



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

Available online at: <http://www.iajps.com>

Research Article

**GLOBAL CANCER INCIDENCE AND MORTALITY RATES
AND TRENDS--AN UPDATE**¹Dr Sana Saleem Khan Niazi,²Dr Hiba Mazhar,³Dr Asfand Yar Waheed Randhawa.²MBBS, Allama Iqbal Medical College, Lahore.^{1,3}MBBS, Central Park Medical College, Lahore.**Article Received:** May 2020**Accepted:** June 2020**Published:** July 2020**Abstract:**

Cancer is considered a leading cause of death. The global cancer is increasing the existing burden equally in both underdeveloped and developed countries. The cancer burden is significantly creating problems for all countries but incidence and mortality rates vary due to their adapted lifestyle, eating habits, and different culture. In many countries including Western countries hold the cancer climbing slope by decreasing the prevalence of known factors, detected at an early stage, and ameliorate the treatment methods. We collected the data by selecting the countries with high income countries (HIC) having a high incidence rate for all sites of cancer (lung, colorectal, breast, and prostate cancer) as compared to some low and middle-income countries (LMICs). Although cancers commonly found in high income countries like lung, breast, and colorectum are emerging with high incidence in LMICs due to the same factors of western countries such as smoking, excess body weight, physical inactivity, and an altered pattern of reproduction. Strick preventive control measures are become mandatory to reduce and arrest the growing burden globally.

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Please cite this article in press Sana Saleem Khan Niazi et al, Global Cancer Incidence And Mortality Rates And Trends--An Update, Indo Am. J. P. Sci, 2020; 07(07).

INTRODUCTION:

Cancer is considered a leading cause of death. The global cancer is increasing the existing burden equally in both underdeveloped and developed countries. The death rate and numbers of cases have increased day by day with a growing population, age, living behavior including smoking, poor diet, and a sedentary lifestyle, add up the greater risk to develop cancer.⁶ Particularly, in low and middle-income countries, a part population based on the transitional economy including greater labor and transport mechanization, the role of women in society along the increased accessed to the international market.⁷ Although the most prevalent factor in the massive economy is also rising middle-income countries. In 2012, approximately 14.1 million new cancer cases and 8.2 million cancer deaths reported around the world. In 50 selection regions the evaluated rate of incidence for the male is 400 per 100,000 and for female 300 per 100,000 while combine rate for both is less than 100 per 100,000. The over mortality rate documented range for males is over 200 deaths per 100,000 and over 100 deaths per 100,000 in females while for both sex less than 50 deaths per 100,000. The highest mortality rates are commonly in North America, Oceania, and Europe for both genders were reported. The variation in cancer rates hide the diversity of cancer profiles of individual countries. There is a significant alteration in commonly diagnosed cancer in every country, specifically in males. According to the International Agency for Research on Cancer 2018, the overall new cases reported in America are 11% breast cancer, 10.7% lung cancer, 10% prostate cancer, colorectum 7.3%, and 3.9% bladder cancer. The risk to develop cancer before the age of 75 years is 10.9% for males, 8.5% for females, and 9.6% for both genders. Among the 87 countries prostate cancer is generally diagnosed in males including the North and South America; Northern, Western, and Southern Europe; and Oceania. Eastern European countries people are mostly diagnosed with lung cancer especially males.⁸ The heterogeneity was found in male cancer patients belongs to Africa and Asia. Breast and cervical cancers are most common in Latin, America, and the Caribbean. There are many leading types of cancer found in different countries including lung, lip and oral cavity, liver, stomach, esophagus, Kaposi sarcoma, and leukemia.¹¹ Moreover, this review paper elucidates several generally found cancer types with the mortality and incidence patterns in different regions.

Lung and bronchus cancer

- A study demonstrated 1.8 million new lung cancer cases were documented in 2012 with the incidence rates of 90 cases was per 100,000 males and 38 cases per 100,000 females.

Among the counties, the United States and Eastern Europe have a high incidence for male patients while for females North America and Northern Europe are at the top position. The quality of life of such patients is very low especially in developed countries and its mortality is parallel to incidence rates.⁸

- A few studies reported the comparison of mortality rates with other types of cancer. Lung cancer mortality trend was 70% higher primary in countries with higher uptake of tobacco and most of them were male patients.¹ Now in a recent study, a reduction in mortality rate was observed especially in high-income countries because of the significant decline in the uptake of smoking in males. The lung cancer was rarely found in females in some countries because they began smoking later.² Although lung cancer in women also consistently risen in countries where women become smokers later. Many country are successful to take hold the tobacco use in young generation and their incidence rates of lung cancer were decline.³

Colon and rectum cancer

- Approximately 1.4 million new colorectal cancer cases and 693,900 deaths were reported in 2012.⁸ The incidence of colorectal cancer in specified countries among the males and females were high in japan e.g. 62.4 cases/100,000 males and 37.2 cases/100,000 females. The countries where its incidence rates were measured less include in Africa, some Asian countries, Latin America, and the Caribbean while Europe, Oceania and North America counts in the list of high incidence.⁵
- In case of colorectal cancer, significant variation was found in the occurrence rate globally. However, the increase in the number of patients with this cancer was observed in countries where numbers of patients were less reported such as Latin America and Asia due to rapid modifications in diet, physical activities and enhanced the percentage of smoker over a few decades.⁴

Prostate cancer

- The second most common cancer is prostate cancer in males across the world. Its incidence rate is 30 times more than others while the death rate fluctuates between 18-20 folds.⁹ Another study significantly elucidates the data for the highest incidence rate in various countries like in U.S blacks 168.3 cases/100,000, France 132.1/100,000, and in Australia 111.1/100,000 on the other side death and disease occurrence rates both exhibit the lowest number in Asia.⁸ As a genetic variation of the individual to individual vary the susceptibility in the population of Africa.¹⁰

- A randomized trial in Europe concluded that a substantial reduction in death rate linked with prostate-specific-antigen test and U.S trial with other study designs did not support it.¹² The exact cause of prostate cancer is not known but few reasons are associated with risk factors such as for overweight, physically inactive, and over intake of animal fats.¹³
- The researchers are working to detect prostate cancer at an early stage and prevention with medicine. Treatment also imposed adverse effects, over diagnosis intensify 23% to 42% risk of screen-detected cancer, therefore routine checkup using PSA testing is often avoided for men.¹⁴
- Although, to make the diagnosis more effective, differentiate the more severe form of the disease, and identification of greater risk for men to develop prostate cancer, studies are conducting for better management of prostate cancer patients.¹⁵

Female breast cancer

- Globally breast cancer is a leading cause of death in women and 1.7 million cases and 521,900 deaths were reported in 2012.⁸ The variation for breast cancer incidence rates is more than 10-folds between the selected countries where the highest rates in Western Europe, the United States, and lowest rates in Africa and Asia. The mortality rates are highest in Black women of the United State while lowest in Korean women.¹⁵
- A study of 130 patients concluded the risk factors associated with breast cancer are gaining weight after 18 years of age, use of menopausal hormone therapy (MHT), drinking alcohol, hormonal changes including reproductive and menstrual history, use of contraceptive pills, and nulliparity. Breastfeeding overcome the risk to develop breast cancer.¹⁶

Stomach cancer

- Approximately 951,600 stomach cancer cases and 723,100 deaths were reported in 2012. The incidence rate found highest for both the gender in Eastern and Western Asia, Latin America. In Japan and Korea, the highest percentage (60%) of females were found with stomach cancer.⁸
- In the world, 70% of cases were reported with non-cardia gastric cancer due to the chronic infection with *Helicobacter pylori*.¹⁷ A study demonstrated that increased in numbers of patients of cardia gastric cancer is rising in the United States and many European countries because of obesity.¹⁸

DISCUSSION

According to data collected by WHO and from the high-quality meeting registries, only a lesser

number of countries were found the registered number of present cases. Possibly, low and middle-income countries (LMICs) have limited registered data for example North American population shows the high numbers of registrations that are 95% in comparison with Latin America 8% 6% in Asia, and 2% in Africa.¹⁹ The establishment of IARC's Global Initiative for Cancer Registry Development has been done to facilitate and strengthen the registration of cancer in LMICs. Therefore, collected data reported by the few countries is the indication of accuracy not elaborate on the exact occurrence rate of disorder and death.²⁰ However, the difference was found in screening practices between the different countries. Eventually, because of limited practices and present collected data did not provide the complete pattern of disease occurrence in the world.

CONCLUSION:

The cancer burden is significantly creating problems for all countries but incidence and mortality rates vary due to their adapted lifestyle, eating habits, and different cultures. Many countries including Western countries hold the cancer climbing slop by decreasing the prevalence of known factors, detected at an early stage, and ameliorate the treatment methods. A study reported the history comparison of commonly found cancers in high-income countries like lung, breast, and colorectum are emerging with high incidence in LMICs due to the same factors of western countries such as smoking, excess body weight, physical inactivity, and an altered pattern of reproduction. A huge part of the world can be prevented by taking measures of tobacco control, vaccination, initially detection, and adopted a healthy lifestyle.

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