

Marital status and accidental mortality in male and female patients with cancer: results from the population-based cohort study

Table S1. International Classification of Diseases for Oncology, Third Edition site codes

Table S2. Summary of accidental mortality rate (per 100,000 person-years) in male and female cohorts

Table S3. Association between marital status and accidental mortality in the accelerated failure time (AFT) multivariable analysis

Table S4. Time-varying hazard ratio of marital status for accidental mortality

Table S5. Hazard ratios of marital status for accidental mortality during the follow-up periods of 0 to less than 1 year, 1 to 5 years, and more than 5 years

Table S6. Associations between specific subgroups of the unmarried population and accidental mortality among cancer patients

Table S7. Hazard ratios of marital status for accidental mortality after removing patients whose deaths occurred within two years of follow-up

Table S8. Hazard of accidental death in married patients vs. patients with unmarried or domestic partner

Table S1. International Classification of Diseases for Oncology, Third Edition site (ICD-O-3) codes

Site	ICD-O-3 Codes
Brain and Other Nervous System	C70.0, C70.1, C70.9, C71.0, C71.1, C71.2, C71.3, C71.4, C71.5, C71.6, C71.7, C71.8, C71.9, C72.0, C72.1, C72.2, C72.3, C72.4, C72.5, C72.8, C72.9
Breast	C50.0, C50.1, C50.2, C50.3, C50.4, C50.5, C50.6, C50.8, C50.9
Cervix Uteri	C53.0, C53.1, C53.8, C53.9
Colon and Rectum	C18.0, C18.1, C18.2, C18.3, C18.4, C18.5, C18.6, C18.7, C18.8, C18.9, C19.9, C20.9, C21.0, C21.1, C21.2, C21.8
Corpus and Uterus, NOS	C54.0, C54.1, C54.2, C54.3, C54.8, C54.9, C55.9, C58.9
Esophagus	C15.0, C15.1, C15.2, C15.3, C15.4, C15.5, C15.8, C15.9
Kidney and Renal Pelvis	C64.9, C65.9
Larynx	C32.0, C32.1, C32.2, C32.3, C32.8, C32.9
Liver and Intrahepatic Bile Duct	C22.0, C22.1
Lung and Bronchus	C34.0, C34.1, C34.2, C34.3, C34.8, C34.9, C33.9
Melanoma	C44.0, C44.1, C44.2, C44.3, C44.4, C44.5, C44.6, C44.7, C44.8, C44.9, C51.0, C51.1, C51.2, C51.8, C51.9, C60.0, C60.1, C60.8, C60.9, C63.2, C00.0, C00.1, C00.2, C00.3, C00.4, C00.5, C00.6, C00.8, C00.9, C01.9, C02.0, C02.1, C02.2, C02.3, C02.4, C02.8, C02.9, C03.0, C03.1, C03.9, C04.0, C04.1, C04.8, C04.9, C05.0, C05.1, C05.2, C05.8, C05.9, C06.0, C06.1, C06.2, C06.8, C06.9, C07.9, C08.0, C08.1, C08.8, C08.9, C09.0, C09.1, C09.8, C09.9, C10.0, C10.1, C10.2, C10.3, C10.4, C10.8, C10.9, C11.0, C11.1, C11.2, C11.3, C11.8, C11.9, C12.9, C13.0, C13.1, C13.2, C13.8, C13.9, C14.0, C14.2, C14.8
Oral cavity and Pharynx	
Ovary	C56.9
Pancreas	C25.0, C25.1, C25.2, C25.3, C25.4, C25.7, C25.8, C25.9
Prostate	C61.9
Stomach	C16.0, C16.1, C16.2, C16.3, C16.4, C16.5, C16.6, C16.8, C16.9
Thyroid	C73.9
Urinary Bladder	C67.0, C67.1, C67.2, C67.3, C67.4, C67.5, C67.6, C67.7, C67.8, C67.9

Table S2. Summary of accidental mortality rate (per 100,000 person-years) in male and female cohorts

Accident	Male								Female							
	Married				Unmarried				Married				Unmarried			
	Patient With Cancer, No. (%)	Person- Years of Follow- up	Deaths by accident	Mortality Rate, per 100,000 Person- Years	Patient s With Cancer , No. (%)	Person- Years of Follow- up	Deaths by accident	Mortality Rate, per 100,000 Person- Years	Patients With Cancer, No. (%)	Person- Years of Follow- up	Deaths by accident	Mortality Rate, per 100,000 Person- Years	Patients With Cancer, No. (%)	Person- Years of Follow- up	Deaths by accident	Mortality Rate, per 100,000 Person- Years
Total	1437259	8209523	7600	92.58	667621	2763045	4648	168.22	1131155	7234676	3164	43.73	1022592	4934647	4381	88.78
Primary site																
Brain and other nervous system	29060	71035	67	94.32	14437	45099	83	184.04	18137	56184	37	65.85	15256	42476	41	96.52
Female breast	NA	NA	NA	NA	NA	NA	NA	NA	459224	3592632	1344	37.41	324125	2182598	1714	78.53
Cervix Uteri	NA	NA	NA	NA	NA	NA	NA	NA	24935	179917	62	34.46	29783	169520	102	60.17
Colon and Rectum	160761	910949	930	102.09	85409	356800	569	159.47	107509	662035	414	62.53	120927	566349	621	109.65
Corpus and Uterus, NOS	NA	NA	NA	NA	NA	NA	NA	NA	94423	662448	208	31.40	82153	486465	309	63.52

Esophagus	25383	51834	70	135.05	15771	22519	55	244.24	4227	9579	18	187.92	6634	10801	13	120.36
Kidney and Renal Pelvis	71449	39059 6	368	94.21	32480	14796 2	297	200.73	32653	19967 8	120	60.10	30395	151115	160	105.88
Larynx	15153	85216	126	147.86	11990	47474	165	347.56	2455	14264	26	182.27	4075	16630	53	318.71
Liver and Intrahepatic Bile Duct	45750	84376	175	207.40	34238	47954	222	462.95	13187	26427	34	128.66	17443	25737	55	213.70
Lung and Bronchus	212891	34625 8	624	180.21	134773	16681 5	510	305.73	124984	28850 1	346	119.93	177872	300145	545	181.58
Melanoma	65580	46451 5	338	72.76	24911	15687 7	175	111.55	45638	37552 5	102	27.16	28005	204970	136	66.35
Oral Cavity and Pharynx	51419	28097 9	314	111.75	34052	13709 2	355	258.95	16472	99752	70	70.17	17444	77733	127	163.38
Ovary	NA	NA	NA	NA	NA	NA	NA	NA	41331	20192 1	67	33.18	39660	150159	99	65.93
Pancreas	53356	58936	86	145.92	25700	21508	55	255.71	34370	43852	48	109.46	40861	37224	57	153.13
Prostate	554305	46247 04	3578	77.37	186227	13150 78	1638	124.56	NA	NA	NA	NA	NA	NA	NA	NA
Stomach	36526	93927	122	129.89	17501	32574	80	245.59	15883	49964	38	76.05	18522	45016	62	137.73
Thyroid	25446	19345 8	109	56.34	10611	74212	76	102.41	75886	64030 6	142	22.18	44696	346107	118	34.09
Urinary Bladder	90180	55274 2	693	125.37	39521	19108 1	368	192.59	19841	13169 2	88	66.82	24741	121605	169	138.97

Table S3. Association between marital status and accidental mortality in the accelerated failure time (AFT) multivariable analysis

Male	aTR (95% CI)	<i>P</i> value (B-H adjusted)	Female	aTR (95% CI)	<i>P</i> value (B-H adjusted)
Total	0.60 (0.58, 0.62)	NA	Total	0.72 (0.69-0.75)	NA
Primary site			Primary site		
Colon and Rectum	0.63 (0.57, 0.70)	<0.001	Colon and Rectum	0.84 (0.75-0.94)	0.004
Brain and other nervous system	0.36 (0.25, 0.51)	<0.001	Brain and other nervous system	0.62 (0.38-1.01)	0.05
Female breast	NA	NA	Female breast	0.72 (0.68-0.76)	<0.001
Cervix Uteri	NA	NA	Cervix Uteri	0.68 (0.51-0.90)	0.006
Corpus and Uterus, NOS	NA	NA	Corpus and Uterus, NOS	0.64 (0.55-0.75)	<0.001
Esophagus	0.60 (0.42, 0.85)	0.004	Esophagus	NA	NA
Kidney and Renal Pelvis	0.46 (0.39, 0.54)	<0.001	Kidney and Renal Pelvis	0.68 (0.52-0.88)	0.002
Larynx	0.45 (0.35, 0.57)	<0.001	Larynx	0.63 (0.40-0.99)	0.04
Liver and Intrahepatic Bile Duct	0.53 (0.43, 0.66)	<0.001	Liver and Intrahepatic Bile Duct	0.75 (0.43-1.31)	0.32
Lung and Bronchus	0.61 (0.54, 0.69)	<0.001	Lung and Bronchus	0.80 (0.69-0.91)	0.002
Melanoma	0.58 (0.49, 0.69)	<0.001	Melanoma	0.65 (0.53-0.81)	<0.001
Oral Cavity and Pharynx	0.42 (0.36, 0.50)	<0.001	Oral Cavity and Pharynx	0.59 (0.45-0.77)	<0.001
Ovary	NA	NA	Ovary	0.63 (0.46-0.86)	0.002
Pancreas	NA	NA	Pancreas	0.27 (0.27-0.27)	NA
Prostate	0.70 (0.67, 0.73)	<0.001	Prostate	NA	NA
Stomach	0.53 (0.38, 0.74)	<0.001	Stomach	0.77 (0.54-1.10)	0.24
Thyroid	0.46 (0.34, 0.63)	<0.001	Thyroid	0.80 (0.64-1.00)	0.007
Urinary Bladder	0.67 (0.60, 0.75)	<0.001	Urinary Bladder	0.69 (0.55-0.87)	0.002

Table S4. Time-varying hazard ratio of marital status for accidental mortality

Follow-up time, y	Male	Female
	HR (95% CI)	HR (95% CI)
1	1.97 (1.85–2.11)	1.44 (1.31–1.57)
2	1.90 (1.80–2.00)	1.47 (1.37–1.57)
3	1.84 (1.74–1.96)	1.49 (1.38–1.60)
4	1.79 (1.68–1.90)	1.50 (1.38–1.62)
5	1.73 (1.63–1.84)	1.50 (1.39–1.62)
6	1.68 (1.59–1.77)	1.50 (1.40–1.61)
7	1.63 (1.55–1.71)	1.50 (1.41–1.59)
8	1.58 (1.51–1.66)	1.49 (1.41–1.58)
9	1.55 (1.47–1.63)	1.49 (1.40–1.58)
10	1.51 (1.42–1.60)	1.49 (1.40–1.59)
11	1.48 (1.39–1.58)	1.49 (1.38–1.60)
12	1.45 (1.35–1.56)	1.48 (1.37–1.61)
13	1.43 (1.32–1.54)	1.48 (1.36–1.62)
14	1.40 (1.29–1.53)	1.48 (1.35–1.63)
15	1.38 (1.26–1.51)	1.48 (1.34–1.64)
16	1.36 (1.23–1.50)	1.48 (1.33–1.65)
17	1.34 (1.21–1.49)	1.48 (1.32–1.66)
18	1.33 (1.19–1.48)	1.48 (1.31–1.67)
19	1.31 (1.17–1.47)	1.48 (1.30–1.68)
20	1.30 (1.15–1.46)	1.48 (1.29–1.69)

Table S5. Hazard ratios of marital status for accidental mortality during the follow-up periods of 0 to less than 1 year, 1 to 5 years, and more than 5 years

	0 to <1 year			1-5 years			>5 year				0 to <1 year			1-5 years			>5 year		
Male	aHR (95% CI)	<i>P</i> value (B-H adjusted)	aHR (95% CI)	<i>P</i> value (B-H adjusted)	aHR (95% CI)	<i>P</i> value (B-H adjusted)	Female	aHR (95% CI)	<i>P</i> value (B-H adjusted)	aHR (95% CI)	<i>P</i> value (B-H adjusted)	aHR (95% CI)	<i>P</i> value (B-H adjusted)	aHR (95% CI)	<i>P</i> value (B-H adjusted)				
Total	2.07 (1.90, 2.25)	<0.001	1.87 (1.76, 1.99)	<0.001	1.61 (1.52, 1.71)	<0.001	Total	1.45 (1.29, 1.62)	<0.001	1.55 (1.43, 1.68)	<0.001	1.54 (1.44, 1.65)	<0.001						
Primary site							Primary site												
Brain and other nervous system	1.82 (1.45, 2.28)	<0.001	1.65 (1.38, 1.97)	<0.001	1.53 (1.30, 1.80)	<0.001	Brain and other nervous system	1.16 (0.84, 1.59)	0.61	1.11 (0.89, 1.38)	0.41	1.38 (1.15, 1.65)	0.003						
Female breast	1.91 (1.09, 3.33)	0.03	3.40 (1.92, 6.03)	<0.001	3.13 (1.70, 5.74)	<0.001	Female breast	1.02 (0.47, 2.20)	0.95	2.52 (1.10, 5.78)	0.06	1.62 (0.76, 3.45)	0.31						
Cervix Uteri	NA	NA	NA	NA	NA	NA	Cervix Uteri	1.76 (1.40, 2.22)	<0.001	1.58 (1.39, 1.80)	<0.001	1.52 (1.38, 1.68)	<0.001						
Colon and Rectum	NA	NA	NA	NA	NA	NA	Colon and Rectum	1.53 (0.57, 4.10)	0.61	1.79 (1.06, 3.04)	0.06	1.54 (0.99, 2.38)	0.11						
Corpus	NA	NA	NA	NA	NA	NA	Corpus and	1.61 (1.00, 2.61)	0.14	1.76 (1.28, 2.43)	0.003	1.90 (1.50, 2.41)	<0.001						

and Uterus, NOS							Uterus, NOS	2.60)		2.42)		2.41)	
Esophagus	2.37 (1.28, 4.39)	0.009	1.66 (0.95, 2.90)	0.08	1.02 (0.45, 2.30)	0.97	Esophagus	0.42 (0.14, 1.25)	0.29	1.34 (0.24, 7.44)	0.77	0.33 (0.10, 1.27)	0.18
Kidney and Renal Pelvis	2.48 (1.77, 3.48)	<0.001	2.04 (1.59, 2.63)	<0.001	2.22 (1.75, 2.82)	<0.001	Kidney and Renal Pelvis	1.14 (0.69, 1.89)	0.85	1.54 (1.00, 2.37)	0.08	1.80 (1.27, 2.57)	0.004
Larynx	2.78 (1.67, 4.64)	<0.001	2.36 (1.62, 3.44)	<0.001	1.83 (1.24, 2.69)	0.003	Larynx	1.17 (0.43, 3.19)	0.91	2.99 (1.30, 6.90)	0.04	1.22 (0.58, 2.58)	0.64
Liver and Intrahepatic Bile Duct	1.68 (1.24, 2.28)	0.001	1.84 (1.35, 2.51)	<0.001	2.44 (1.44, 4.14)	0.002	Liver and Intrahepatic Bile Duct	0.98 (0.54, 1.77)	0.95	1.77 (0.86, 3.66)	0.16	1.20 (0.30, 4.83)	0.80
Lung and Bronchus	1.76 (1.48, 2.09)	<0.001	1.53 (1.25, 1.87)	<0.001	1.39 (1.05, 1.84)	0.03	Lung and Bronchus	1.38 (1.10, 1.73)	0.04	1.22 (0.97, 1.52)	0.13	1.23 (0.94, 1.60)	0.20
Melanoma	1.79 (1.13, 2.85)	0.02	1.87 (1.40, 2.51)	<0.001	1.82 (1.38, 2.39)	<0.001	Melanoma	4.62 (1.54, 13.84)	0.04	2.62 (1.66, 4.14)	<0.001	1.54 (1.09, 2.17)	0.03
Oral Cavity and Pharynx	2.50 (1.79, 3.49)	<0.001	2.77 (2.18, 3.51)	<0.001	1.89 (1.46, 2.44)	<0.001	Oral Cavity and Pharynx	2.19 (1.07, 4.51)	0.11	1.88 (1.11, 3.20)	0.06	1.81 (1.19, 2.74)	0.02

Ovary	NA	NA	NA	NA	NA	NA	Ovary	2.22 (1.10, 4.49)	0.11	1.99 (1.19, 3.34)	0.04	1.31 (0.80, 2.14)	0.34
Pancreas	1.63 (1.08, 2.47)	0.03	1.66 (0.79, 3.48)	0.18	1.69 (0.57, 4.99)	0.37	Pancreas	1.11 (0.66, 1.86)	0.91	1.49 (0.72, 3.06)	0.34	0.51 (0.15, 1.66)	0.34
Prostate	1.98 (1.63, 2.40)	<0.001	1.70 (1.54, 1.88)	<0.001	1.51 (1.40, 1.64)	<0.001	Prostate	NA	NA	NA	NA	NA	NA
Stomach	1.70 (1.06, 2.71)	0.03	2.09 (1.32, 3.33)	0.002	1.45 (0.81, 2.60)	0.25	Stomach	1.52 (0.66, 3.51)	0.61	1.11 (0.54, 2.28)	0.77	1.37 (0.73, 2.58)	0.37
Thyroid	2.09 (0.99, 4.43)	0.05	2.62 (1.58, 4.35)	<0.001	2.02 (1.33, 3.06)	0.002	Thyroid	1.03 (0.46, 2.33)	0.95	1.43 (0.94, 2.17)	0.13	1.52 (1.09, 2.11)	0.03
Urinary Bladder	1.91 (1.38, 2.65)	<0.001	1.60 (1.31, 1.95)	<0.001	1.56 (1.29, 1.89)	<0.001	Urinary Bladder	1.68 (0.80, 3.49)	0.36	1.70 (1.06, 2.74)	0.06	1.57 (1.10, 2.22)	0.03

Table S6. Associations between specific subgroups of the unmarried population and accidental mortality among cancer patients

Subgroups	Male	Female
	aHR (95% CI)	aHR (95% CI)
Married	1	1
Never married	1.97 (1.88–2.07)	1.68 (1.57–1.80)
Divorced	1.82 (1.71–1.93)	1.47 (1.37–1.58)
Separated	1.78 (1.51–2.10)	1.77 (1.43–2.19)
Widowed	1.49 (1.40–1.60)	1.45 (1.37–1.54)

Table S7. Hazard ratios of marital status for accidental mortality after removing patients whose deaths occurred within two years of follow-up

aHR (95% CI)	<i>P</i> value
Male	
1.73 (1.65–1.81)	< 0.001
Female	
1.52 (1.44–1.61)	< 0.001

Table S8. Hazard of accidental death in patients with unmarried or domestic partners vs. married patients

Marital status	HR (95% CI)	<i>P</i> value
Male		
Married	1	NA
Divorced	1.85 (1.74–1.96)	< 0.001
Separated	1.77 (1.49–2.09)	< 0.001
Single	1.89 (1.80–2.00)	< 0.001
Unmarried or Domestic Partner	1.19 (0.71–2.00)	0.53^a
Widowed	1.42 (1.33–1.52)	< 0.001
Female		
Married	1	NA
Divorced	1.51 (1.40–1.63)	< 0.001
Separated	1.75 (1.42–2.17)	< 0.001
Single	1.60 (1.49–1.71)	< 0.001
Unmarried or Domestic Partner	1.39 (0.69–2.78)	0.36^a
Widowed	1.37 (1.28–1.45)	< 0.001

^a There was no significant difference in the risk of accidental death between this group and married patients.