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Comparative analysis of cancer statistics in China and the United States in 2024

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Abstract

Background: Cancer patterns in China are becoming similar to those in the United States (US). Comparing the recent cancer profiles, trends, and determinants in China and the US can provide useful reference data.

Methods: This study used open-source data. We used GLOBOCAN 2022 cancer estimates and United Nations population estimates to calculate cancer cases and deaths in both countries during 2024. Data on cancer incidence and mortality trends were obtained from the Surveillance, Epidemiology, and End Results (SEER) program and National Centre for Health Statistics in the US and cancer registry reports of the National Cancer Center (NCC) of China. Data from the Global Burden of Disease study (GBD) and a decomposition approach were used to estimate the contributions of four determinants to the change in cancer deaths.

Results: In 2024, there are an estimated 3,246,625 and 2,510,597 new cancer cases and 1,699,066 and 640,038 cancer deaths in China and the US, respectively. The highest estimated cancer cases are lung cancer in China and breast cancer in the US. The age-standardized incidence rates of lung and colorectal cancer in the US, and stomach, liver, and esophageal cancer in China have decreased, but the incidence rates of liver cancer in the US and colorectal cancer, prostate cancer in men, and cervical cancer in women in China have increased. Increases in the adult population size and population aging are main reasons for the increase in cancer deaths; case fatality rates are a main reason for the decrease in cancer deaths in both countries.

Conclusions: China has made progress in cancer control but lags the US. Considering the transformation in China's pattern of cancers epidemiology, it is imperative to develop stronger policies by adopting the cancer prevention and control strategies used in the US to address population aging and curb growing cancer trends.

Keywords: Cancer; Incidence; Mortality; Aging; China; United States; Lung cancer; Breast cancer; Esophageal cancer; Stomach cancer; Liver cancer

Introduction

Cancer has become one of the leading causes of human death owing to its chronic progression and serious mortality rates.[1] Cancer is associated with substantial societal and macroeconomic costs that vary in degree according to cancer type, geographic region, and sex.[2] In the United States (US), the field of cancer control is at a crossroads. Although the US has made progress in the fight against cancer, that progress has not benefited all populations equitably. In relevant studies, socioeconomic disparities in cancer mortality have widened, especially for the most easily preventable and early detectable cancers (e.g., cervical cancer).[3] Disadvantaged groups bear a disproportionate share of the cancer burden, a situation that is also present in China. Over the past few decades, China has experienced rapid economic and demographic changes that have been accompanied by shifts in cancer epidemiology.

According to GLOBOCAN 2022 estimates, the total number of cancer cases in China and the US was 4,824,703 and 2,380,189, accounting for 24.2% and 11.9% of global cancer cases, respectively.[4] With increasing population size and population aging, the cancer burden in China is showing a gradual upward trend, and the cancer pattern is transitioning from that of a developing country to that of a developed country. Additionally, the "Healthy China Initiative (2019–2030)" mentions that the population still carries a huge cancer burden and highlights the need for the Chinese government at all levels to increase attention given to cancer prevention and control efforts, such as popular education and organized cancer screening.[5]

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Comprehensively analyzing the disease burden of cancer and national cancer prevention and control efforts in China and comparing them with those in the US, can provide a reference for further adjustment of cancer prevention strategies. The objective of this study was to describe the current cancer epidemiology for the main cancers in China and the US; to use publicly available data to estimate the number of new cancer cases and deaths owing to cancer in 2024 as well as the trends in incidence and mortality rates; and to conduct decomposition analysis of the contributions of four determinant factors to the change in cancer deaths in China and the US.

Methods

Data sources

In our study, we used publicly accessible data (incidence, mortality rate) from GLOBOCAN 2022, alongside population projections from the United Nations (UN), to construct cancer profiles for China and the US in 2024.[4,6] To analyze trends in incidence and mortality rates, we relied on data from the Surveillance, Epidemiology, and End Results (SEER) program published by the National Cancer Institute, as well as cancer registry data from the National Cancer Center (NCC) of China.[7–9] For decomposition analysis of cancer-related deaths, we used data from the Global Burden of Disease (GBD 2021) study released by the Institute for Health Metrics and Evaluation.[10]

We extracted the age- and sex-specific number of cancer cases and deaths for 35 cancer types (including all cancer sites) in 2022 from GLOBOCAN 2022.[4] Population figures for 2022 and projections for 2024 were sourced from the UN.[6] For trend analysis focusing on 11 cancer types (selected based on the 10 leading cancer types according to the number of cases and deaths in China in 2000), we used age-standardized incidence rates from 1975 to 2020 and age-standardized cancer mortality rates from 1975 to 2020 in the US, obtained from the SEER database.[7,8] The corresponding data in China from 2007 to 2017 were obtained from previous annual reports of the NCC.[9] We collected sex- and age-specific estimates of cancer cases and deaths for 29 cancer types in China and the US between 1990 and 2021 from the GBD 2021 database, as well as corresponding population estimates.[10]

Statistical analysis

We obtained sex- and age-specific cancer incidence and mortality rates in 2022 for 35 cancer types using cancer cases and deaths from GLOBOCAN 2022 and the corresponding population from the UN.[4,6] Assuming that age-specific rates remain unchanged through 2024, cancer cases and deaths in 2024 were estimated by multiplying incidence and mortality rates with the corresponding population, respectively. Cancer profiles in China during 2024 included the Chinese mainland, Hong Kong, and Macao; Taiwan was excluded owing to a lack of data in GLOBOCAN 2022. In the US, we estimated cancer profiles for 2024 across all 50 states and the District of Columbia, but not the dependencies.

Trends of incidence and mortality rates were analyzed by sex to make comparisons between China and the US. Cancer incidence (1975–2020) and mortality (1975–2020) rates for the US were adjusted by the 2000 US standard population.[7,8] Cancer incidence and mortality (2010–2020) rates in China were adjusted using Segi's world standard population.[9] The trend analysis included 11 cancer types in China in GLOBOCAN 2022 (cancer of the esophagus, stomach, colorectum, liver, breast, lung, bladder, thyroid, cervix, uterus, and prostate).

The age-related burden of 29 cancer types was decomposed according to four key factors: the population size, age structure of the population, incidence of each cancer type, and fatality of each cancer type. To estimate the summed contribution of each indicator between 1990 and 2021, the standardized rates for the other three indicators were applied, with death metrics in 1990 being considered the reference level.[11,12] For example, the additive contribution of the adult population size (A) to the change in deaths owing to the 29 cancer types during 1990–2021 was calculated using the formula below:

$$\text{Additive contribution of } A = (A_{2021} - A_{1990}) \times [(B_{2021}\, C_{2021}\, D_{2021} + B_{1990}\, C_{1990}\, D_{1990}) / 4 + (B_{2021}\, C_{2021}\, D_{1990} + B_{2021}\, C_{1990}\, D_{2021} + B_{1990} C_{2021}\, D_{2021} + B_{1990}\, C_{1990}\, D_{2021} + B_{1990}\, C_{2021}\, D_{1990} + B_{2021}\, C_{1990}\, D_{1990}) / 12],$$

where B represents the age structure of the adult population, C represents the cancer incidence, and D is the disease fatality. Statistical analysis was done uniformly using R 4.4.1 (The R Project for Statistical Computing, Vienna, Austria). The ggplot2 package was used to plot figures (https://ggplot2.tidyverse.org).

Results

Cancer cases and deaths in 2024

Table 1 presents the estimated number of new cancer cases during 2024 in China and the US by sex and cancer type. In total, there are an estimated 3,246,625 and 2,510,597 new cancer cases in China and the US, which is equivalent to an estimated 8895 and 6878 diagnosed cases per day, respectively. Total deaths are estimated at 1,699,066 in China and 640,038 in the US, an average of 4655 and 1754 deaths per day.

We found that the five leading cancer types newly diagnosed in 2024 in China are lung cancer (681,124), breast cancer (369,769), colorectal cancer (333,821), thyroid cancer (332,620), and liver cancer (241,501); in the US, these are breast cancer (287,284), prostate cancer (242,893), lung cancer (239,490), colorectal cancer (168,119), and melanoma of skin (110,026). The five cancer types with the highest number of deaths in 2024 in China are lung cancer (478,014), liver cancer (207,474), esophageal cancer (193,290), stomach cancer (171,388) and colorectal cancer (158,830); in the US, these are lung cancer (135,353), colorectal cancer (57,474), pancreatic cancer (52,404), breast cancer (44,973), and liver cancer (32,822). For male individuals, the most common cancer is lung cancer in China and prostate cancer in the US, and the cancer

Table 1: Estimated new cancer cases and deaths by sex in China and the US, 2024.*

		Estimated new case						Estimated death					
		China			US			China			US		
ICD-10	Cancer site	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
C00–97	All sites	3,246,625	1,740,015	1,506,610	2,510,597	1,360,619	1,149,978	1,699,066	1,122,634	576,432	640,038	340,348	299,690
C00–97/C44	All cancers excluding non-melanoma skin	3,213,871	1,723,238	1,490,633	1,921,870	976,307	945,563	1,689,782	1,117,128	572,554	615,273	324,790	290,483
C00–06	Lip, oral cavity	24,464	16,282	8182	28,978	19,886	90,928	13,716	9594	4122	4933	2798	2136
C07–08	Salivary glands	7418	4303	3116	5387	3140	2247	2383	1558	825	1112	697	415
C09–10	Oropharynx	5232	4277	955	14,937	12,370	2567	3502	2671	831	3492	2767	725
C11	Nasopharynx	35,383	25,576	9807	2089	1477	612	18,679	14,249	4430	909	660	249
C12–13	Hypopharynx	6114	5778	336	2445	1942	503	3694	3505	189	674	497	177
C15	Esophagus	230,751	172,103	58,648	19,822	15,629	4193	193,290	144,656	48,638	17,400	14,050	3350
C16	Stomach	232,310	163,972	68,338	26,950	16,286	10,664	171,388	123,907	47,481	11,568	7000	4568
C18–21	Colorectum	333,821	206,635	127,186	168,119	88,480	79,639	158,830	100,238	58,592	57,474	31,320	26,154
C22	Liver and intrahepatic bile ducts	241,501	180,754	60,747	45,810	32,697	13,113	207,474	155,254	52,220	32,822	22,220	10,602
C23	Gallbladder	19,600	8616	10,984	4996	1666	3330	15,551	6786	8765	2273	765	1508
C25	Pancreas	76,030	45,258	30,772	63,562	33,508	30,054	68,222	41,433	26,789	52,404	27,681	24,723
C32	Larynx	18,990	17,604	1386	12,794	10,227	2567	11,211	10,119	1092	4104	3294	810
C33–34	Trachea, bronchus and lung	681,124	437,788	243,336	239,490	119,428	120,062	478,014	348,683	129,331	135,353	71,177	64,176
C43	Melanoma of skin	5945	3109	2836	110,026	67,534	42,492	3587	2048	1539	7809	5124	2685
C45	Mesothelioma	1535	860	675	3312	2388	924	1088	695	393	2608	1965	643
C46	Kaposi sarcoma	398	280	118	1155	1,034	121	328	184	144	115	92	23
C50	Breast	369,769	–	369,769	287,284	–	287,284	77,959	–	77,959	44,973	–	44,973
C51	Vulva	2577	–	2577	6531	–	6531	1188	–	1188	1643	–	1643
C52	Vagina	1718	–	1718	1495	–	1495	633	–	633	425	–	425
C53	Cervix uteri	100,390	–	100,390	14,195	–	14,195	34,731	–	34,731	6059	–	6059
C54	Corpus uteri	48,931	–	48,931	67,687	–	67,687	8195	–	8195	12,291	–	12,291
C56	Ovary	41,436	–	41,436	21,639	–	21,639	20,065	–	20,065	13,676	–	13,676
C60	Penis	4053	4053	–	1696	1696	–	1645	1645	–	390	390	–
C61	Prostate	93,549	93,549	–	242,893	242,893	–	36,485	36,485	–	35,926	35,926	–
C62	Testis	3198	3198	–	9646	9646	–	630	630	–	517	517	–
C64	Kidney	48,894	32,122	16,772	75,268	48,879	26,389	16,179	11,416	4763	15,133	10,111	5022
C67	Bladder	62,276	50,421	11,855	85,494	65,718	19,776	29,530	24,276	5254	18,748	13,643	5105
C70–72	Brain, central nervous system	64,106	32,324	31,782	25,950	14,633	11,317	40,208	23,279	16,929	19,513	11,173	8340
C73	Thyroid	332,620	100,795	231,825	54,125	14,131	39,994	7598	3000	4598	2376	1138	1238
C81	Hodgkin lymphoma	3602	2184	1418	8831	4947	3884	1331	858	473	980	570	410
C82–86, C96	Non-Hodgkin lymphoma	55,863	32,592	23,271	82,139	45,916	36,223	26,874	16,994	9880	22,071	13,021	9050
C88, 90	Multiple myeloma	19,312	11,137	8175	34,116	19,362	14,754	12,079	7278	4801	13,887	7869	6018
C91–95	Leukaemia	69,767	40,445	29,322	66,329	39,444	26,885	38,016	22,819	15,197	24,868	14,802	10,066

*Estimates based on data released by the International Agency for Research on Cancer for GLOBOCAN 2022, the WHO and the World Population Prospects for the United Nations. ICD: International Classification of Diseases; WHO: World Health Organization; –: Not available.

type leading to the most deaths is lung cancer in both China and the US. For female individuals, the most common cancers are breast cancer in both China and the US, with lung cancer leading to the most deaths in both China and the US. Thus, lung cancer is expected to be the largest cause of death in 2024 in both sexes and in both countries. Detailed data on other cancers can be found in Table 1.

Trends analysis in cancer incidence and mortality

Figures 1 and 2 illustrate long-term trends in 11 cancer types with respect to incidence and mortality rates. In general, incidence rates in the two countries have declined for most cancers in recent years, especially colorectal cancer and lung cancer in the US and stomach cancer, esophageal cancer, and liver cancer in China. Conversely, the incidence rates of liver cancer in the US and colorectal cancer in China are gradually increasing [Figures 1, 2].

For male individuals, the incidence and mortality rates of lung and colorectal cancer in the US, and those of stomach, liver, and esophageal cancer in China, have decreased gradually in recent years. In the early 1990s, there was a sudden increase in the incidence of prostate cancer in the US [Figure 1]. The main reason is that routine use of commercial serum prostate-specific antigen (PSA) assay, which facilitates diagnosis, has resulted in an increase in the reported incidence of prostate cancer. Trends in recent years may reflect a decline in PSA testing (incidence) and improvements in treatment (mortality).[13]

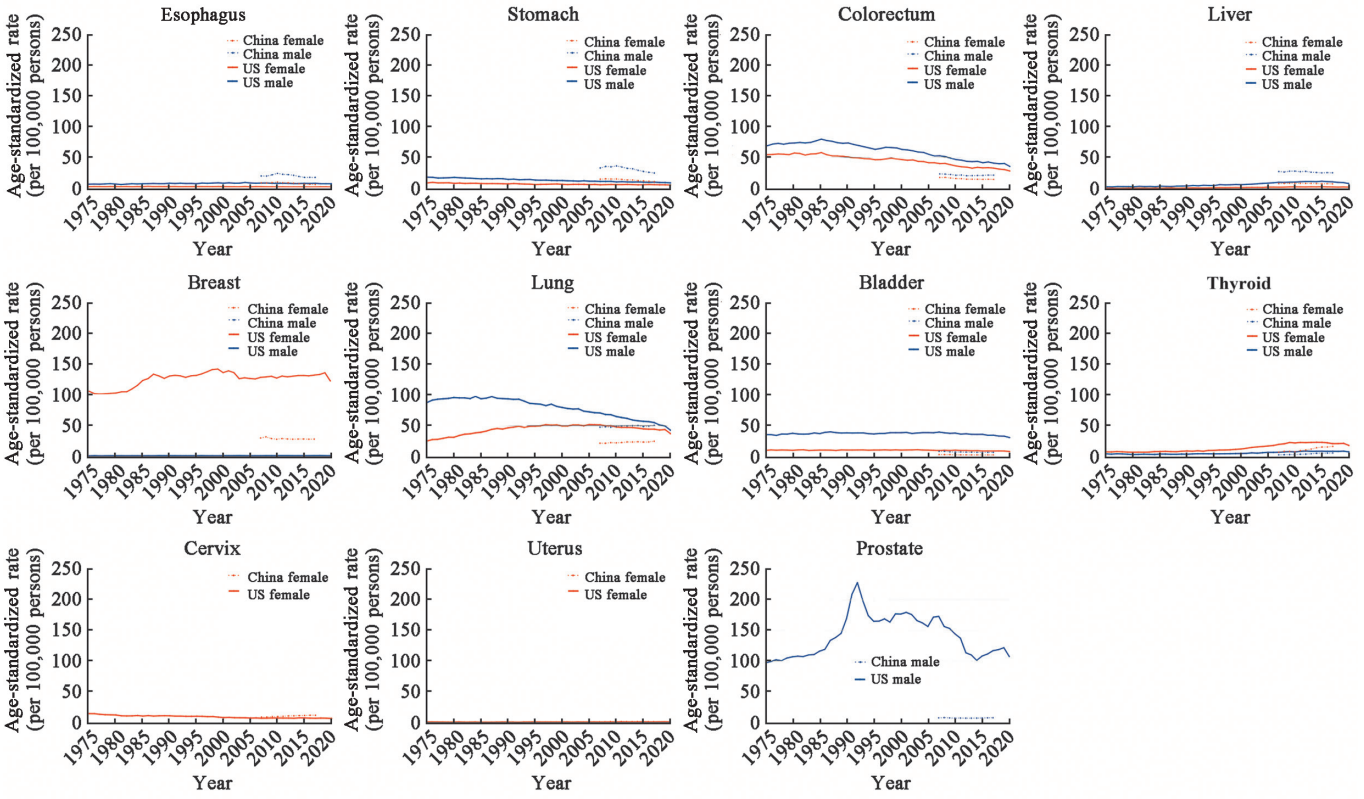

Figure 1: Trends in cancer incidence rates by sex for China and the United States (US). Analyses based on data released by the US Surveillance, Epidemiology, and End Results program and China National Cancer Center. Rates for US cancer incidence (1975–2020) standardized by the 2000 US standard population. Rates for cancer incidence in China (2010–2020) were standardized using Segi's world standard population.

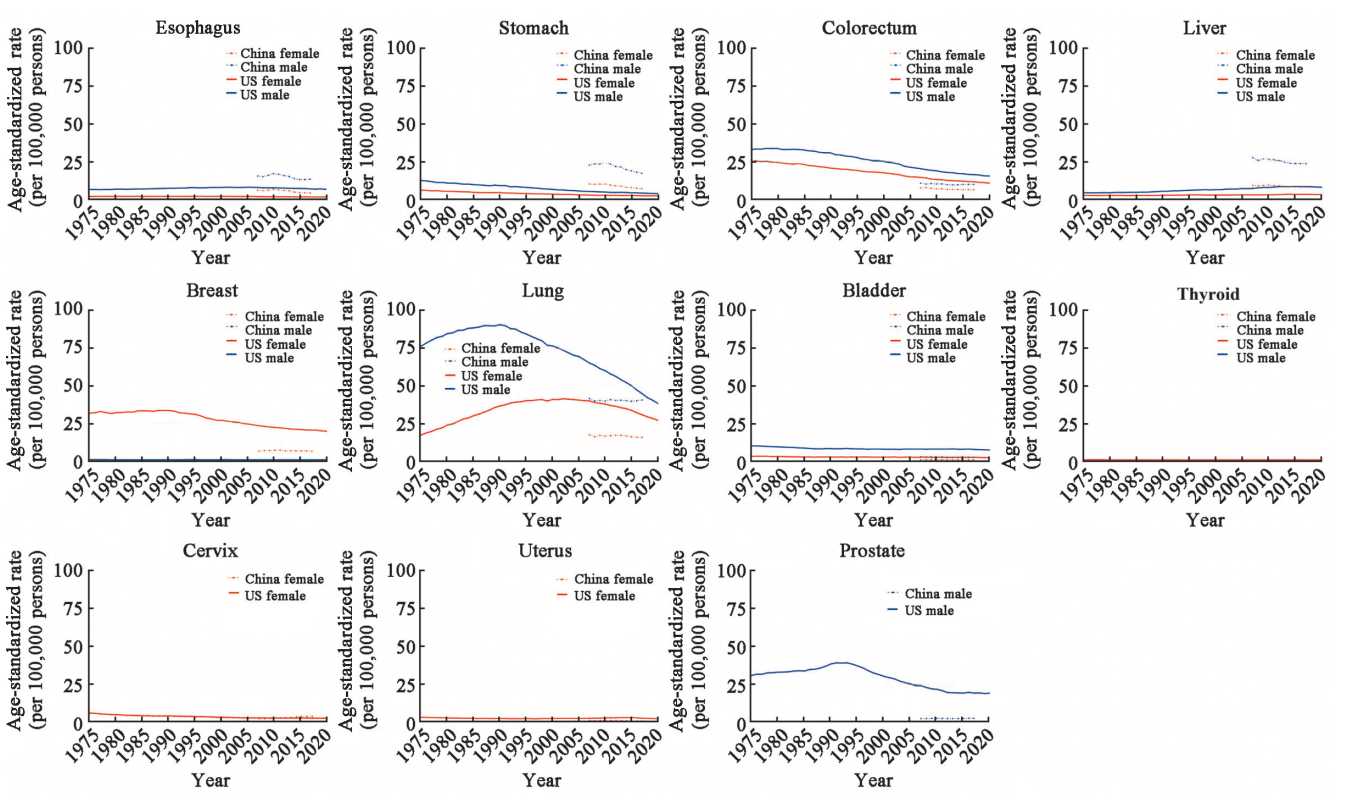

Figure 2: Trends in cancer mortality rates by sex for China and the United States (US). Analyses based on data released by the US Surveillance, Epidemiology, and End Results program and China National Cancer Center. Rates for US cancer mortality (1975–2020) standardized using the 2000 US standard population. Rates for cancer mortality in China (2010–2020) standardized using Segi's world standard population.

For female individuals, the incidence and mortality rates of lung and colorectal cancer in the US, and those of stomach, liver, and esophageal cancer in China, have decreased gradually in recent years [Figures 1, 2]. In the US, the incidence and death rates of cervical cancer among women are steadily declining. However, the rates of cervical cancer in China are steadily increasing. It is important to note that since 2000, the incidence rate of thyroid cancer has clearly been on the rise in both China and the US. Trends in the incidence and mortality rates for other cancer types are detailed in Figures 1 and 2.

Decomposition of deaths according to cancer type

The changes in deaths for the 29 types of cancer in 1990–2000, 1990–2010, and 1990–2021 were 446, 853, 1321 thousand in China and 56, 86, 164 thousand in the US, respectively [Table 2]. The largest contributor to changes in the deaths owing to the 29 types of cancer between 1990 and 2021 in China and the US was the adult population size, with 1207 thousand and 198 thousand deaths, respectively. Changes in deaths owing to the 29 types of cancer in China and the US were associated with the increased adult population size, with absolute levels in 1990 of 84.1% and 37.3%, respectively; the corresponding variations owing to decreases in case fatality rates for these 29 cancers were –82.4% and –16.7%, respectively. Compared with 1990–2000, changes in deaths owing to these 29 cancer types were attributable to population aging in both countries, emerging as the second leading driver of the increase in cancer deaths (after population size) in both sexes during 1990–2010 and 1990–2021. Deaths for the 29 types of cancer attributable to population aging in China and the US during 2021 were 918 thousand (63.9%) and 107 thousand (20.2%), respectively. Detailed results are shown in Table 2.

Over the period 1990–2021, the number of age-related cancer deaths varied more among male individuals and among those aged 60–84 years in both countries [Figure 3]. The contribution of each decomposed factor to age-related cancer deaths varied by age group and sex. Increasing population size was the primary factor contributing to changes in age-related deaths from cancer between 1990 and 2021 for men and women aged 25–74 years in China and aged 45–84 years in the US. In both sexes, the change in cancer deaths owing to population aging also increased with age, peaking earlier for women (65–69 years old) than for men (70–74 years old) in China and for men and women aged 70–74 years in the US. In China, the incidence of cancer contributed to the increase in deaths, and the proportion of deaths associated with the age-related incidence was much lower than the proportion associated with population size and population

Table 2: Changes in deaths for 29 types of cancer in China and the US for 1990–2000, 1990–2010, and 1990–2021 (*n* × 10,000 [%]).*

	China					US				
Period	Population size	Population aging	Incidence	Case fatality	Total	Population size	Population aging	Incidence	Case fatality	Total
1990–2021										
Male	75.2 (83.5)	60.5 (67.1)	21.4 (23.8)	–69.1 (–76.7)	88.0 (97.8)	10.8 (38.2)	7.7 (27.2)	–5.2 (–18.4)	–4.9 (–17.3)	8.4 (–29.7)
Female	45.5 (82.7)	31.3 (56.9)	17.9 (32.5)	–50.6 (–92.0)	44.1 (80.1)	9.0 (36.1)	3.0 (12.0)	0.7 (2.8)	–4.7 (–18.9)	8.0 (32.0)
Both	120.7 (84.1)	91.8 (63.9)	39.3 (27.4)	–119.7 (–82.4)	132.1 (93.0)	19.8 (37.3)	10.7 (20.2)	–4.5 (–8.8)	–9.6 (–16.7)	16.4 (32.0)
1990–2010										
Male	48.6 (53.9)	29.1 (32.3)	10.0 (11.1)	–26.8 (–29.7)	60.9 (67.6)	8.5 (30.3)	5.2 (18.4)	–4.8 (–17.0)	–5.0 (–17.7)	3.9 (14.0)
Female	28.5 (51.8)	12.6 (22.9)	5.3 (9.6)	–22.0 (–40.0)	24.4 (44.3)	6.1 (24.5)	2.3 (9.2)	1.1 (4.4)	–4.8 (–19.3)	4.7 (18.8)
Both	77.1 (53.1)	41.7 (28.8)	15.3 (10.6)	–48.8 (–33.7)	85.3 (58.8)	14.6 (27.5)	7.5 (14.1)	–3.7 (–7.0)	–9.8 (–18.5)	8.6 (16.1)
1990–2000										
Male	28.4 (31.6)	6.7 (7.4)	3.8 (4.2)	–7.7 (–8.6)	31.2 (34.6)	3.9 (13.8)	1.4 (5.0)	1.0 (3.5)	–4.3 (–15.2)	2.0 (7.1)
Female	17.1 (31.1)	1.9 (3.5)	1.2 (2.2)	–6.8 (–12.4)	13.4 (24.4)	2.7 (10.9)	0.8 (3.2)	2.8 (11.2)	–2.7 (–10.8)	3.6 (14.5)
Both	45.5 (31.2)	8.6 (5.9)	5.0 (3.4)	–14.5 (–10.0)	44.6 (30.5)	6.6 (12.4)	2.2 (4.1)	3.8 (7.2)	–7.0 (–13.2)	5.6 (10.5)

* Percent in parentheses indicates the relative change in deaths owing to the 29 types of cancer deaths associated with each decomposed factor compared with the absolute level in 1990. US: United States.

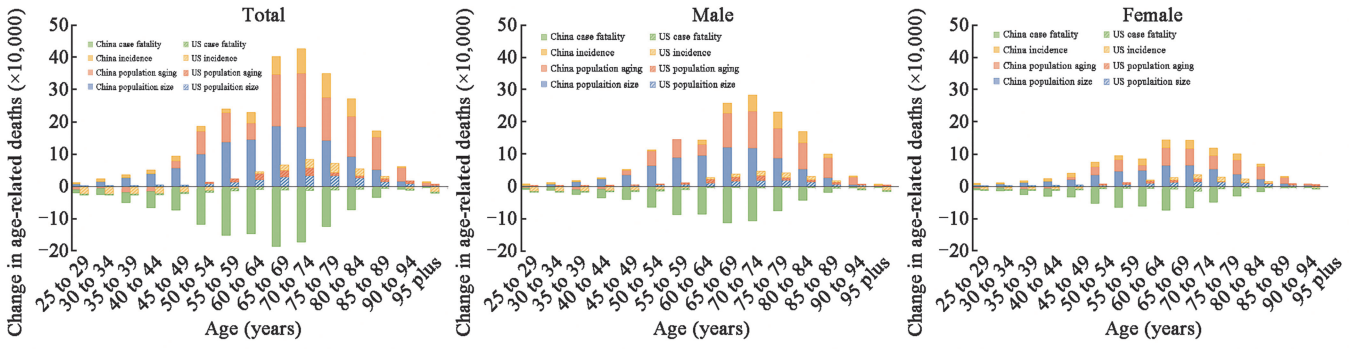

Figure 3: Decomposition of change in age-related deaths for 29 types of cancer by sex and age group in China and the United States (1990–2021). Positive values indicate an increase and negative values indicate a decrease in age-related deaths (1990–2021). US: United States.

aging. Case fatality contributed to the reduction in cancer deaths in both countries, contributing more in China than in the US in recent years. Details of the changes in cancer deaths in other age groups are shown in Figure 3.

Discussion

This study provides a secondary analysis of estimated cancer cases and deaths in 2024, incidence and mortality rates trends, and decomposition analysis of deaths. Additionally, we systematically summarized China's current cancer profile to compare it with that of the US. In 2024, there are an estimated 3,246,625 and 2,510,597 new cancer cases and 1,699,066 and 640,038 cancer deaths in China and the US, respectively. The cancers with the highest number of cases are lung cancer in China and breast cancer in the US. Cancer continues to be a major public health problem as incidence and mortality increase, and the burden on health systems is expected to increase, consistent with population projections.[6,14] Governments need to take account of these shifts in developing cancer policies to suit local cancer profiles.

Comparing the five most common cancers in China and the US, breast cancer is the leading cancer in the US, and lung cancer remains the leading cancer in China. This difference reflects differences in the prevalence and distribution of risk factors in different regions.[15] Countries with rapid social and economic development are more likely to experience changes in the breast cancer status of their population. This may be related to Westernized lifestyles, such as reproductive patterns and obesity.[16]

China's cancer profile is gradually moving closer to that of the US, with declining incidence and mortality rates for esophageal, liver, and stomach cancers and rising incidence rates for lung, colorectal, breast, and thyroid cancers. Lung cancer remains the leading cause of cancer deaths in both countries. Smoking is responsible for one-third of all cancer deaths and is associated with the development of approximately 13 cancer sites, with more than 70% of lung cancer cases worldwide caused by smoking.[17,18] Implementing strong tobacco control policies is an effective way to reduce the cancer incidence and mortality. In the 1960s, the US government took the lead in implementing strong tobacco control policies in the country. As a result, the number of smokers in the US has continually declined, accelerating the annual rate of decline in lung cancer mortality from 2% between 2005 and 2013 to 4% between 2013 and 2021.[19] Survey results in China show that the prevalence of smoking among people aged 18 years and older was 25.6% in 2018, among whom were 96.1% were male and 3.9% were female smokers.[20] Compared with the results of previous surveys, the smoking prevalence shows a decreasing trend, but a large gap remains to achievement of the tobacco control target of the "Healthy China Initiative (2019–2030)" planning outline, i.e., that the smoking prevalence among people aged 15 years and above will be reduced to 20% by 2030.[5] Therefore, aspects of cancer prevention and control strategies implemented in the US have important reference value for China.

China has one of the fastest-growing aging populations in the world. Population aging is likely to be a major social characteristic of China and will be a fundamental national condition for a long time.[21] In 2019, there were 254 million people aged 60 years and over in China. Owing to longer life expectancy and declining fertility, the number of people aged 60 years and over will increase to 402 million by 2040, accounting for approximately 28% of the population.[22] Currently, the leading factor in the rapid increase of cancer deaths in China is the large increase in the size of the population aged ≥25 years. However, against the backdrop of stagnant or negative population growth and continued population aging, cancer deaths in China are expected to continue a relatively rapid increasing trend, with the number of cancer deaths attributable to the aging population continuing to increase, thereby becoming the most important factor driving the increase in cancer deaths. Since 2005, four population-based mass screening programs have been initiated in China.[23] Cancer prevention and control have been strengthened under major efforts of the government. Moving the prevention and control of malignant tumors forward, screening for malignant tumors in the population aged 45–74 years is important to reduce the disease burden of cancer in older adults as well as in the whole population.

China is the world's largest developing country, with a corresponding high cancer burden. The cancer pattern in China is different from that of developed countries such as the US. With urbanization and rapid economic and social development, the cancer pattern in China has changed significantly.[24,25] High-income or developed countries have lower fertility rates and generally higher rates of population aging; thus, their burden of malignant tumors is usually heavier, especially for lung, colorectal, and breast cancers, which are closely associated with population aging.[26] In addition to the three cancers mentioned above, five other common cancers (esophageal, stomach, liver, cervical, and nasopharyngeal) are included in the free screening program in China. Cervical cancer is a completely preventable cancer. The World Health Organization (WHO) has launched a global initiative to eliminate cervical cancer as a public health problem. In 2019, cervical and breast cancer screening was rolled out nationwide in China; the remaining cancers are only screened in selected regions. Even so, cervical cancer screening only reached 36.8% national coverage in 2018–2019;[27] In contrast, high-income countries such as the US have reached more than 70% cervical cancer screening coverage.[28] The incidence and mortality rates of cervical cancer in China are still on the rise, indicating the need for more integrated and comprehensive cervical cancer prevention and treatment policies and investment in health resources, including vaccination against human papillomavirus infection, targeted screening strategies, and early diagnosis and treatment.

The shift in the cancer pattern is also reflected in cancers of the digestive system, with a decline in the incidence and mortality rates of esophageal, liver, and stomach cancers. First, infection with hepatitis B virus (HBV) remains a major risk factor for liver cancer, involved in up to 50%

of cases.[29] China bears a large portion of the global burden of HBV infection and has experienced a significant decline in HBV infection over the past 40 years; however, the prevalence of hepatitis B surface antigen in certain subpopulations still varies.[30] The estimated prevalence of people living with chronic HBV infection in the US has remained unchanged since 1999 at 0.3%.[31] Improving vaccination coverage and increasing screening and diagnosis are essential to achieving the WHO goal of eliminating HBV infection by 2030. Second, there is a high rate of *Helicobacter pylori* (*Hp*) infection in the Chinese population, with an average 40.7% of individuals infected with *Hp*; this rate is up to 43.5% in adults.[32] According to these findings, infection control is clearly an integral part of reducing the burden of digestive system cancers in China.

Except for upper gastrointestinal cancers, the proportion of stage I diagnoses and 5-year relative survival rates for most cancer types in the US are much higher than those in China.[33] From 2003–2005 to 2012–2015, the age-standardized 5-year relative survival rate for all cancers increased substantially in China, from 30.9% to 40.5%.[34] The 5-year relative survival rate for most cancers is higher in the US than that in China, except for esophageal and stomach cancers.[33] The above studies show that China must invest more in health services, including individualized cancer treatment and prognostic care.

In the data analysis of this study, we extracted the most recent open-source data or published studies from comprehensive databases and described the cancer profiles in China and the US. Comparisons between China and the US were based on information from the same data sources or the same period and are highly comparable. This study also has some limitations. First, estimates regarding the cancer incidence and deaths in 2024 are affected by systematic biases in the GLOBOCAN 2022 report. Second, we used the 2022 cancer incidence rate as an approximation of the 2024 incidence rate, neglecting possible variations over that period. Finally, two different standardized populations were used for calculating age-standardized incidence and mortality rates; there are no studies reporting long-term age-specific cancer cases, deaths, and populations.

In summary, the incidence and mortality rates of stomach, liver, and esophageal cancers in China have gradually declined. However, incidence rates of colorectal cancer, female breast cancer, and male prostate cancer are on the rise. China has made some progress in the cancer burden of several digestive system cancers, but the country still faces a heavy disease burden owing to cancer. Considering the impact of increased population aging on the growing burden of disease, China could learn from primary prevention strategies followed in the US and take greater action toward healthy aging. China could also actively engage in ongoing health promotion and education and expand cancer screening coverage to increase the diagnosis rate of stage I cancers, improve the 5-year survival rate, and effectively curb growth of the cancer burden in China.

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Conflicts of interest

None.

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