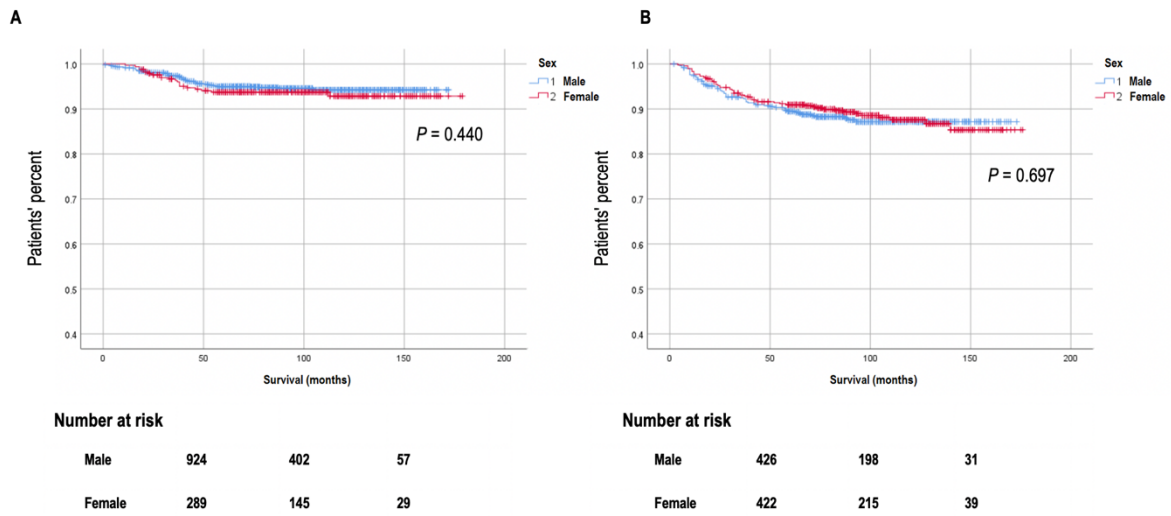


Supplementary Figure 1 Number of total cases and proportion of histological types of gastric cancer according to sex and age. Considering the number of patients and histological proportion together, there were more female patients under the age of 40 years and more male patients of older ages.



Supplementary Figure 2 Gastric cancer-specific survival according to sex and histologic type (A) intestinal-type and (B) diffuse-type. There were no statistically significant differences between males and females in intestinal- or diffuse-type gastric cancer. P values were calculated using log-rank tests.

Supplementary Table 1 Characteristics of gastric cancer by sex and age

Characteristics	Female	Male	P value
Age <40 (n = 152)	n = 89 (100)	n = 63 (100)	
Tumor location (%)			
Upper	0	0	0.001*
Middle	71 (79.8)	34 (54.0)	
Lower	18 (20.2)	29 (46.0)	
Stage (%)			
I	62 (70.0)	45 (71.4)	0.949
II	17 (19.1)	10 (15.9)	
III	8 (9.0)	6 (9.5)	
IV	2 (2.2)	2 (3.2)	
Histologic type (%) (Lauren classification)			
Intestinal	7 (7.9)	12 (19.0)	0.068
Diffuse	78 (87.6)	46 (73.0)	
Mixed	4 (4.5)	5 (8.0)	
Age 40-49 (n = 432)	n = 162 (100)	n = 270 (100)	
Tumor location (%)			
Upper	3 (1.9)	1 (0.4)	0.001*
Middle	106 (65.4)	133 (49.2)	
Lower	53 (32.7)	136 (50.4)	
Stage (%)			
I	124 (76.5)	213 (78.9)	0.890
II	25 (15.4)	35 (12.9)	
III	9 (5.6)	14 (5.2)	
IV	4 (2.5)	8 (3.0)	
Histologic type (%) (Lauren classification)			
Intestinal	27 (16.7)	118 (43.7)	<0.001*

Diffuse	129 (79.6)	131 (48.5)	
Mixed	6 (3.7)	21 (7.8)	
Age 50-59 (n = 688)	n = 213 (100)	n = 475 (100)	
Tumor location (%)			
Upper	7 (3.3)	11 (2.3)	0.062
Middle	109 (51.2)	202 (42.5)	
Lower	97 (45.5)	262 (55.2)	
Stage (%)			
I	169 (79.3)	366 (77.1)	0.290
II	31 (14.6)	59 (12.4)	
III	10 (4.7)	39 (8.2)	
IV	3 (1.4)	11 (2.3)	
Histologic type (%) (Lauren classification)			
Intestinal	83 (38.9)	314 (66.1)	<0.001*
Diffuse	123 (57.8)	141 (29.7)	
Mixed	7 (3.3)	20 (4.2)	
Age 60-69 (n = 890)	n = 258	n = 632	
Tumor location (%)			
Upper	4 (1.6)	22 (3.5)	0.076
Middle	120 (46.5)	251 (39.7)	
Lower	134 (51.9)	359 (56.8)	
Stage (%)			
I	204 (79.1)	500 (79.1)	0.713
II	31 (12.0)	79 (12.5)	
III	21 (8.1)	43 (6.8)	
IV	2 (0.8)	10 (1.6)	
Histologic type (%) (Lauren classification)			
Intestinal	154 (59.7)	486 (76.9)	<0.001*

Diffuse	96 (37.2)	118 (18.7)	
Mixed	8 (3.1)	28 (4.4)	
Age ≥ 70 ($n = 821$)	$n = 251$	$n = 565$	
Tumor location (%)			
Upper	5 (2.0)	24 (4.2)	0.165
Middle	91 (36.3)	215 (38.1)	
Lower	160 (63.7)	326 (57.7)	
Stage (%)			
I	184 (73.3)	445 (78.7)	0.143
II	47 (18.7)	71 (12.6)	
III	21 (8.4)	41 (7.3)	
IV	4 (1.6)	8 (1.4)	
Histologic type (%) (Lauren classification)			
Intestinal	176 (70.1)	466 (82.5)	<0.001*
Diffuse	68 (27.1)	84 (14.9)	
Mixed	12 (4.8)	15 (2.6)	

* indicates statistical significance.

Supplementary Table 2 Univariate and multivariate analyses for intestinal type gastric cancer

(A) Male.

Variable	Univariate analysis	P value	Multivariate analysis	P value
Age				
<60	Ref	<0.001*	Ref	<0.001*
≥60	1.71 (1.51-1.94)		1.69 (1.49-1.92)	
Drinking history				
No	Ref	0.003*	Ref	0.094
Yes	0.84 (0.74-0.94)		0.90 (0.80-1.02)	
Smoking history				
No	Ref	0.369		
Yes	1.06 (0.94-1.20)			
Family history				
No	Ref	0.056	Ref	0.097
Yes	1.16 (1.00-1.36)		1.14 (0.98-1.33)	
Atrophic gastritis				
No	Ref	0.106	Ref	0.76
Yes	0.90 (0.79-1.02)		0.89 (0.78-1.01)	
Intestinal metaplasia				
No	Ref	0.141	Ref	0.091
Yes	0.91 (0.81-1.03)		0.90 (0.80-1.02)	
P53				
Negative	Ref	0.786		
Positive	1.02 (0.90-1.15)			

(B) Female.

Variable	Univariate analysis	P value	Multivariate analysis	P value
Age				
<60	Ref	<0.001*	Ref	<0.001
≥60	3.25 (2.55-4.14)		3.28 (2.54-4.22)	
Drinking history				
No	Ref	0.021*	Ref	0.481
Yes	0.70 (0.52-0.95)		1.12 (0.81-1.55)	
Smoking history				
No	Ref	0.134	Ref	0.198
Yes	0.72 (0.47-1.11)		0.75 (0.48-1.16)	
Family history				
No	Ref	0.008*	Ref	0.003*
Yes	1.43 (1.10-1.85)		1.49 (1.15-1.94)	
Atrophic gastritis				
No	Ref	0.931		
Yes	1.01 (0.78-1.31)			
Intestinal metaplasia				
No	Ref	0.721		
Yes	1.04 (0.84-1.29)			
P53				
Negative	Ref	0.562		
Positive	1.07 (0.85-1.34)			

* indicates statistical significance.

Supplementary Table 3 Univariate and multivariate analyses for diffuse type gastric cancer

(A) Male.

Variable	Univariate analysis	P value	Multivariate analysis	P value
Age				
<60	Ref	<0.001	Ref	<0.001
≥60	0.55 (0.46-0.66)		0.61 (0.50-0.73)	
Drinking history				
No	Ref	0.035	Ref	0.485
Yes	1.22 (1.01-1.47)		1.07 (0.88-1.31)	
Smoking history				
No	Ref	0.010	Ref	0.056
Yes	1.27 (1.06-1.53)		1.22 (1.00-1.49)	
Family history				
No	Ref	0.232		
Yes	0.86 (0.67-1.10)			
Atrophic gastritis				
No	Ref	0.003	Ref	0.014
Yes	0.73 (0.60-0.90)		0.77 (0.63-0.95)	
Intestinal metaplasia				
No	Ref	0.950		
Yes	0.99 (0.83-1.19)			
P53				
Negative	Ref	<0.001	Ref	<0.001
Positive	0.44 (0.36-0.54)		0.46 (0.37-0.57)	

(B) Female.

Variable	Univariate analysis	P value	Multivariate analysis	P value
Age				
<60	Ref	<0.001*	Ref	<0.001*
≥60	0.60 (0.50-0.72)		0.67 (0.55-0.82)	
Drinking history				
No	Ref	0.020*	Ref	0.438
Yes	1.28 (1.04-1.58)		1.09 (0.88-1.36)	
Smoking history				
No	Ref	0.736		
Yes	1.05 (0.78-1.42)			
Family history				
No	Ref	0.551		
Yes	0.93 (0.72-1.19)			
Atrophic gastritis				
No	Ref	0.053	Ref	0.074
Yes	0.80 (0.64-1.00)		0.81 (0.64-1.02)	
Intestinal metaplasia				
No	Ref	0.170	Ref	0.330
Yes	0.88 (0.73-1.06)		0.91 (0.76-1.10)	
P53				
Negative	Ref	<0.001*	Ref	<0.001*
Positive	0.57 (0.46-0.70)		0.61 (0.49-0.75)	

$P < 0.2$ were used for multivariable analyses.

* indicates statistical significance.

Supplementary Table 4 Causes of death by sex

	Male	Female	Total
	(n = 328)	(n = 125)	(N = 453)
GC-related death	135	86	221
Died with other causes	193	39	232
Malignancies			
Lung	21	1	22
Brain	4	1	5
Esophagus	3	0	3
Small bowel	1	0	1
Colon	1	0	1
Liver	5	0	5
Pancreas	6	1	7
Bile duct	4	1	5
Gallbladder	1	0	1
Kidney	1	1	2
Bladder	1	0	1
Prostate	2	0	2
Ovary	0	1	1
Nasopharynx	1	0	1
Neuroendocrine	2	0	2
Melanoma	1	0	1
Leukemia	4	0	4
Cardiac			
Coronary disease	3	4	7
Heart failure	3	0	3
Pericarditis	1	0	1
Pulmonary			
Pneumonia	17	2	19
IPF / COPD	12	0	12

Renal failure	6	0	6
Liver cirrhosis	3	0	3
Cerebrovascular disease	5	3	8
Peripheral arterial disease	1	0	1
Peritonitis	2	0	2
Sepsis	5	2	7
Trauma	3	1	4
Suicide	1	1	2
Unclear causes*	73	20	93

Abbreviations: IPF, interstitial pulmonary fibrosis; COPD, chronic obstructive pulmonary disease.

* Including cases with only non-specific systemic symptoms without showing any obvious abnormalities in the test results, or cases refused invasive tests due to aging.