

Table S1 Univariate competing-risks regression analysis of cardiovascular death

Variable	Before PSM		After PSM	
	HR (95% CI)	P value	HR (95% CI)	P value
Marital status				
Married	Reference		Reference	
Unmarried	3.085 (2.831–3.361)	<0.001	2.012 (1.835–2.208)	<0.001
Age at diagnosis				
25–60 years	Reference		Reference	
>60 years	11.176 (9.715–12.856)	<0.001	9.382 (8.035–10.956)	<0.001
Race				
White	Reference		Reference	
Black	1.136 (1.009–1.279)	0.035	0.950 (0.831–1.086)	0.455
Other [‡]	0.504 (0.418–0.608)	<0.001	0.492 (0.401–0.604)	<0.001
Income*				
Low	Reference		Reference	
High	0.748 (0.690–0.811)	<0.001	0.831 (0.762–0.908)	<0.001
Grade[#]				
Low	Reference		Reference	
High	0.918 (0.843–1.000)	0.049	0.860 (0.783–0.945)	0.002
ER status				
Positive	Reference		Reference	
Negative	0.946 (0.851–1.053)	0.309	0.947 (0.844–1.063)	0.354
PR status				
Positive	Reference		Reference	
Negative	0.979 (0.895–1.070)	0.634	0.965 (0.876–1.063)	0.469
HER2 status				
Positive	Reference		Reference	
Negative	1.270 (1.125–1.433)	<0.001	1.258 (1.101–1.436)	0.001
AJCC stage				
I	Reference		Reference	
II	1.390 (1.272–1.518)	<0.001	1.236 (1.123–1.361)	<0.001
III	1.369 (1.208–1.550)	<0.001	1.126 (0.980–1.294)	0.095
IV	1.446 (1.201–1.741)	<0.001	1.135 (0.921–1.399)	0.236
Surgery				
Yes	0.357 (0.318–0.401)	<0.001	0.550 (0.473–0.638)	<0.001
No evidence	Reference		Reference	
Chemotherapy				
Yes	0.245 (0.220–0.273)	<0.001	0.271 (0.241–0.305)	<0.001
No evidence	Reference		Reference	
Radiotherapy				
Yes	0.332 (0.304–0.363)	<0.001	0.370 (0.337–0.407)	<0.001
No evidence	Reference		Reference	

[‡], other includes American Indian/Alaska Native and Asian/Pacific Islander; *, low (median household income was the worst 50% among all breast cancer patients) and high (median household income was the best 50%); [#], low (Grade I: well-differentiated and Grade II: moderately differentiated) and high (Grade III: poorly differentiated and Grade IV: undifferentiated). PSM, propensity-score matching; HR, hazard ratio; CI, confidence interval; ER, estrogen receptor; PR, progesterone receptor; HER2, human epidermal receptor 2; AJCC, the American Joint Committee on Cancer.

Table S2 Multivariate competing-risks regression analysis of cardiovascular death (Model 1)

Variable	Before PSM		After PSM	
	HR (95% CI)	P value	HR (95% CI)	P value
Marital status				
Married	Reference		Reference	
Unmarried	2.043 (1.871–2.230)	<0.001	1.958 (1.785–2.148)	<0.001
Age at diagnosis				
25–60 years	Reference		Reference	
>60 years	7.742 (6.723–8.914)	<0.001	7.634 (6.537–8.914)	<0.001
Income*				
Low	Reference		Reference	
High	0.855 (0.789–0.928)	<0.001	0.848 (0.777–0.926)	<0.001
Grade[#]				
Low	Reference		Reference	
High	1.191 (1.084–1.309)	<0.001	1.182 (1.066–1.311)	0.002
HER2 status				
Positive	Reference		Reference	
Negative	0.923 (0.811–1.051)	0.227	0.873 (0.757–1.005)	0.060
AJCC stage				
I	Reference		Reference	
II	1.695 (1.545–1.859)	<0.001	1.685 (1.524–1.862)	<0.001
III	2.235 (1.957–2.553)	<0.001	2.406 (2.073–2.792)	<0.001
IV	1.471 (1.216–1.779)	<0.001	1.584 (1.279–1.960)	<0.001
Chemotherapy				
Yes	0.341 (0.304–0.382)	<0.001	0.321 (0.282–0.365)	<0.001
No evidence	Reference		Reference	
Radiotherapy				
Yes	0.422 (0.386–0.462)	<0.001	0.424 (0.385–0.468)	<0.001
No evidence	Reference		Reference	

*, low (median household income was the worst 50% among all breast cancer patients) and high (median household income was the best 50%); [#], low (Grade I: well-differentiated and Grade II: moderately differentiated) and high (Grade III: poorly differentiated and Grade IV: undifferentiated). PSM, propensity-score matching; HR, hazard ratio; CI, confidence interval; HER2, human epidermal receptor 2; AJCC, the American Joint Committee on Cancer.

Table S3 Multivariate competing-risks regression analysis of cardiovascular death (Model 2)

Variable	Before PSM		After PSM	
	HR (95% CI)	P value	HR (95% CI)	P value
Marital status				
Married	Reference		Reference	
Unmarried	2.039 (1.867–2.226)	<0.001	1.954 (1.781–2.144)	<0.001
Age at diagnosis				
25–60 years	Reference		Reference	
>60 years	7.732 (6.715–8.905)	<0.001	7.618 (6.523–8.961)	<0.001
Income*				
Low	Reference		Reference	
High	0.857 (0.791–0.930)	<0.001	0.849 (0.778–0.927)	<0.001
Grade[#]				
Low	Reference		Reference	
High	1.126 (1.017–1.248)	0.022	1.100 (0.984–1.229)	0.094
ER status				
Positive	Reference		Reference	
Negative	1.228 (1.055–1.428)	0.008	1.277 (1.085–1.503)	0.003
PR status				
Positive	Reference		Reference	
Negative	0.985 (0.871–1.113)	0.803	1.011 (0.883–1.157)	0.874
HER2 status				
Positive	Reference		Reference	
Negative	0.941 (0.825–1.072)	0.360	0.895 (0.775–1.033)	0.128
AJCC stage				
I	Reference		Reference	
II	1.698 (1.548–1.863)	<0.001	1.687 (1.525–1.865)	<0.001
III	2.241 (1.962–2.560)	<0.001	2.406 (2.074–2.791)	<0.001
IV	1.474 (1.218–1.783)	<0.001	1.589 (1.284–1.967)	<0.001
Chemotherapy				
Yes	0.333 (0.296–0.374)	<0.001	0.310 (0.272–0.353)	<0.001
No evidence	Reference		Reference	
Radiotherapy				
Yes	0.424 (0.388–0.465)	<0.001	0.428 (0.388–0.472)	<0.001
No evidence	Reference		Reference	

*, low (median household income was the worst 50% among all breast cancer patients) and high (median household income was the best 50%); [#], low (Grade I: well-differentiated and Grade II: moderately differentiated) and high (Grade III: poorly differentiated and Grade IV: undifferentiated). PSM, propensity-score matching; HR, hazard ratio; CI, confidence interval; ER, estrogen receptor; PR, progesterone receptor; HER2, human epidermal receptor 2; AJCC, the American Joint Committee on Cancer.

Table S4 Multivariate competing-risks regression analysis of cardiovascular death (Model 3)

Variable	Before PSM		After PSM	
	HR (95% CI)	P value	HR (95% CI)	P value
Marital status				
Married	Reference		Reference	
Unmarried	1.971 (1.802–2.155)	<0.001	1.920 (1.748–2.107)	<0.001
Age at diagnosis				
25–60 years	Reference		Reference	
>60 years	7.662 (6.656–8.821)	<0.001	7.692 (6.588–8.980)	<0.001
Race				
White	Reference		Reference	
Black	1.089 (0.963–1.230)	0.173	1.168 (1.020–1.338)	0.024
Other [‡]	0.645 (0.534–0.778)	<0.001	0.649 (0.528–0.797)	<0.001
Income*				
Low	Reference		Reference	
High	0.873 (0.804–0.947)	0.001	0.872 (0.798–0.953)	0.002
Grade[#]				
Low	Reference		Reference	
High	1.134 (1.024–1.256)	0.016	1.102 (0.986–1.231)	0.086
ER status				
Positive	Reference		Reference	
Negative	1.221 (1.050–1.421)	0.010	1.255 (1.066–1.478)	0.006
PR status				
Positive	Reference		Reference	
Negative	0.980 (0.866–1.107)	0.742	1.001 (0.875–1.145)	0.990
HER2 status				
Positive	Reference		Reference	
Negative	0.944 (0.828–1.076)	0.388	0.914 (0.792–1.054)	0.216
AJCC stage				
I	Reference		Reference	
II	1.652 (1.505–1.813)	<0.001	1.659 (1.500–1.835)	<0.001
III	2.070 (1.806–2.373)	<0.001	2.252 (1.936–2.620)	<0.001
IV	1.001 (0.803–1.250)	0.989	1.101 (0.851–1.426)	0.464
Surgery				
Yes	0.580 (0.503–0.669)	<0.001	0.592 (0.490–0.716)	<0.001
No evidence	Reference		Reference	
Chemotherapy				
Yes	0.340 (0.303–0.382)	<0.001	0.313 (0.275–0.356)	<0.001
No evidence	Reference		Reference	
Radiotherapy				
Yes	0.443 (0.404–0.486)	<0.001	0.437 (0.396–0.482)	<0.001
No evidence	Reference		Reference	

[‡], other includes American Indian/Alaska Native and Asian/Pacific Islander; *, low (median household income was the worst 50% among all breast cancer patients) and high (median household income was the best 50%); [#], low (Grade I: well-differentiated and Grade II: moderately differentiated) and high (Grade III: poorly differentiated and Grade IV: undifferentiated). PSM, propensity-score matching; HR, hazard ratio; CI, confidence interval; ER, estrogen receptor; PR, progesterone receptor; HER2, human epidermal receptor 2; AJCC, the American Joint Committee on Cancer.

Table S5 Multivariate competing-risks regression analysis of cardiovascular death base on different marital status of 182,173 patients

Variable	HR (95% CI)	P value
Marital status		
Married	Reference	
Single	1.623 (1.421–1.853)	<0.001
Separated	0.886 (0.474–1.658)	0.705
Divorced	1.394 (1.209–1.608)	<0.001
Widowed	2.460 (2.227–2.717)	<0.001
Age at diagnosis		
25–60 years	Reference	
>60 years	6.776 (5.863–7.831)	<0.001
Race		
White	Reference	
Black	1.149 (1.017–1.298)	0.026
Other [§]	0.642 (0.532–0.774)	<0.001
Income*		
Low	Reference	
High	0.878 (0.809–0.953)	0.002
Grade [#]		
Low	Reference	
High	1.184 (1.078–1.301)	<0.001
HER2 status		
Positive	Reference	
Negative	0.927 (0.815–1.055)	0.252
AJCC stage		
I	Reference	
II	1.621 (1.477–1.780)	<0.001
III	2.013 (1.756–2.307)	<0.001
IV	1.017 (0.816–1.268)	0.878
Surgery		
Yes	0.593 (0.514–0.683)	
No evidence	Reference	<0.001
Chemotherapy		
Yes	0.367 (0.326–0.412)	<0.001
No evidence	Reference	
Radiotherapy		
Yes	0.452 (0.412–0.495)	<0.001
No evidence	Reference	

[§], other includes American Indian/Alaska Native and Asian/Pacific Islander; *, low (median household income was the worst 50% among all breast cancer patients) and high (median household income was the best 50%); #, low (Grade I: well-differentiated and Grade II: moderately differentiated) and high (Grade III: poorly differentiated and Grade IV: undifferentiated). HR, hazard ratio; CI, confidence interval; HER2, human epidermal receptor 2; AJCC, the American Joint Committee on Cancer.