

Supplementary

Table S1 Distribution of causes of death in the overall, training, and internal validation cohort

Cohort	All-cause death	Cancer-specific death	Non-cancer death
Overall	40.99%	17.02%	23.97%
Training cohort	41.21%	16.78%	24.43%
Internal validation cohort	40.66%	17.37%	23.29%

Table S2 Univariate and multivariate analyses of OS in the training cohort

	Univariate			Multivariate		
	HR	95% CI	P value	HR	95% CI	P value
Age (years)	1.883	1.671-2.123	<0.001	1.934	1.705-2.194	<0.001 [†]
60-69	Reference			Reference		
70-79	1.583	1.260-1.988	<0.001	1.585	1.257-1.998	<0.001
≥80	3.487	2.763-4.401	<0.001	3.809	2.979-4.870	<0.001
Race						
White	Reference					
Asian or Pacific Islander	0.618	0.477-0.802	<0.001			
Black	1.270	0.983-1.639	0.067			
American Indian/Alaska Native	1.725	0.553-5.380	0.348			
Unknown	0.198	0.028-1.411	0.106			
Sex	0.733	0.608-0.883	0.001	0.692	0.571-0.840	<0.001*
Male	Reference			Reference		
Female	0.733	0.608-0.883	0.001	0.709	0.583-0.862	<0.001
Primary Site	0.945	0.911-0.980	0.003	0.949	0.913-0.987	0.009 [†]
Cardia	Reference			Reference		
Fundus of stomach	0.777	0.488-1.239	0.290	0.693	0.426-1.128	0.141
Body of stomach	0.691	0.511-0.935	0.017	0.706	0.511-0.975	0.035
Gastric antrum	0.775	0.609-0.987	0.039	0.738	0.571-0.953	0.020
Pylorus	1.234	0.669-2.277	0.501	1.108	0.597-2.056	0.746
Lesser curvature of stomach	0.681	0.476-0.976	0.036	0.672	0.461-0.977	0.038
Greater curvature of stomach	0.747	0.486-1.150	0.185	0.705	0.453-1.097	0.121
Overlapping lesion of stomach	0.563	0.319-0.992	0.047	0.536	0.301-0.954	0.034
Stomach	0.625	0.436-0.895	0.010	0.671	0.458-0.984	0.041
Differentiation						
Moderately differentiated or well differentiated	Reference					
Poorly differentiated or undifferentiated anaplastic	1.050	0.857-1.285	0.639			
Unknown	0.944	0.722-1.234	0.673			
Histologic type	0.862	0.778-0.957	0.005	0.958	0.857-1.070	0.446
Adenocarcinoma	Reference					
Signet ring cell carcinoma	0.789	0.563-1.105	0.168			
Others/unknown	0.750	0.609-0.923	0.007			
T stage						
T1 or T1NOS	Reference					
T1a	1.240	1.014-1.516	0.036			
T1b	0.837	0.642-1.091	0.188			
N stage	1.263	1.163-1.371	<0.001	1.064	0.947-1.195	0.294
N0	Reference					
N1	1.632	1.219-2.187	0.001			
N2	2.092	1.347-3.248	0.001			
N3 or N3NOS	4.118	0.578-29.358	0.158			
N3a	1.957	0.731-5.242	0.182			
N3b	7.188	1.782-28.996	0.006			
Nx	2.919	1.447-5.888	0.003			
Radiotherapy	1.675	1.281-2.189	<0.001	1.588	1.046-2.411	0.030 [†]
None/unknown	Reference			Reference		
Yes	1.675	1.281-2.189	<0.001	1.564	1.030-2.377	0.036
Chemotherapy	1.288	1.009-1.643	0.042	0.926	0.630-1.361	0.696
None/unknown	Reference					
Yes	1.288	1.009-1.643	0.042			
Tumor size (cm)	1.272	1.033-1.567	0.024	1.147	0.926-1.422	0.210
≤5	Reference					
>5/unknown	1.272	1.033-1.567	0.024			
LODDS	1.496	1.295-1.728	<0.001	1.331	1.017-1.743	0.037 [†]
≤-1.65	Reference			Reference		
-1.65<LODDS<-1.25	1.651	1.129-2.416	0.010	1.510	0.945-2.412	0.085
≥-1.25	2.359	1.665-3.345	<0.001	1.928	1.065-3.490	0.030
Median household income (dollars)	0.770	0.657-0.903	0.001	0.843	0.716-0.993	0.041 [†]
<40000	Reference			Reference		
40000-60000	0.874	0.549-1.390	0.570	0.930	0.580-1.492	0.764
>60000	0.646	0.416-1.004	0.646	0.750	0.478-1.176	0.210
Time of diagnosis to treatment median (IQR, months)	0.989	0.929-1.053	0.729			
Examined lymph nodes median (IQR)	0.986	0.978-0.994	<0.001	0.996	0.980-1.013	0.661
Positive lymph nodes median (IQR)	1.123	1.076-1.171	<0.001	1.055	0.986-1.218	0.119

CSS, cancer-specific survival; LODDS: log odds of positive lymph nodes; HR: hazard ratio; CI: confidence interval.

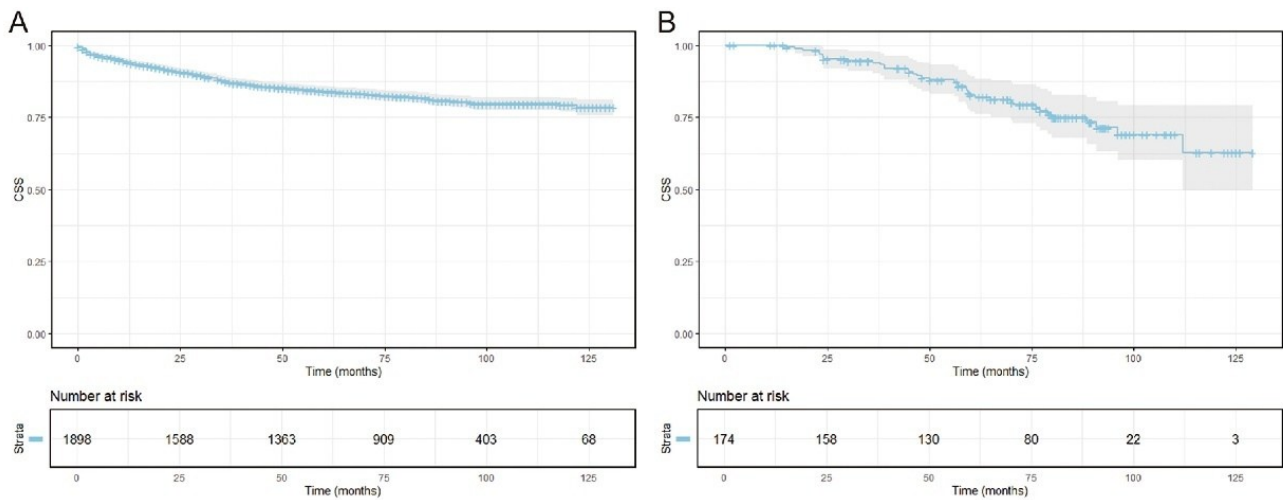


Figure S1 Kaplan-Meier curves of CSS for patients in the entire SEER cohort (A), in the entire external validation cohort (B). CSS, cancer-specific survival.

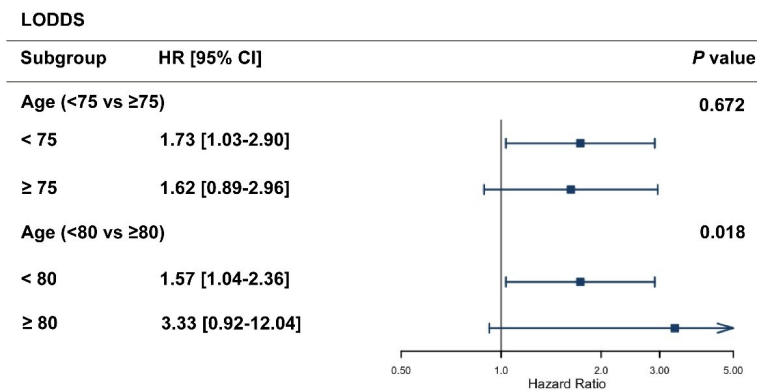


Figure S2 Subgroup analysis of LODDS stratified by age for cancer-specific survival (CSS). CSS, cancer-specific survival; LODDS: log odds of positive lymph nodes.

Table S3 Sensitivity analyses for the association of LODDS with CSS

Variables	Model I HR (95%CI)	Model II HR (95%CI)	Model III HR (95%CI)	Model IV HR (95%CI)	Model V HR (95%CI)
LODDS	1.423 (1.116-1.812)	1.445 (1.135-1.840)	1.484 (1.137-1.937)	2.724 (1.400-5.299)	1.264 (0.648-2.466)

Outcome: CSS. Model I, unadjusted Cox model.; Model II: multivariable Cox model adjusted for all covariates except radiotherapy; Model III: multivariable Cox model excluding patients who received radiotherapy; Model IV: adjusted for patients with lymph node > 15; Model V: adjusted for patients with N0. CSS, cancer-specific survival; LODDS: log odds of positive lymph nodes; HR: hazard ratio; CI: confidence interval.