

Supplementary table 1 Baseline Characteristics of the Study Population classified by gender.

	Overall n=2724	Male n=1778	Female n=946	p value
Demographic and anthropometric data				
Age ,years	71.0(5.36)	71.1(5.34)	70.7(5.36)	0.03
Height ,cm	163(8.05)	167(6.23)	156(5.96)	<0.001
Weight, kg	59.7(10.8)	62.0(10.4)	55.3(10.2)	<0.001
BMI ,kg/m ²	22.5(3.53)	22.3(3.35)	22.8(3.82)	0.001
CC ,cm	32.5(4.12)	32.8(4.18)	32.0(3.97)	<0.001
HGS ,kg	22.5(9.24)	25.5(9.02)	16.8(6.56)	<0.001
Risk factors and prior disease				
Chronic Disease ,yes	126(4.63%)	88(4.95%)	38(4.02%)	0.314
Smoking				<0.001
Never	1421(52.2%)	579(32.6%)	842(89.0%)	
Now	900(33.0%)	811(45.6%)	89(9.41%)	
Used	403(14.8%)	388(21.8%)	15(1.59%)	
Alcohol ,yes	547(20.1%)	534(30.0%)	13(1.37%)	<0.001
Tumors				<0.001
Lung cancer	791(29.0%)	566(31.8%)	225(23.8%)	
Digestive system cancer	1245(45.7%)	886(49.8%)	359(37.9%)	
Others	688(25.3%)	326(18.3%)	362(38.3%)	
Tumor stage				<0.001
I	298(10.9%)	153(8.61%)	145(15.3%)	
II	642(23.6%)	398(22.4%)	244(25.8%)	
III	667(24.5%)	455(25.6%)	212(22.4%)	
IV	1117(41.0%)	772(43.4%)	345(36.5%)	
Surgery				<0.001
Never	978(35.9%)	682(38.4%)	296(31.3%)	
Used	1025(37.6%)	600(33.7%)	425(44.9%)	
Prepare	721(26.5%)	496(27.9%)	225(23.8%)	
Radiotherapy ,yes	417(15.3%)	281(15.8%)	136(14.4%)	0.353
Chemotherapy ,yes	1455(53.4%)	946(53.2%)	509(53.8%)	0.796
Immunotherapy ,yes	133(4.88%)	77(4.33%)	56(5.92%)	0.082
Laboratory data				
Creatinine , μ mol/L	70.0(59.0;84.0)	75.7(65.1;88.0)	60.2(52.6;70.0)	<0.001
A/G	1.34(0.33)	1.32(0.30)	1.37(0.37)	0.001
NLR	1173(43.1%)	819(46.1%)	354(37.4%)	<0.001
Assessment				
KPS ,>70	456(16.7%)	295(16.6%)	161(17.0%)	0.818
PGSGA-SF , >5	858(31.5%)	581(32.7%)	277(29.3%)	0.076
PGSGA , >3	1759(64.6%)	1139(64.1%)	620(65.5%)	0.468
GLIM, positive	752(27.6%)	501(28.2%)	251(26.5%)	0.385
EORTC-QLQ-C30	39.5 (36.6;42.2)	39.1 (36.4;42.1)	39.9 (36.7;42.4)	0.013

BMI: Body Mass Index, TSF: Triceps Skin Fold, MAMC: mid-arm muscle circumference, CC: calf circumference, HGS: hand grip strength, A/G: Albumin globulin ratio, NLR: Neutrophil To Lymphocyte Ratio, KPS: Karnofsky Performance Status, PGSGA-SF: Scored Patient-Generated Subjective Global Assessment Short form, PG-SGA: Scored Patient-Generated Subjective Global Assessment, GLIM: Global Leadership Initiative on Malnutrition

Supplementary table 2 Clinico-pathological characteristics in elder patients: univariate and multivariate survival analysis.

	Event(%)	Univariate analysis		Multivariate analysis	
		HR (95%CI)	p value	HR (95%CI)	p value
Gender					
Male	833(70.80%)	Ref.		Ref.	
Female	343(29.20%)	0.67(0.59,0.77)	<0.001	0.53(0.20,1.39)	0.199
Age ,years(per 10 years)		1.33(1.20,1.47)	<0.001	1.00(0.89,1.13)	0.966
Height ,cm		1.01(1.00,1.02)	0.028		
Weight ,kg		0.98(0.97,0.98)	<0.001		
BMI ,kg/m ²		0.92(0.90,0.93)	<0.001	1.02(0.92,1.13)	0.699
CC ,cm		0.94(0.93,0.95)	<0.001	1.00(0.98,1.02)	0.773
HGS ,kg.		0.98(0.97,0.99)	<0.001	0.98(0.98,0.99)	<0.001
Chronic Disease ,yes					
Absent	1113(94.60%)	Ref.			
Present	63(5.36%)	1.17(0.90,1.50)	0.238		
Smoking					
Never	555(47.20%)	Ref.			
Now	433(36.80%)	1.28(1.13,1.46)	<0.001	1.03(0.88,1.19)	0.740
Used	188(16.00%)	1.36(1.15,1.61)	<0.001	0.92(0.76,1.12)	0.415
Alcohol					
Absent	914(77.70%)	Ref.			
Present	262(22.30%)	1.23(1.07,1.41)	0.004	1.13(0.97,1.31)	0.129
Tumors			<0.001		
Lung cancer	438(37.20%)	Ref.			
Digestive system cancer	526(44.70%)	0.66(0.58,0.75)	<0.001	0.84(0.72,0.98)	0.027
Others	212(18.00%)	0.48(0.41,0.57)	<0.001	0.61(0.51,0.73)	<0.001
Tumor stage					
I	37(3.15%)	Ref.			
II	147(12.50%)	2.01(1.40,2.88)	<0.001	1.83(1.27,2.63)	0.001
III	256(21.80%)	3.80(2.69,5.37)	<0.001	3.11(2.19,4.4)	<0.001
IV	736(62.60%)	9.85(7.07,13.7)	<0.001	6.54(4.63,9.23)	<0.001
Surgery					
Never	608(51.70%)	Ref.		Ref.	
Used	376(32.00%)	0.39(0.34,0.45)	<0.001	0.70(0.6,0.82)	<0.001
Prepare	192(16.30%)	0.31(0.26,0.36)	<0.001	0.70(0.57,0.87)	0.001
Radiotherapy					
No	976(83.00%)	Ref.		Ref.	
Yes	200(17.00%)	1.30(1.11,1.51)	0.001	1(0.85,1.17)	0.979
Chemotherapy					
No	462(39.30%)	Ref.		Ref.	
Yes	714(60.70%)	1.50(1.34,1.69)	<0.001	1.06(0.92,1.23)	0.394
Immunotherapy					
No	1110(94.40%)	Ref.	Ref.		
Yes	66(5.61%)	1.10(0.85,1.41)	0.470		
Creatinine		1.01(1.00,1.03)	0.113		
A/G	1.26(0.36)	0.26(0.22,0.32)	<0.001	0.57(0.47,0.71)	<0.001
NLR					
<3	537(45.7%)	Ref.		Ref.	
>3	639(54.3%)	1.87(1.67,2.10)	<0.001	1.40(1.24,1.58)	<0.001

KPS						
≤70	878(74.7%)	Ref.		Ref.		
>70	298(25.3%)	2.11(1.85,2.41)	<0.001	1.39(1.19,1.62)	<0.001	
PG-SGA SF						
≤5	670(57.00%)	Ref.		Ref.		
>5	506(43.00%)	2.10(1.87,2.35)	<0.001	1.47(1.29,1.68)	<0.001	
EORTC-QLQ-C30		1.00(0.99,1.01)	0.832			

Abbreviations: HR, hazard ratio; BMI: Body Mass Index, TSF: Triceps Skin Fold, CC: calf circumference, HGS: hand grip strength, A/G: Albumin globulin ratio, NLR: Neutrophil To Lymphocyte Ratio, KPS: Karnofsky Performance Status, PG-SGA-SF: Scored Patient-Generated Subjective Global Assessment Short form. Chronic Disease: with with one or more chronic conditions (including Hepatitis, or cirrhosis, or renal dialysis patients, or chronic obstructive pulmonary disease, or pulmonary tuberculosis).

Supplementary table 3 Cox Proportional Hazards Analyses of PG-SGA and GLIM to Predict All-Cause Mortality.

	Event(%)	HR (95%CI)	p value	HR (95%CI) ^a	p value
PG-SGA					
≤3	302(25.7%)	Ref.		Ref.	
>3	874(74.3%)	1.79(1.57;2.03)	<0.001	1.31(1.13,1.51)	<0.001
GLIM					
non-malnutrition	762(64.8%)	Ref.		Ref.	
malnutrition	414(35.2%)	1.83(1.62;2.07)	<0.001	1.24(1.07,1.44)	0.005

Abbreviations: HR, hazard ratio; PG-SGA: Scored Patient-Generated Subjective Global Assessment, GLIM: Global Leadership Initiative on Malnutrition.

^a Adjusted by: gender, age, smoking, alcohol, tumors type, TNM stage, surgery, radiotherapy, chemotherapy, KPS, A/B, NLR, HGS.

Supplementary table 4 Quality of life stratified by nutritional status.

	overall n=2724	Non-malnutrition n=1866	malnutrition n=858	P value
Physical function	86.7(73.3;100)	93.3(80.0;100)	80.0(53.3;93.3)	<0.001
Role function	83.3(66.7;100)	100(66.7;100)	66.7(33.3;100)	<0.001
Emotional function	100(83.3;100)	100(83.3;100)	91.7(66.7;100)	<0.001
Cognitive function	100(83.3;100)	100(83.3;100)	83.3(66.7;100)	<0.001
Social function	66.7(66.7;100)	83.3(66.7;100)	66.7(50.0;100)	<0.001
Global QOL	66.7(50.0;75.0)	66.7(50.0;83.3)	50.0(33.3;66.7)	<0.001
Fatigue	11.1(0.00;33.3)	11.1(0.00;22.2)	33.3(11.1;44.4)	<0.001
Nausea and vomiting	0.00(0.00;0.00)	0.00(0.00;0.00)	0.00(0.00;16.7)	<0.001
Pain	0.00(0.00;16.7)	0.00(0.00;16.7)	16.7(0.00;33.3)	<0.001
Dyspnea	0.00(0.00;33.3)	0.00(0.00;0.00)	0.00(0.00;33.3)	<0.001
Sleep disturbance	0.00(0.00;33.3)	0.00(0.00;33.3)	33.3(0.00;33.3)	<0.001
AP	0.00(0.00;33.3)	0.00(0.00;0.00)	33.3(0.00;33.3)	<0.001
Appetite loss	0.00(0.00;0.00)	0.00(0.00;0.00)	0.00(0.00;33.3)	<0.001
Diarrhea	0.00(0.00;0.00)	0.00(0.00;0.00)	0.00(0.00;0.00)	<0.001
Financial difficulties	33.3(0.00;33.3)	33.3(0.00;33.3)	33.3(0.00;66.7)	<0.001
EORTC-QLQ-C30	39.5(36.6;42.2)	39.1(36.7;41.4)	40.3(36.3;44.0)	<0.001

Data are represented as median (interquartile range).

Supplementary table 5 The baseline characteristics of the nutrition impact symptoms.

	overall n=2724	Non-malnutrition n=1866	malnutrition n=858	P value
Loss of appetite ,yes	471(17.3%)	87(4.66%)	384(44.8%)	<0.001
Nausea ,yes	213(7.82%)	62(3.32%)	151(17.6%)	<0.001
Emesis ,yes	140(5.14%)	12(0.64%)	128(14.9%)	<0.001
Canker sore ,yes	23(0.84%)	13(0.70%)	10(1.17%)	0.309
Constipation ,yes	205(7.53%)	87(4.66%)	118(13.8%)	<0.001
Diarrhea ,yes	94(3.45%)	25(1.34%)	69(8.04%)	<0.001
Thirst ,yes	160(5.87%)	69(3.70%)	91(10.6%)	<0.001
No taste ,yes	139(5.10%)	38(2.04%)	101(11.8%)	<0.001
Altered sense of smell ,yes	52(1.91%)	11(0.59%)	41(4.78%)	<0.001
Dysphagia ,yes	211(7.75%)	78(4.18%)	133(15.5%)	<0.001
Flatulence ,yes	164(6.02%)	42(2.25%)	122(14.2%)	<0.001
Pain ,yes	194(7.12%)	39(2.09%)	155(18.1%)	<0.001
Others ,yes	38(1.40%)	19(1.02%)	19(2.21%)	0.022

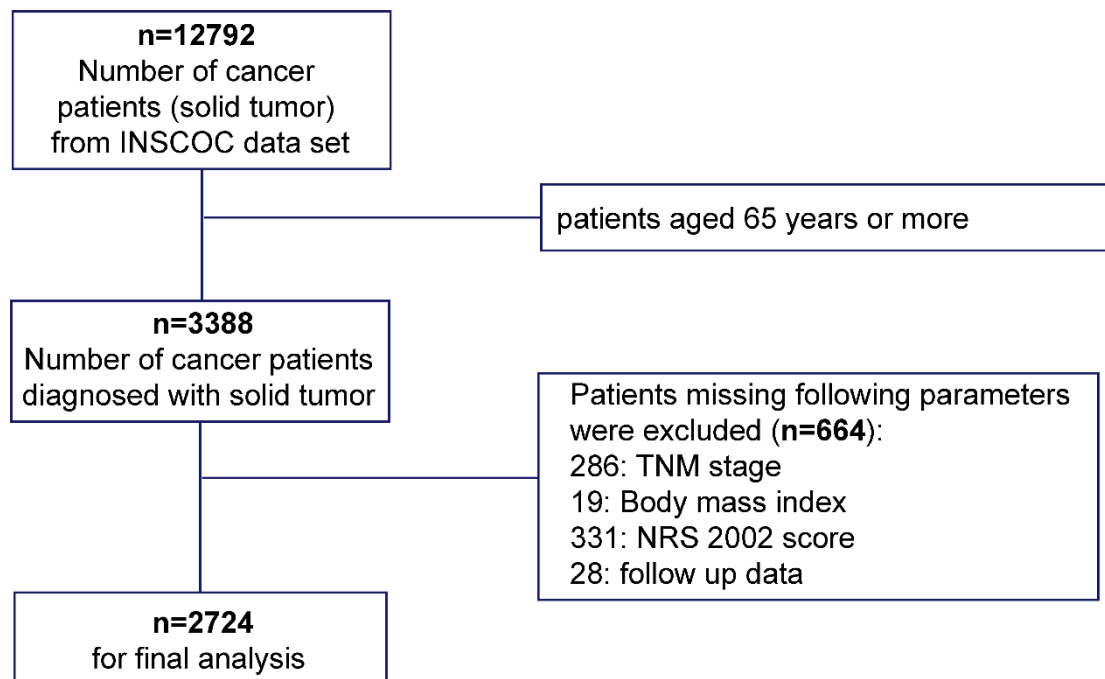
Supplementary table 6. Hazard risk for cancer special overall survival in elder patients diagnosed with malnutrition by PG-SGA SF (5~).

	HR (95%CI) ^a	p value
Respiratory system tumor	1.36 (1.09,1.71)	0.007
Digestive system tumor	1.35 (1.11,1.63)	0.002
Other tumor	2.42 (1.74,3.37)	<0.001

Abbreviations: HR, hazard ratio;

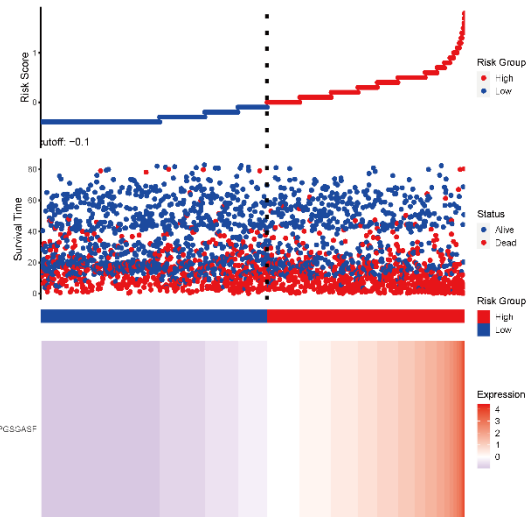
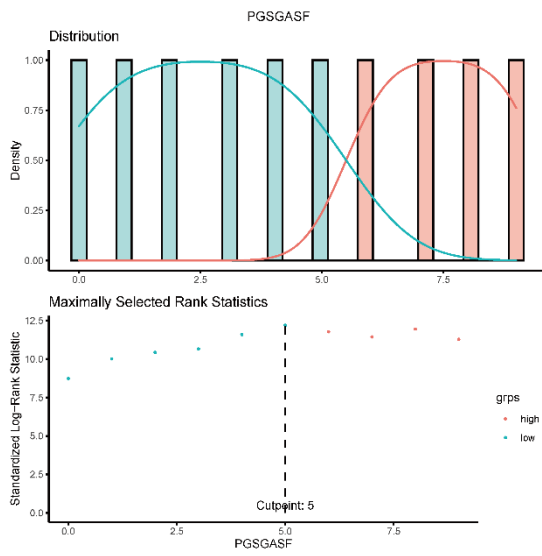
^a Adjusted by: gender, age, smoking, alcohol, tumors type, TNM stage, surgery, radiotherapy, chemotherapy, KPS, A/B, NLR, HGS.

Supplementary Figure 1



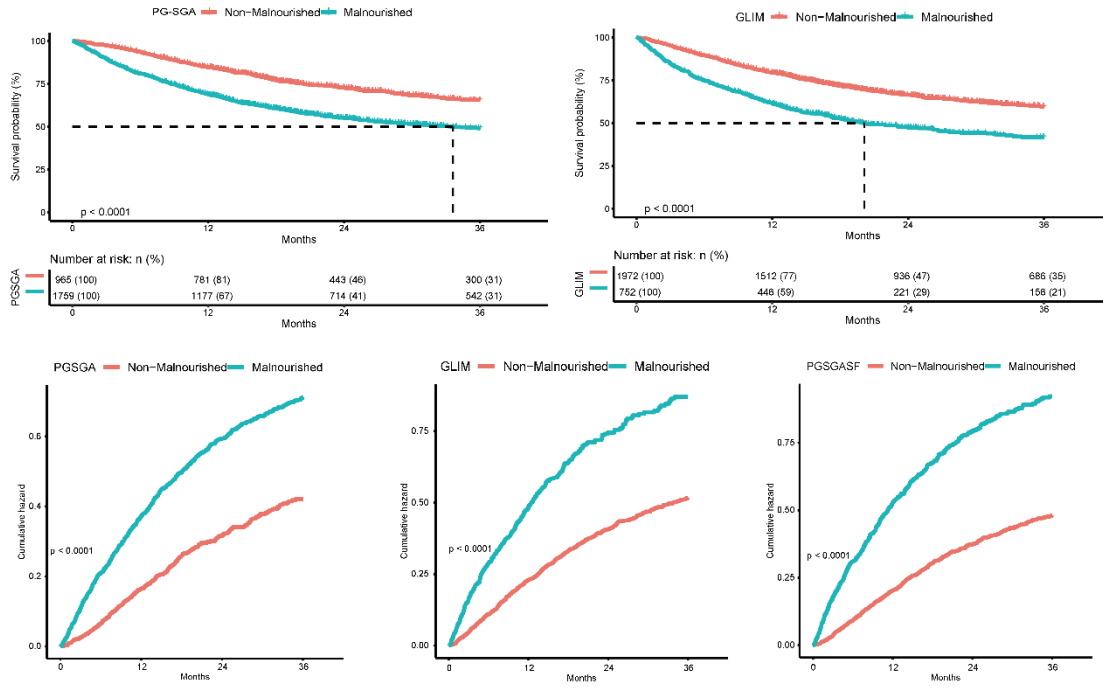
Supplementary Figure 2.

supplementary Figure 2



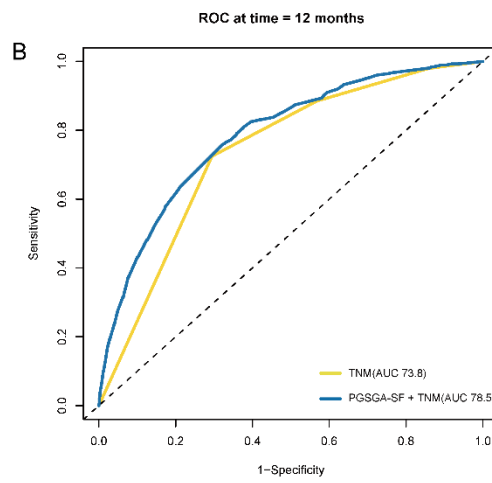
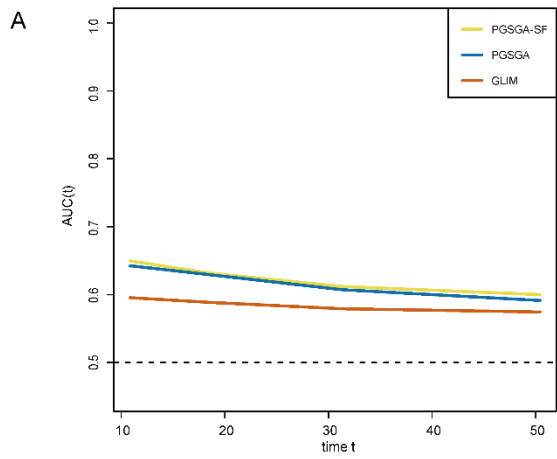
Supplementary Figure 4.

supplementary Figure 4

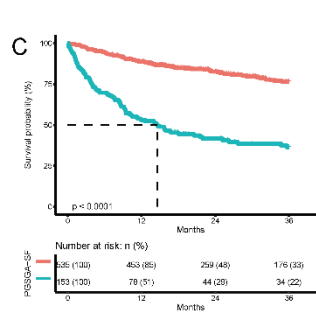
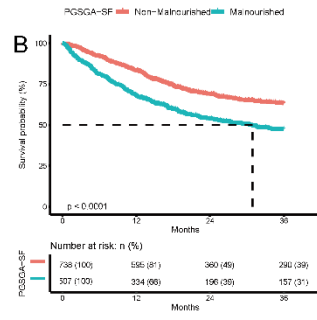
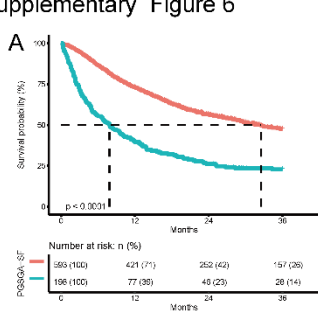


Supplementary Figure 5.

supplementary Figure 5

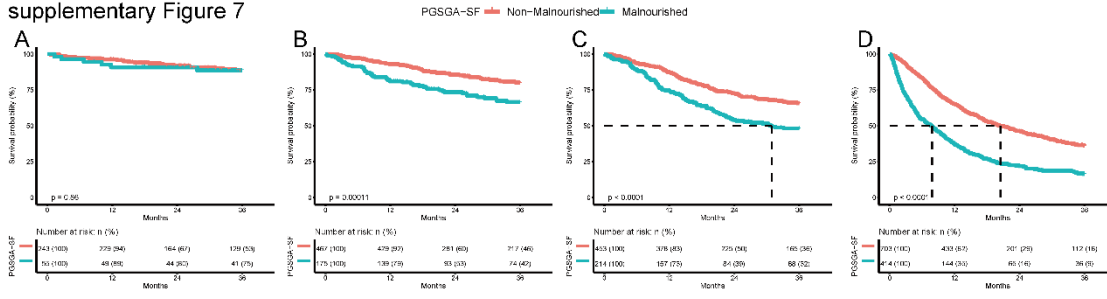


Supplementary Figure 6.
 supplementary Figure 6



Supplementary Figure 7.

supplementary Figure 7



Supplementary Figure 8.

supplementary Figure 8

