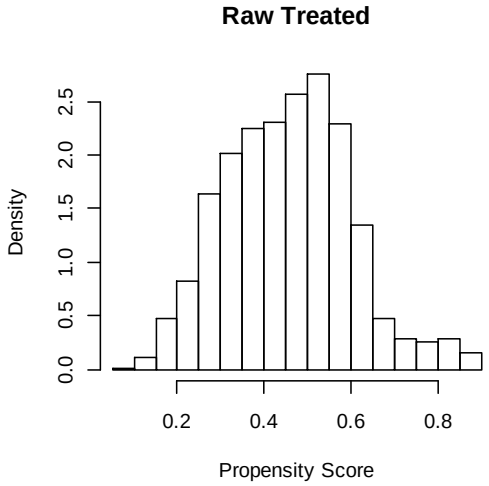
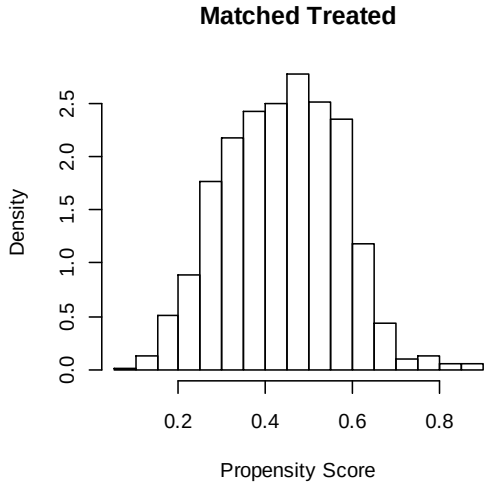
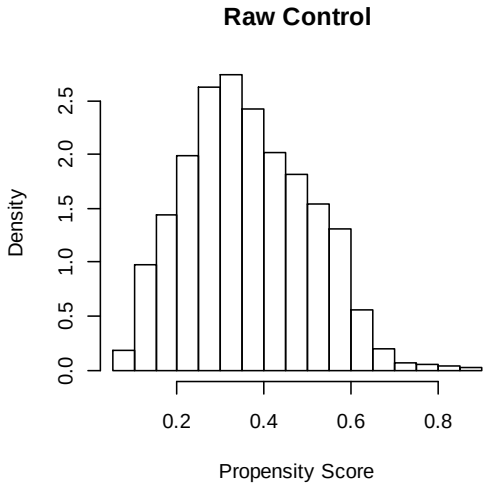
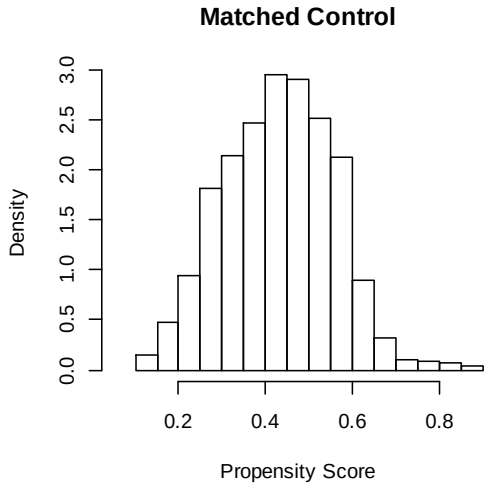
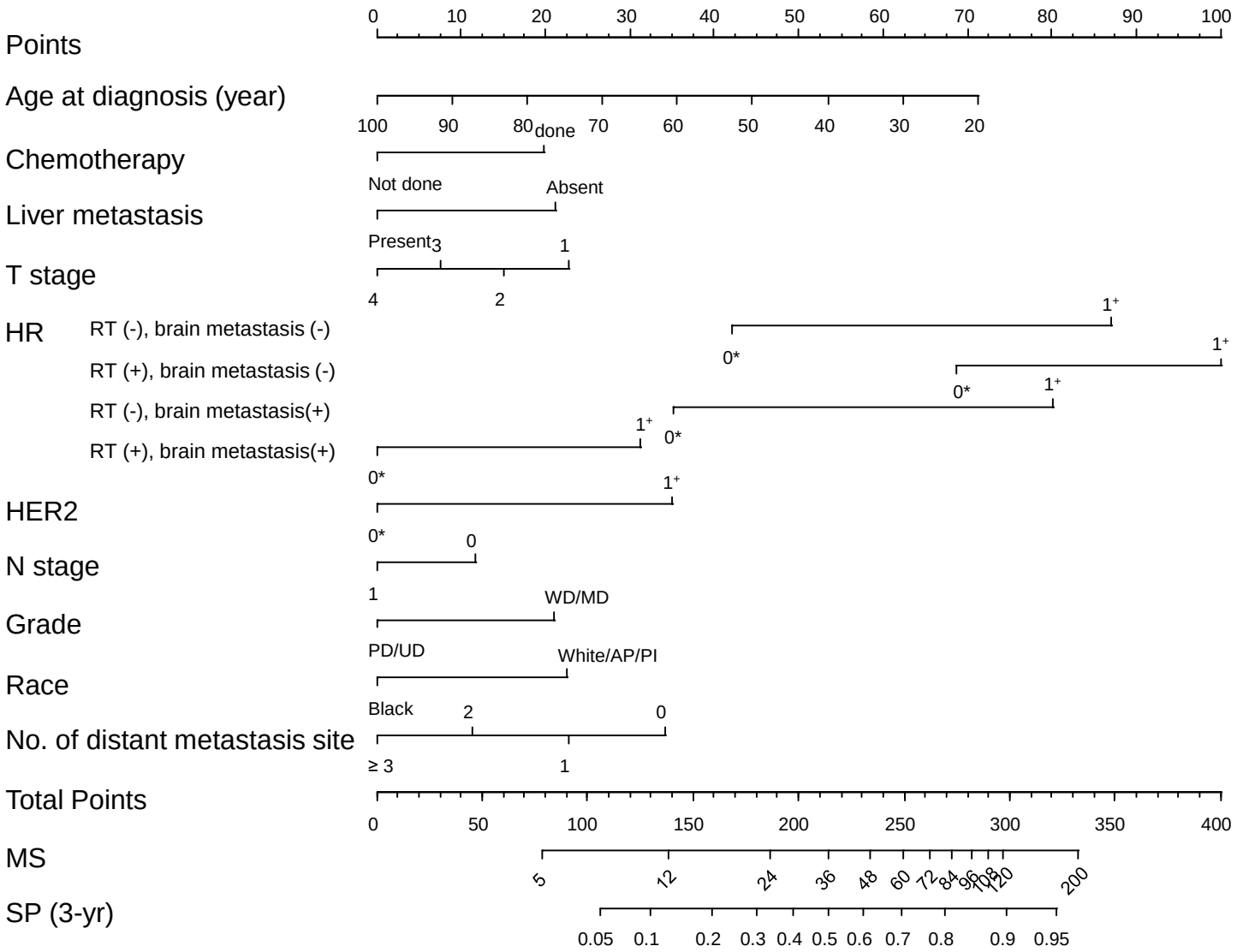

Distribution of Propensity Scores
Unmatched Treatment Units
Matched Treatment Units
Matched Control Units
Unmatched Control Units
0.2
0.4
0.6
0.8
1.0
Propensity Score

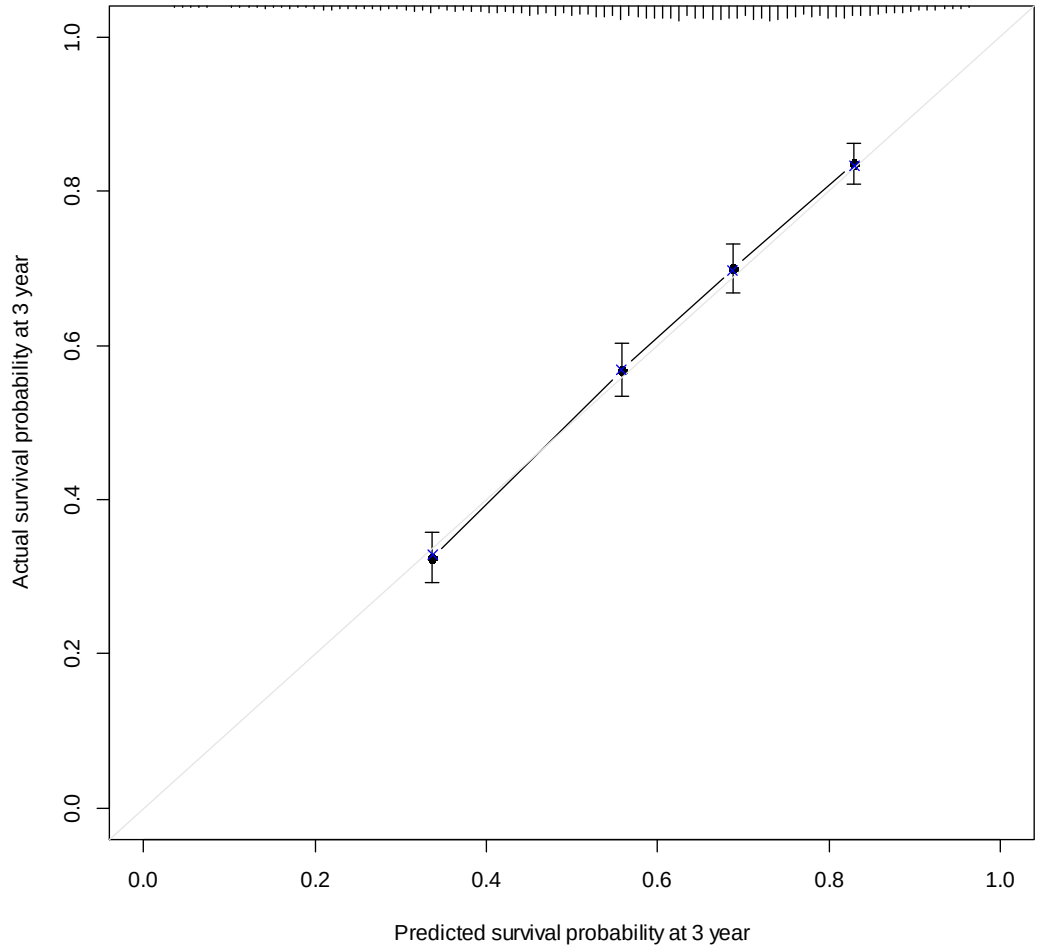

Raw Treated
Density
0.0
0.5
1.0
1.5
2.0
2.5
0.2
0.4
0.6
0.8
Propensity Score


Matched Treated
Density
0.0
0.5
1.0
1.5
2.0
2.5
0.2
0.4
0.6
0.8
Propensity Score


Raw Control
Density
0.0
0.5
1.0
1.5
2.0
2.5
0.2
0.4
0.6
0.8
Propensity Score


Matched Control
Density
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0.2
0.4
0.6
0.8
Propensity Score


Points
0 10 20 30 40 50 60 70 80 90 100
Age at diagnosis (year)
100 90 80 done 70 60 50 40 30 20
Chemotherapy
Not done Absent
Liver metastasis
Present 3 1
T stage
4 2
HR
RT (-), brain metastasis (-)
RT (+), brain metastasis (-)
RT (-), brain metastasis(+)
RT (+), brain metastasis(+)
1+ 0*
1+ 0*
1+ 0*
1+ 0*
HER2
0* 1+
N stage
0* 0
1
Grade
WD/MD
PD/UD
Race
White/AP/PI
Black
No. of distant metastasis site
2 0
≥ 3 1
Total Points
0 50 100 150 200 250 300 350 400
MS
5 12 24 36 48 60 72 84 96 108 120 200
SP (3-yr)
0.05 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 0.95


Actual survival probability at 3 year
0.0
0.2
0.4
0.6
0.8
1.0
Predicted survival probability at 3 year
0.0
0.2
0.4
0.6
0.8
1.0

Supplementary Table 1. Univariate and multivariate analyses for overall survival in the study population

Characteristics		3-year OS (%)	Univariate analysis[a]	Multivariate analysis[b]	HR (95% CI)
Age at diagnosis			<0.001	<0.001	1.02 (1.02-1.02)
Race	White/others	60.4	<0.001	<0.001	1
	Black	45.1			1.35 (1.20-1.52)
T stage	1	66.9	<0.001		1
	2	61.6		0.008	1.23 (1.06-1.43)
	3	56.9		<0.001	1.38 (1.16-1.63)
	4	14.7		<0.001	1.60 (1.36-1.87)
N stage	0-2	59.5	<0.001	<0.001	1
	3	54.4			1.29 (1.16-1.43)
Grade	1-2	68.5	<0.001	<0.001	1
	3-4	49.8			1.46 (1.32-1.62)
Hormone receptor	Negative	39.2	<0.001	<0.001	1
	Positive	65.0			0.50 (0.45-0.56)
HER2 receptor	Negative	54.8	<0.001	<0.001	1
	Positive	68.5			0.48 (0.43-0.54)
Breast operation	Mastectomy	58.3	0.861	-	
	Lumpectomy	57.9			
Chemotherapy	Not done/uknown	54.1	<0.001	<0.001	1
	Done	59.7			0.81 (0.72-0.90)
Radiotherapy	Not done/uknown	54.1	<0.001	<0.001	1
	Done	63.5			0.80 (0.73-0.88)
Bone metastasis	Absent	56.3	0.984	-	
	Present	59.6			
Brain metastasis	Absent	59.3	<0.001	<0.001	1
	Present	30.2			1.98 (1.55-2.52)
Liver metastasis	Absent	61.2	<0.001	<0.001	1
	Present	46.0			1.49 (1.29-1.72)
Lung metastasis	Absent	61.2	<0.001	0.577	1
	Present	48.0			1.03 (0.90-1.18)
No of metastatic site*	0	64.3	<0.001		1
	1	60.4		0.012	1.18 (1.04-1.35)
	2	48.1		<0.001	1.49 (1.21-1.82)
	3-4	29.0		<0.001	1.82 (1.30-2.54)

OS, overall survival; HR, hazard ratio; CI, confidence interval;

*No of metastatic site = bone metastasis + brain metastasis + liver metastasis + lung metastasis

[a]P-value by Log-rank test

[b]P-value by Cox proportional hazard model