

Epidemiological analysis of the incidence of early-onset bladder cancer stratified by country and continent

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Introduction

Bladder cancer is a relatively common urogenital neoplasm, but its incidence in individuals under 50 years old is rare. Genetic factors, environmental exposure to carcinogens, and early tobacco use are some of the main etiological hypotheses for the development of the disease in this age group. This study aims to assess the incidence of early-onset bladder cancer worldwide, stratified by geographic region, Human Development Index (HDI), and income level.

Scientific Methodology

Data on the incidence of bladder cancer in individuals under 50 years old in 2022 were obtained from the Cancer Today platform (GLOBOCAN/IARC). The age-standardized rate (ASR) was used for comparisons between countries and continents. Analyses were stratified by continent, geographic region, HDI, and economic classification according to the World Bank.

Results

Globally, 29,464 cases of early-onset bladder cancer were identified, with an ASR of 0.45 per 100,000 inhabitants. The highest incidence was observed in Europe (ASR = 0.84), North America (ASR = 0.73), and Africa (ASR = 0.59), while the lowest was in Latin America and the Caribbean (ASR = 0.30). The geographic regions with the highest incidence rates were Northern Europe (ASR = 1.0), Southern Europe (ASR = 0.99), and Northern Africa (ASR = 0.96). Among countries, the highest ASR values were recorded in Malawi (2.9), Mali (2.2), Chad (2.1), and Burkina Faso (1.9). In Brazil, the ASR was 0.41, slightly below the global average and slightly above the South American average (0.34). When stratified by HDI, the highest ASR was observed in very high HDI countries (0.70), while medium HDI countries had a rate of 0.22. In terms of economic classification, high-income countries had an ASR of 0.72, whereas lower-middle-income countries recorded the lowest rate (ASR = 0.32).

Top 3 countries with the highest incidence (ASR) of early-onset (0-49) bladder cancer (2022)

Population	Number of cases	ASR
1st) Malawi	357	2.90
2nd) Mali	281	2.20
3rd) Chad	204	2.10
World	29 624	0.45
81th) Brazil	826	0.41

Incidence (ASR) of early-onset (0-49) bladder cancer by continent (2022)

Population	Number of cases	ASR
1st) Europe	5 501	0.84
2nd) Northern America	2 207	0.73
3rd) Africa	5 402	0.59
World	29 464	0.45
4th) Oceania	136	0.38
5th) Asia	14 454	0.35
6th) Latin America	1 764	0.30

Top 3 UN regions with the highest incidence (ASR) of early-onset (0-49) bladder cancer (2022)

Population	Number of cases	ASR
1st) Northern Europe	895	1.00
2nd) Southern Europe	1 391	0.99
3rd) Northern Africa	1 846	0.96
World	29 464	0.45

Incidence (ASR) of early-onset (0-49) bladder cancer by HDI (2022)

Population	Number of cases	ASR
1st) Very high HDI countries	10 034	0.70
2nd) Low HDI countries	3 953	0.51
World	29 464	0.45
3rd) High HDI countries	11 241	0.45
4th) Medium HDI countries	4 230	0.22

Incidence (ASR) of early-onset (0-49) bladder cancer by World Bank Classification (2022)

Population	Number of cases	ASR
1st) High income countries	7 369	0.72
2nd) Low income countries	2 693	0.61
World	29 464	0.45
3rd) Upper middle income countries	10 442	0.45
4th) Lower middle income countries	8 878	0.32

Conclusion

Early-onset bladder cancer shows marked geographic disparities, being more prevalent in Europe, North America, and Northern Africa. The high incidence in high-HDI and high-income countries may reflect both the influence of genetic and environmental factors and greater access to early diagnosis. Further research is required to explore genetic predispositions, occupational exposure, and early tobacco use, which may contribute to disease etiology in this age group.

References

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