

Figure S1 Flowchart of the patient selection process in this study.

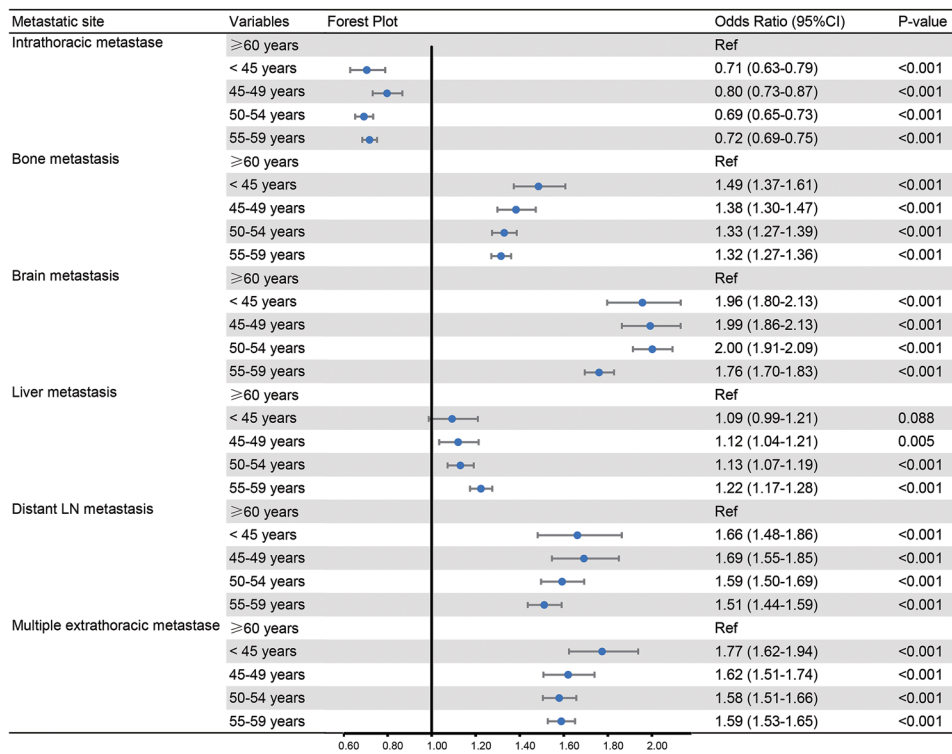


Figure S2 Multivariate regression analyses of the independent effects of age on different metastasis sites. CI, confidence interval.

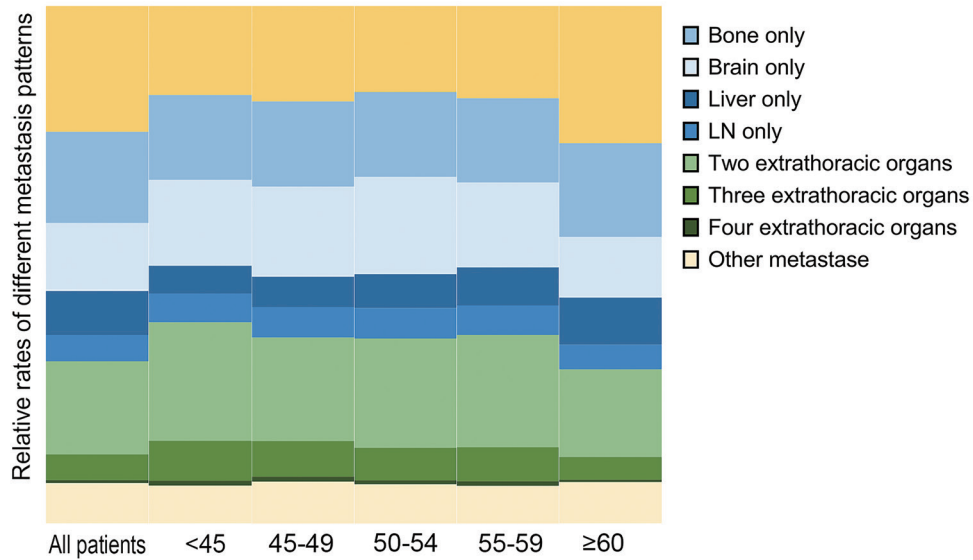


Figure S3 Relative rates of intrathoracic metastasis and single- and multi-extrathoracic organs in different age groups. LN, lymph node.

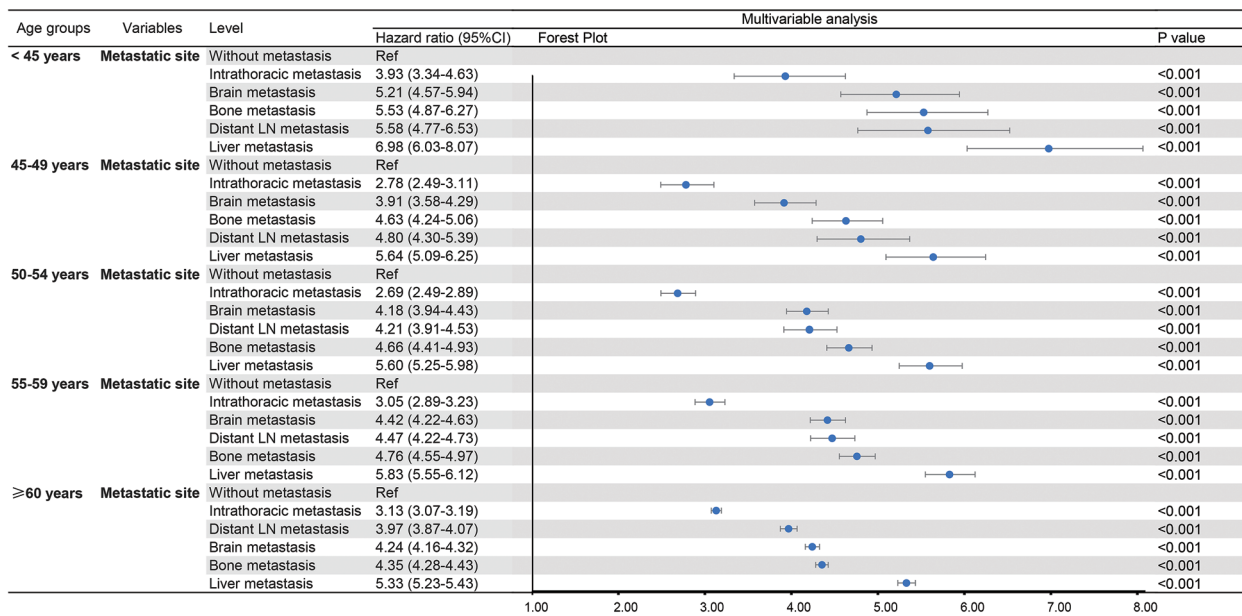


Figure S4 Multivariate analyses of the impact of age on LCSS for lung cancer patients. LCSS, lung cancer-specific survival; CI, confidence interval.

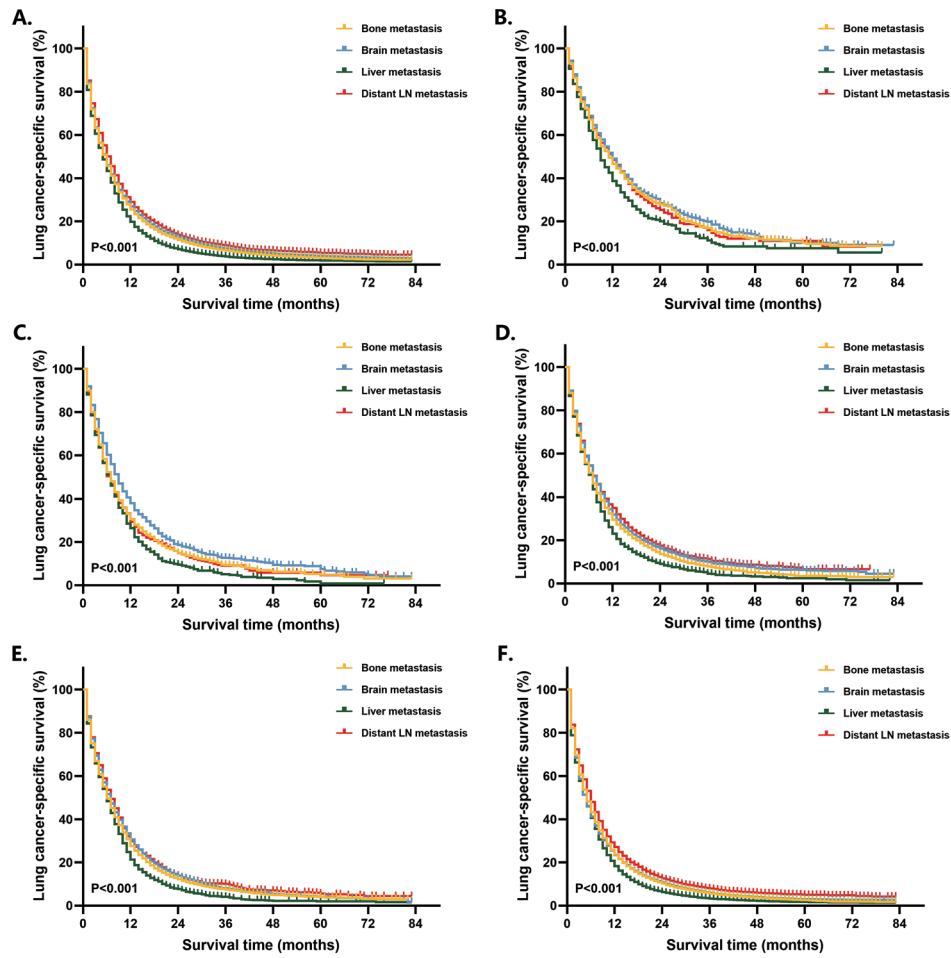


Figure S5 Kaplan-Meier LCSS curves for lung cancer patients at different ages stratified by extrathoracic metastasis organs. (A) All lung cancer patients; (B) patients aged <45 years; (C) patients aged 45–49 years; (D) patients aged 50–54 years; (E) patients aged 55–59 years; (F) patients ≥ 60 years. LCSS, lung cancer-specific survival; LN, lymph node.

Table S1 Relative rates of different metastatic patterns across age groups

Metastasis site	<45 years (n=3,461)	45–49 years (n=5,697)	50–54 years (n=13,645)	55–59 years (n=22,211)	≥60 years (n=155,348)	P value
Metastasis	1,961 (56.7)	3,384 (59.4)	7,883 (57.8)	12,416 (55.9)	77,944 (50.2)	<0.001
Intrathoracic metastasis	338 (9.8)	621 (10.9)	1,311 (9.6)	2,205 (9.9)	20,671 (13.3)	<0.001
Extrathoracic metastasis	1,481 (42.8)	2,487 (43.7)	5,973 (43.8)	9,288 (41.8)	51,045 (32.9)	<0.001
One site	862 (24.9)	1,542 (27.1)	3,757 (27.5)	5,663 (25.5)	34,055 (21.9)	<0.001
Bone only	322 (9.3)	559 (9.8)	1,296 (9.5)	2,021 (9.1)	14,075 (9.1)	0.167
Brain only	326 (9.4)	589 (10.3)	1,483 (10.9)	2,034 (9.2)	9,138 (5.9)	<0.001
Liver only	104 (3.0)	195 (3.4)	516 (3.8)	903 (4.1)	7,067 (4.5)	<0.001
Distant LN only	110 (3.2)	199 (3.5)	462 (3.4)	705 (3.2)	3,775 (2.4)	<0.001
Two sites	449 (13.0)	676 (11.9)	1,662 (12.2)	2,693 (12.1)	13,166 (8.5)	<0.001
Bone + brain	160 (4.6)	210 (3.7)	492 (3.6)	757 (3.4)	3,181 (2.0)	<0.001
Bone + liver	124 (3.6)	202 (3.5)	511 (3.7)	937 (4.2)	5,245 (3.4)	<0.001
Bone + distant LN	73 (2.1)	84 (1.5)	232 (1.7)	325 (1.5)	1,577 (1.0)	<0.001
Brain + liver	33 (1.0)	73 (1.3)	173 (1.3)	287 (1.3)	1,323 (0.9)	<0.001
Brain + distant LN	36 (1.0)	68 (1.2)	159 (1.2)	225 (1.0)	910 (0.6)	<0.001
Liver + distant LN	23 (0.7)	39 (0.7)	95 (0.7)	162 (0.7)	930 (0.6)	0.127
Three sites	151 (4.4)	235 (4.1)	493 (3.6)	821 (3.7)	3,444 (2.2)	<0.001
Bone + brain + liver	79 (2.3)	102 (1.8)	239 (1.8)	388 (1.7)	1,661 (1.1)	<0.001
Bone + brain + distant LN	23 (0.7)	53 (0.9)	99 (0.7)	170 (0.8)	497 (0.3)	<0.001
Bone + liver + distant LN	43 (1.2)	70 (1.2)	123 (0.9)	219 (1.0)	1,066 (0.7)	<0.001
Brain + liver + distant LN	6 (0.2)	10 (0.2)	32 (0.2)	44 (0.2)	220 (0.1)	0.037
Four sites	19 (0.5)	34 (0.6)	61 (0.4)	111 (0.5)	380 (0.2)	<0.001

LN, lymph node.

Table S2 Multivariate analysis of OS of lung cancer patients

Characteristics	HR	95% CIs	P value
Age			<0.001
≥60 years	Ref.		
55–59 years	0.91	0.89–0.92	<0.001
50–54 years	0.86	0.85–0.88	<0.001
45–49 years	0.84	0.81–0.86	<0.001
<45 years	0.67	0.64–0.70	<0.001
Sex			
Male	Ref.		
Female	0.81	0.80–0.82	<0.001
Race			
White	Ref.		
Black	0.98	0.97–1.00	0.033
Other/unknown	0.79	0.77–0.80	<0.001
Histology			<0.001
Adenocarcinoma	Ref.		
Squamous cell carcinoma	1.24	1.22–1.26	<0.001
Large cell carcinoma	1.35	1.29–1.40	<0.001
SCLC	1.42	1.40–1.45	<0.001
Other NSCLC	1.14	1.12–1.16	<0.001
Grade			<0.001
Unknown	Ref.		
Grade I–II	0.78	0.77–0.79	<0.001
Grade III–IV	1.11	1.10–1.13	<0.001
Primary site			<0.001
Main bronchus	Ref.		
Upper lobe, lung	0.82	0.80–0.84	<0.001
Middle lobe, lung	0.77	0.74–0.79	<0.001
Lower lobe, lung	0.84	0.82–0.86	<0.001
Overlapping lesion of lung	1.05	0.99–1.10	0.082
Unknown	0.96	0.94–0.99	0.002
Surgery			<0.001
No	Ref.		
Yes	0.24	0.24–0.25	<0.001
Radiation			<0.001
No	Ref.		
Yes	0.82	0.81–0.82	<0.001
Chemotherapy			<0.001
No	Ref.		
Yes	0.51	0.51–0.52	<0.001
Metastasis status			<0.001
No	Ref.		
Yes	2.46	2.43–2.49	<0.001

OS, overall survival; HR, hazard ratio; CI, confidence interval; SCLC, small cell lung cancer; NSCLC, non-small cell lung cancer.