

## An Update on Cancer Healthcare Disparities in China

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### 1. Abstract

Despite advances in cancer prevention and control strategies in the past few decades, disparities in cancer care are a real problem in most countries and communities globally. China represents today one of the leading economies in the world; however, it is also facing inevitable healthcare disparities. In this study, we will discuss the current state of affairs regarding the availability of cancer care in China from the three aspects of cancer burden, the economy, and a cancer care model. Meanwhile, Traditional Chinese Medicine is deeply rooted in Chinese culture, where it has been used for thousands of years and plays an important role in Chinese healthcare. The prevalence of the double burden of cancer stigma and mental illness stigma in China and its severe effects? are influenced by various factors.

### 2. Introduction

China ranks first globally in both cancer morbidity and mortality, accounting for 23.7% and 30.0%, respectively [1], and the overall trend is still rising. The leading type of cancer is lung cancer, followed by colorectal, stomach, liver, and female breast cancer. In addition to the increasing cancer burden in China, the difference between urban and rural areas is large, the regional distribution is unbalanced, and the situation regarding cancer prevention and control is severe. Cancer profiles coexist in developed and developing countries [2]. The number of cancer survivors is still increasing because of a growing and aging population and advances in early diagnosis and treatment [3]. According to the statistical analysis of the National Cancer Center of China, the overall 5-year survival rate of cancer in China increased significantly from 30.9% (between 2003 and 2005) to 40.5% (between 2012 and 2015) [4].

Cancer remains a major public health problem and requires sustainable action in China [5].

### 3. Cancer Burden Disparities

The incidence rate of cancer in urban areas is slightly higher than in rural areas (189.7/100,000 vs. 176.2/100,000, respectively), while the mortality rate in rural areas is slightly higher than in urban areas (106.1/100,000 vs. 102.8/100,000, respectively). However, the difference between urban and rural cancer incidence and death is gradually decreasing, which may be due to the narrowing of the difference between urban and rural malignant tumor risk factors, such as smoking, chronic infection, eating habits, and air pollution. However, due to the lack of medical resources and the weak awareness of cancer prevention in rural areas, the mortality rate of malignant tumors in rural areas is still high. South China had the highest age-standardized incidence rate (204.3/100,000), followed by Northeast China and East China. Southwest China (167.5/100,000) had the lowest rate [2]. Globally, cancer was second only to cardiovascular diseases in number of deaths, years of life lost, and disability-adjusted life years (DALYs) in 2019 [6]. In China, Sichuan Province had the highest burden of malignant tumor disease (the standardized DALY rate was 4503.3/100,000), followed by Anhui (4484.9/100,000), and Qinghai (4254.3/100,000). The lowest disease burden was found in Macao (2321.1/100,000), Beijing (2,549.0/100,000), and Hong Kong (2696.1/100,000). Lung cancer is one of the most malignant tumors with a high burden of disease. The provinces with high standardized DALY rates are Northeast China, Sichuan, Chongqing, Shandong, and Anhui. However, the burden of lung cancer disease is relatively low in the provinces of Northwest China. The disease burden of gastric

cancer was higher in the central and western regions. The burden of esophageal cancer was higher in North China, East China and Northwest China [7].

#### 4. Cancer and the Economy

The epidemiological characteristics of cancer among Chinese residents have different correlations with different Gross Domestic Product Per Capita (GDPPC) levels due to the different incidence sites of cancer. Thus, the crude cancer incidence, mortality rate, and Age-Standardized Incidence Rate (ASIR) of residents are positively correlated with the per capita GDP level of residence. The Age-Standardized Mortality Rate (ASMR) was inversely correlated with the local level of GDPPC in the place of residence. In terms of specific cancers, lung cancer is the most common cancer and the leading cause of cancer death, regardless of gender and GDPPC levels. The ASIR of lung cancer, gastric cancer, esophageal cancer, and liver cancer was inversely correlated with the GDPPC in the place of residence, while the ASIR of colon cancer and breast cancer was positively correlated with the GDPPC in the place of residence. Among the six cancers examined above, only breast cancer had a positive correlation between ASMR and the GDPPC in the place of residence, while five of them had a negative correlation between ASMR and the GDPPC in the place of residence [8].

##### 4.1. Cancer Care Model Disparities

With the ongoing increase in cancer survivorship, the current model of care is unsustainable and may not address the many unmet needs of cancer survivors, such as a wide range of physical, psychosocial, and supportive care needs [9]. The COVID-19 pandemic has driven several changes in patient-centered practices that should be sustainable. The improved model should shift from a focus on detecting cancer recurrence to improving the quality of life, functional outcomes, reducing the risk of cancer recurrence and progression, improving the management of comorbidities, and reducing costs to patients and payers [10].

At present, a care model for cancer survivors covering the whole life cycle of cancer patients (diagnosis, treatment, and rehabilitation) has been formed in foreign countries [11]. Research on the care of cancer survivors started late in China, with cancer diagnosis and treatment currently focusing on treatment rather than rehabilitation; this needs to be changed. The main problems of care for cancer survivors in China are uneven distribution of medical resources, insufficient number and ability of professionals, lack of primary care, lack of effective collaboration between hospital and community, information gaps, and service continuity [12]. Survival follow-up and patient self-management are the main methods of care for cancer survivors in China, and community follow-up is conducted in some economically developed areas. There are three models of community follow-up for malignant tumors in China: community follow-up based on tumor registry system, community comprehensive intervention, and a hospital-community cooperation model.

However, the effectiveness of patient self-management under these modes depends on their health literacy level, economic and living conditions, and other factors. Therefore, the effect of self-management in reducing the cancer burden is not significant, which may be part of the reason for the low cancer survival rate in China.

China's economic and social development, combined with the experience of developed countries and active exploration in survival follow-up, tumor registration, and cancer rehabilitation in recent years, resulted in the founding of the National Cancer Center in 2009, followed by the establishment of more than 10 provincial cancer centers. Consequently, China's cancer prevention and control system is becoming increasingly mature, indicating that there is a good chance and proper conditions for the establishment of a care system for cancer survivors [13, 14]. The "Internet Plus" mode of technical support and care can overcome the limitations of time and space and promote the accessibility of rehabilitation resources. The application of mobile Internet, big data analysis, cloud computing, virtual technology, and the Internet of Things in the support and care of traditional cancer patients is of great significance in improving patients' quality of life, reducing medical costs, and improving clinical care technology. But in terms of our current industry development, the detailed application of care modes still lacks a unified process formulation [15]. Sustainable cancer care models can be tailored to the psychological state of patients and their personal will and social conditions and can balance social equity, justice and sustainability.

##### 4.2. The Role of Traditional Chinese Medicine in Cancer

Traditional Chinese Medicine (TCM) has a long history and plays an important role in the oncology field in China; it is widely accepted by patients and is covered by medical insurance in China. Under our medical system, which attaches equal importance to both TCM and Western medicine, TCM plays an active role in the process of cancer symptom intervention and treatment [16-18]. More than 80% of tumor patients received TCM intervention [19]. TCM treatment accompanies the whole process of cancer diagnosis and treatment. In the treatment of early- and middle-stage cancer patients, TCM is mainly aimed at "dispelling evil" and eliminating tumor and preventing recurrence and metastasis. Among patients in the advanced and palliative stage, who have gone beyond the active treatment options of Western medicine, TCM is mainly about nourishing the Qi, relieving symptoms, improving the quality of life, and prolonging survival time, so as to achieve the purpose of co-survival with cancer. TCM emphasizes individuality and places a high value on the holistic view. In the era of medicine initial intention was comfort, such as religion, prayer, magic, alleviate suffering, the word "medicine" in the ancient traditional for "醫". The development of psycho-social oncology also illustrates the three attributes of medical science, humanity and sociality [20]. The implementation plan of Health China 2030 regarding cancer

prevention and treatment (2019-2022) pointed out that the unique advantages of TCM should play a leading role in “preventing and treating diseases”, play a synergistic role in the treatment of major diseases, and play a central role in the rehabilitation of diseases [21].

#### 4.3. Mental Distress in Chinese Cancer Survivors

Cancer and its treatments place a wide range of physical and psychological burdens on patients, often appearing clinically as clusters of symptoms and persisting in a long-term manner after the end of treatment [22]. Emotional distress is one of the most common side effects of cancer and its related treatments [23]. A meta-analysis reported that

Chinese adult cancer survivors have significantly higher rates of depression and anxiety than non-cancer patients: 54.90% vs 17.50% (depression) and 49.69% vs 18.37% (anxiety), respectively. Our previous study found that 13% of patients with advanced cancer had suicide intentions, even without a major depressive disorder [24]. Although the mental health of cancer survivors has received increasing attention in the field of public health management, solving these problems remains challenging.

Family members, such as spouses, children, and parents, are the primary long-term care providers for cancer survivors during their lives [25]. However, due to the introverted character of Chinese culture, Chinese cancer survivors prefer not to trouble others and find it difficult to express their ongoing burden of symptoms and pain, even to those close to them. They also refuse active treatment because of their self-esteem, fear of discrimination, or the stigma attached to their cancer [26]. Regarding psychotherapy for cancer survivors, relatively few programs are currently covered by health insurance, and this financial burden is one of the main barriers they seek psychiatric care. At the same time, cancer survivors have inadequate access to mental health information and limited resources about available mental health services [27].

In China, about 45% of cancer deaths among adults aged 20 and above can be attributed to 23 modifiable risk factors [28]. Primary cancer prevention, which focuses on controlling behavioral, dietary, metabolic, and environmental factors as well as infectious sources, has great potential to reduce the cancer burden in China. The implementation plan of Health China 2030 regarding cancer prevention and treatment (2019-2022) emphasizes that cancer prevention and control of cancer-related risk factors will be a priority. The guidelines aim for an overall 5-year survival rate of cancer of at least 43.3% and 46.6 % by 2022 and 2030, respectively. China’s highest-level National Health Congress has again stressed the principle of “prevention first”. Compared with cancer screening and treatment, primary prevention should be the most cost-effective way to curb the growing burden of cancer, with a goal of increasing health literacy from 14.18% to 22 percent by 2022 and to 30% by 2030. Notably, poor people have less cancer diagnosis and prevention, so they have a higher risk of dying from cancer. Thus, [clincisofoncology.com](http://clincisofoncology.com)

reducing the cancer burden in China requires the joint efforts of the government, public health organizations, and individuals to reduce modifiable risk factors, promote universal screening, and improve cancer treatment outcomes [29].

#### 5. Conclusion

With the increasing number of cancer patients, how to care for cancer survivors and establish a sound cancer survivorship care model has become a hot topic in China and even the world. In addition, the development of a cancer survivorship care model in China is still in its infancy. Chinese cancer care providers face the dual challenges of insufficient quantity and uneven quality as well as disparities of cancer healthcare that are influenced by many factors such as region, economy, and family environment. At the same time, the mental health burden of cancer patients in China remains unaddressed.

#### References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2021; 71(3): 209-49.
2. Zheng R, Zhang S, Zeng H, Wang S, Sun K, Chen R, et al. Cancer incidence and mortality in China, 2016. *Journal of the National Cancer Center*. 2022; 2(1): 1-9.
3. Miller KD, Nogueira L, Devasia T, Mariotto AB, Yabroff KR, Jemal A, et al. Cancer treatment and survivorship statistics, 2022. *CA: A Cancer Journal for Clinicians*. 2022; 72(5): 409-36.
4. Zeng H, Chen W, Zheng R, Zhang S, Ji JS, Zou X, et al. Changing cancer survival in China during 2003–15: a pooled analysis of 17 population-based cancer registries. *The Lancet Global Health*. 2018; 6(5): e555-67.
5. Cao M, Li H, Sun D, Chen W. Cancer burden of major cancers in China: a need for sustainable actions. *Cancer Communications*. 2020; 40(5): 205-210.
6. Kocarnik JM, Compton K, Dean FE, Fu W, Gaw BL, Harvey JD, et al. Cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life years for 29 cancer groups from 2010 to 2019: a systematic analysis for the Global Burden of Disease Study 2019. *JAMA oncology*. 2022; 8(3): 420-444.
7. Zeng XY, Qi JL, Ying P, et al. Disease Burden in China and provincial-level administrative Regions, 1990-2016. *Chinese Circulation Journal*. 2018; 33(12): 1147-58.
8. Yang Z, Zheng R, Zhang S, Zeng H, Xia C, Li H, et al. Comparison of cancer incidence and mortality in three GDP per capita levels in China, 2013. *Chinese Journal of Cancer Research*. 2017; 29(5): 385.
9. Emery J, Butow P, Lai-Kwon J, Nekhlyudov L, Rynderman M, Jefford M. Management of common clinical problems experienced by survivors of cancer. *The Lancet*. 2022; 399(10334): 1537-50.
10. Jefford M, Howell D, Li Q, Lisy K, Maher J, Alfano CM, et al. Improved models of care for cancer survivors. *The Lancet*. 2022; 399(10334): 1551-60.

11. Miller KD, Pandey M, Jain R, Mehta R. Cancer survivorship and models of survivorship care. *American Journal of Clinical Oncology*. 2015; 38(6): 627-33.
12. Chen R, Yang JT, Yin SQ, et al. International Cancer Survivorship Care Models: Recent Advances and Implications to China. *Chinese general practice*. 2022; 25(04): 401.
13. Yin SQ, Zhang H, Zheng L. International Experience of Cancer Survivor Care and Establishment of Innovative Cancer Care Models in China. *China Cancer*. 2021.
14. He J. Strengthen cancer surveillance to help cancer prevention and control. *Chinese Journal of Oncology*. 2018; 40(1): 1-4.
15. Liu L, Nie WB, Zhang D, et al. Research progress of supportive care model for cancer patients from the perspective of "Internet Plus". *Chinese General Practice Nursing*. 2022; 22: 3074-8.
16. Wang S, Fu J-L, Hao H-F, Jiao Y-N, Li P-P, Han S-Y. Metabolic reprogramming by traditional Chinese medicine and its role in effective cancer therapy. *Pharmacological Research*. 2021; 170: 105728.
17. Xiang Y, Guo Z, Zhu P, Chen J, Huang Y. Traditional Chinese medicine as a cancer treatment: modern perspectives of ancient but advanced science. *Cancer medicine*. 2019; 8(5): 1958-75.
18. Hsiao WW, Liu L. The role of traditional Chinese herbal medicines in cancer therapy—from TCM theory to mechanistic insights. *Planta medica*. 2010; 76(11): 1118-31.
19. Sun L, Yang Y, Vertosick E, Jo S, Sun G, Mao JJ. Do perceived needs affect willingness to use Traditional Chinese Medicine for survivorship care among chinese cancer survivors? A cross-sectional survey. *Journal of Global Oncology*. 2017; 3(6): 692-700.
20. Zhou DH. Discuss the Treatment Characteristics and Efficacy Advantages of Traditional Chinese Medicine Oncology. *Journal of Oncology in Chinese Medicine*. 2022.
21. Zhao WT. The CPC Central Committee and The State Council issued the Outline of the Healthy China 2030 Plan. To build a healthy China, we must give full play to the unique advantages of traditional Chinese medicine. *Journal of Traditional Chinese Medicine Management*. 2016; 24(21): F0004-F0004.
22. Wu H-S, Harden JK. Symptom burden and quality of life in survivorship: a review of the literature. *Cancer nursing*. 2015; 38(1): E29-E54.
23. Stanton AL, Rowland JH, Ganz PA. Life after diagnosis and treatment of cancer in adulthood: contributions from psychosocial oncology research. *American Psychologist*. 2015; 70(2): 159.
24. Tang L, He Y, Pang Y, et al. Suicidal ideation in advanced cancer patients without major depressive disorder. *Psycho-Oncology*. 2022; 31(11): 1941-1950.
25. Kim Y, Spillers RL. Quality of life of family caregivers at 2 years after a relative's cancer diagnosis. *Psycho-oncology*. 2010; 19(4): 431-440.
26. Chu Q, Cheong IH, Le PD, Yang LH, Wang H, Hall BJ. The unaddressed mental health burden among cancer patients in China: a call to action. *The lancet Psychiatry*. 2021; 8(8): 646-7.
27. Shi W, Shen Z, Wang S, Hall BJ. Barriers to professional mental health help-seeking among Chinese adults: a systematic review. *Frontiers in psychiatry*. 2020; 11: 442.
28. Cao GW. The research and practice of malignant tumor prevention requires innovation of technology, management and concept. *Chinese Journal of Epidemiology*. 2017; 38(1): 3-12.
29. Sun D, Li H, Cao M, et al. Cancer burden in China: trends, risk factors and prevention. *Cancer Biology & Medicine*. 2020; 17(4): 879.