Iran J Ped Hematol Oncol. 2026, Vol. 16, No. 3, 1001-1005

Letter to Editor

Top Ten Cancers in Iran: Incidence, Mortality, and Shared Risk Factors

Adel Eftekhari[1] PhD, Farzan Madadizadeh[2,3*] PhD

[1] Assisstant professor, Health in Disasters and Emergencies, Department of Nursing, Meybod School of Medical Sciences, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.
[2] Associate Professor, Medical Informatics Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran
3.Center for healthcare Data modeling, Departments of biostatistics and Epidemiology, School of public health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

*Corresponding Author: Dr. Associate Professor, Medical Informatics Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran. ,Center for healthcare Data modeling, Departments of biostatistics and Epidemiology, School of public health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Email: madadizadehfarzan@gmail.com. ORCID ID: 0000-0002-5757-182X.

Received: August 8, 2025;
Accepted: May 10, 2026

Dear editor

Cancer is a significant chronic non-communicable disease and the second most significant cause of death globally. Its significant social and economic impacts have put cancer research and control on the agenda of health systems universally (1). In Iran, there is an increasing incidence of cancer caused by a combination of an aging population and the lack of adequate preparation and/or implementation of measures and strategies in cancer prevention and control; an increase in incidence estimates suggests an increase at nearly two times the global rate of cancer by 2040 (2). This increasing burden of cancer reinforces the importance of early detection, as early detection can streamline treatment and improve survival rates, highlighting the need for national statistics and trends for cancer cases (2).

Global data from 2020 indicated that lung, prostate, and colorectal cancers were most diagnosed among men, while women were most diagnosed with breast, lung, and colorectal cancers (3). The national picture in Iran is slightly different. Recent data from 2022, presented in Table 1, shows that breast cancer (30.5 per 100,000) is the most common among women, with stomach (14.3) and colorectal cancer (11.9) next most common. For men in Iran, stomach (24.4), prostate (21.8) and lung (16.7) cancers are the most common, with mortality also reflective of federal statistics, with stomach cancer being among leading causes of death for men (19.7) and women, along with breast and Stomach cancer (11.0) (2,3).

[DOI: 10.18502/ijpho.v16i3.21757]

The classification of risk factors presented in Table 2 offers an important perspective for understanding Iran's cancer prevention strategy (4-12). A prominent theme is the significant role of modifiable lifestyle behaviors. Smoking represents a particularly potent carcinogenic experience, associated not only with lung cancer, but also with cancers of the bladder, stomach, liver, and colorectum. Similarly overweight or obese and physical inactivity were again associated with a number of major cancers including breast, colorectal, liver, and ovary. This pattern suggests an underlying group of shared, modifiable, preventable risk that transcends multiple cancer types. The table identifies particular and modifiable medical and environmental targets, such as Helicobacter pylori infection for stomach cancer, and the chronic Hepatitis B and C infection for liver cancer. With respect to many cancers, the non-modifiable factors of age, genetics, and family history provide a baseline risk; the identification of these broad-spread and specific modifiable risks presents a significant opportunity. Specifically, it indicates that a substantial share of Iran's future burden of cancer is avoidable, if deliberate and coordinated public health approaches for tobacco cessation, healthy diets and physical activity, obesity management, immunization and control of infection are implemented (3,5,7,8).

In summary, the cancer profile in Iran reveals a considerable burden from breast, stomach, and prostate cancers. Systematic categorization of risk factors highlights that, alongside non modifiable elements such as age and genetics, a substantial share of the cancer burden stems from preventable causes. Smoking, obesity, physical inactivity, and poor dietary habits emerge as common drivers across multiple major cancers, including lung, colorectal, bladder, liver, and breast. Infectious agents such as Helicobacter pylori and hepatitis B/C, together with environmental and occupational exposures, also present important opportunities for intervention.

This clear distinction between immutable and modifiable risks underscores a public health priority: strengthening primary prevention through tobacco control, healthy lifestyle programs, vaccination, and environmental safeguards, while linking these efforts to secondary prevention via organized screening. Integrating such comprehensive prevention strategies should be placed at the forefront of national health priorities to curb the projected rise in cancer morbidity and mortality in Iran.

[DOI: 10.18502/ijpho.v16i3.21757]

Table I: Age-Standardized Rate (World) per 100 000, Incidence and Mortality, Males and Females, in 2022, Iran (GLOBOCAN 2022)(3)

Ranking	Incidence rate		Mortality rate	
	Male	Female	Male	Female
1	Stomach(24.4)	Breast (30.5)	Stomach(19.7)	**Breast & Stomach (11)**
2	Prostate (21.8)	Stomach (14.3)	lung (14.9)	**Lung (7)**
3	lung (16.7)	Colorectum (11.9)	Prostate (10.3)	**Colorectum (6.5)**
4	Colorectum (15.9)	Liver (5.9)	Colorectum (8.2)	**Brain CNS (5.7)**
5	Bladder (12.1)	Leukemia (5.8)	Leukemia (7.4)	**Liver (5.6)**
6	Leukemia (8.9)	Brain CNS (5.6)	Liver (7)	**Leukemia (5)**
7	Brain CNS, Liver (7)	Ovary (4.2)	Brain CNS (6.9)	**Esophagus (3.3)**
8	NHL (5.1)	Esophagus (3.5)	Pancreas (4.3)	**Pancreas (2.9)**
9	Larynx (5)	Pancreas (2.9)	Esophagus (4.2)	**Ovary (2.7)**
10	Pancreas (4.9)	NHL(2.8)	Bladder(3.4)	**NHL (1.5**

Table II: Summary of Key Risk Factors for Major Cancers in Iran

Cancer Type	Non-Modifiable Risk Factors	Modifiable & Lifestyle Risk Factors	Medical & Environmental Risk Factors
Breast (4, 5)	Female sex, Advancing age, Family history, Genetic mutations (BRCA1/2), Dense breast tissue, Early menarche/Late menopause, Race/Ethnicity.	Being overweight/obese (post-menopause), Alcohol consumption, Smoking, Physical inactivity, Menopause hormone therapy, Current oral contraceptive use, Intake of Processed Food.	Previous radiation therapy to the chest.
Prostate (6)	Advancing age, Race/ethnicity, Family history, Genetics.	Dietary factors (e.g., high in red meat, trans fats), Smoking, Being overweight or obese, Physical inactivity.	Exposure to chemicals or ionizing radiation.
Stomach (7)	Advancing age, Male sex, Genetics, Family history, Geography.	Dietary habits (e.g., smoked/salted foods), Smoking, Alcohol consumption, Being overweight or obese.	Helicobacter pylori infection, Previous stomach surgery.
Colorectum (6)	Advancing age, Family history, Genetics, Inflammatory bowel disease.	Red meat consumption, Being overweight or obese, Physical inactivity, Smoking, Alcohol consumption, Type 2 diabetes.	—
Lung (8)	—	Smoking (Primary cause), Secondhand smoke, Dietary habits.	Air pollution, Occupational risks (asbestos, diesel exhaust, welding fumes), Chest radiotherapy.
Leukemia (9)	Family history, Genetic Syndromes.	—	Ionizing Radiation, Chemotherapy, Viral Infections, Hematologic Malignancies.
Bladder (10)	Family history, Genetic mutations.	Smoking, Occupational exposures (paints, dyes, metals).	Arsenic in drinking water, Past radiation therapy to the pelvis, Chronic urinary catheter use.
Liver (10)	Advancing age, Male sex, Genetic conditions (e.g., hemochromatosis).	Alcohol consumption, Smoking, Being overweight or obese, Type 2 diabetes, Trans fatty acid intake.	Chronic Hepatitis B & C infection, Cirrhosis, Aflatoxin B1 exposure.
Brain/CNS (11)	Advanced age, Genetic syndromes, Family history.	—	Radiation exposure, Occupational exposures, Having a weakened immune system.
Ovary (12)	Advancing age, Family history, Genetic predisposition.	Being overweight or obese, Smoking, High dietary fat intake, Having children later/never having a full-term pregnancy, Taking hormone therapy after menopause.	—

[DOI: 10.18502/ijpho.v16i3.21757]

Availability of Data

The data underlying this article are available from the GLOBOCAN 2022 database. Additional information and materials are available from the corresponding author upon reasonable request via email.

Acknowledgements

Not applicable.

Conflict of Interest

The authors declare that they have no conflicts of interest related to this work.

Funding

Not applicable.

Ethical Considerations

This study utilized aggregate, publicly available data from the GLOBOCAN 2022 database. Ethical principles of research, including accuracy of data entry, scientific integrity, proper citation of sources, and prevention of data misrepresentation, were fully observed. The study was conducted in accordance with relevant ethical standards and research guidelines.

Authors' Contributions

Adel Eftekhari contributed to the conception of the work, data collection, analysis, and drafting of the manuscript. Farzan Madadi Zadeh contributed as the statistical consultant, data collection, providing guidance on data interpretation, statistical review, and critical revision of the manuscript. Both authors read and approved the final version of the manuscript.

References

1. Budreviciute A, Damiati S, Sabir DK, Onder K, Schuller-Goetzburg P, Plakys G, et al. Management and prevention strategies for non-communicable diseases (NCDs) and their risk factors. Front Public Health 2020; 8: 574111-57115.

2. Li L, Shan T, Zhang D, Ma F. Nowcasting and forecasting global aging and cancer burden: analysis of data from the GLOBOCAN and Global Burden of Disease Study. J Natl Cancer Cent 2024;1-9.

3. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020;1-5. GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin 2021; 71(3): 209-249.

4. Løyland B, Sandbekken IH, Grov EK, Utne I. Causes and risk factors of breast cancer, what do we know for sure? An evidence synthesis of systematic reviews and meta-analyses. Cancers 2024; 16(8): 1583-1599.

5. Łukasiewicz S, Czeczelewski M, Forma A, Baj J, Sitarz R, Stanisławek A. Breast cancer—epidemiology, risk factors, classification, prognostic markers, and current treatment strategies—an updated review. Cancers 2021;13(17): 4287-4305.

6. Lamphar H, Kocifaj M, Limón-Romero J, Paredes-Tavares J, Chakameh SD, Mego M, et al. Light pollution as a factor in breast and prostate cancer. Sci Total Environ 2022; 806: 150918-150923.

7. Mamun TI, Younus S, Rahman MH. Gastric cancer—epidemiology, modifiable and non-modifiable risk factors, challenges and opportunities: an updated review. Cancer Treat Res Commun 2024:100845-100849.

8. Deng Y, Peng L, Li N, Zhai Z, Xiang D, Ye X, et al. Tracheal, bronchus, and lung cancer burden and related risk factors in the United States and China. Am J Transl Res 2021;13(4):1928-1945.

9. Karunarathna I, De Alvis K, Gunasena P, Jayawardana A. Leukemia: classification, risk factors, and diagnostic challenges. ResearchGate 2024;1-9.

10. Institute NC. Cancers causes, risk factors, and prevention. Cancer Gov 2024;1-9.

11. Ostrom QT, Francis SS, Barnholtz-Sloan JS. Epidemiology of brain and other CNS tumors. Curr Neurol Neurosci Rep 2021; 21: 1-12.

12. Ostrom QT, Adel Fahmideh M, Cote DJ, Muskens IS, Schraw JM, Scheurer ME, et al.

[DOI: 10.18502/ijpho.v16i3.21757]

Risk factors for childhood and adult primary brain tumors. Neuro Oncol 2019; 21(11): 1357-1375.

[DOI: 10.18502/ijpho.v16i3.21757]