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**Neeraj Godara**  
Department of chemistry DAV  
College Abohar Punjab, India

## A review study of Malwa region of Punjab: As cancer belt

**Neeraj Godara**

### Abstract

The Malwa region, commonly known as the cotton belt of Punjab comprising Bathinda, Mansa, Muktsar, Patiala, Sangrur among other districts is witnessing the steep rates in cancer cases. It has the highest average of 136 cancer patients per 1 lakh people which is exceeding the national average of 80 per lakh. This study aims to provide a review of published data on the spurt in increasing cancer cases in the malwa region of Punjab. The highest number of cancer cases among the four districts are in Muktsar, followed in order by the Mansa, Faridkot, and Bathinda districts. The results of the present study revealed that the unusually high incidence of cancer cases in Malwa region were due to the over use of pesticides. Researchers at School of Public Health in Punjab conducted a study to ascertain the correlation between pesticide use and cancer in the Punjab farming community. It revealed a statistically significant increase in cancer rates in high-pesticide areas. The only possible explanation was that the farmers were overusing pesticides and not handling the toxic chemicals safely. Labeled as 'cancer belt' of Punjab, the Malwa region is witnessing the steep rates in cancer cases. As revealed by the Punjab government, it has the highest average of 136 cancer patients per 1 lakh people which is more than the national average of 80 per lakh. The number of cancer patients has steeply multiplied during the past couple of years in the Malwa belt and the common people has attributed it to the excessive use of pesticides that has contaminated the underground water that they consume. It is upsetting that nearly 24,000 people in the state are confirmed cancer cases and there are three time more 84,453 people are suspected to be suffering from the deadly disease. Based on the NCRP data, it is estimated that the cancer cases which will be raised to 1,044,650 by the year 2020 which has made it an important public health issue and to tackle it would need immediate and major inputs from various agencies.

**Keywords:** cancer, pesticides, Malwa region

### 1. Introduction

At 90 cancer patients for every 1lakh population in Punjab, it's more than the national average of 80 per lakh. The Malwa region of the state – known as the cancer belt – has the highest average of 136 cancer patients per 1 lakh people, reveals a Punjab government study. Data over the last five years has shown that, on an average, 18 people die of cancer each day. There are 23,874 cancer patients in the state and 33,318 lives have been lost in cancer-related deaths during last five years. What's worse is that nearly 24,000 people in the state are confirmed cancer cases and there are three times more 84,453 people who are suspected to be suffering from the deadly disease. The Malwa region of Punjab has recorded a high of 107.4 cancer-afflicted for every 1 lakh. And, Muktsar district in Malwa has fared the worst with 136.3 patients for every lakh.

These figures were revealed after the state health department, for the first time, undertook a comprehensive door-to-door campaign to know the state of affairs in Punjab. The Malwa region, comprising Bathinda, Mansa, Muktsar, Patiala, Sangrur among other districts, has recorded cancer incidence of 107.4 per lakh as against the national figure of 80 per lakh. Majha, comprising Amritsar, Gurdaspur and Taran Taran, has clocked the lowest incidence of 64.7 cases of cancer per lakh population. The rich Doaba region, including, Jalandhar, Hoshiarpur, Phagwara, Kapurthala, has confirmed 88.1 cancer patients per lakh of population.

**Correspondence**  
**Neeraj Godara**  
Department of chemistry DAV  
College Abohar Punjab, India

## 2. Aim and Objectives

This study aims to provide a review of published data on the spurt in increasing cancer cases in the Malwa region of Punjab. The cotton belt of Punjab has now become the cancer belt. Reviewing the sources of information, it is found that the use of relentless pesticides without education and adequate awareness has a significant correlation with the steep rise in the number of cancer cases in the farming zone. The database search terms included keywords such as cancer cases, Malwa region, Punjab, Green revolution, pesticides, cancer registries, agricultural land, cancer belt, statistics, incidence and predictions. A variety of combinations of these words were entered.

## 3. Methodology

A comprehensive review was undertaken by searching the Google, Pubmed, Research Gate on line, for research articles and reports published between. The database search terms included keywords such as cancer cases, Malwa region, Punjab, Green revolution, pesticides, cancer registries, agricultural land, cancer belt, statistics, incidence and predictions. A variety of combinations of these words were entered.

## 4. Results

### International Journal of Contemporary Medical Research

Cancer is so prevalent in the Malwa region that the region has been called India's Cancer Capital. The data shows a continuous increase in the number of cancer cases in the last 12 years. The highest number of cancer cases among the four districts are in Muktsar, followed in order by the Mansa, Faridkot, and Bathinda districts. E Health Point units, started in rural India, intending to provide families in affected villages with, advanced tele- medical services.

### Scholars Journal of Applied Medical Sciences

A total of 52 cases of histologically diagnosed skin malignancies were reported during the study period. Basal cell carcinoma (BCC) was found to be the most common skin cancer in Malwa belt of Punjab, followed by squamous cell cancer of skin (SCC). Malignant melanoma was third most common, followed by sporadic cases of Mycosis fungoides (MF), Dermato fibrosarcoma protuberans (DFSP) and cutaneous B-cell lymphoma.

### Human and Ecological Risk Assessment: An International Journal

Studies conducted in the Malwa region have also highlighted a sharp increase in many other pesticide-related diseases, such as mental retardation and reproductive disorders. The most affected individuals are the agricultural workers who are directly exposed to pesticides. The Malwa region of Punjab, India, is less than 15% of the total area of Punjab (only 0.5% of the total geographical area of India), but it consumes nearly 75% of the total pesticides used in Punjab.

### Development of an Atlas of Cancer in Punjab State

Sites of cancer that show higher or comparably high incidence rates with the highest seen in other PBCRs in India are: in males: penile cancer (in Faridkot and Bathinda), prostate (Jalandhar), urinary bladder (Kapurthala, Jalandhar) and brain (Mohali and Mansa); in females: breast (Bathinda, Mohali), vagina (Bathinda, Ludhiana), ovary (Mohali) and brain (Moga and Mohali).

## Asian Pacific Journal of Cancer Prevention

The total cancer cases are likely to go up from 979,786 cases in the year 2010 to 1,148,757 cases in the year 2020. The tobacco-related cancers for males are estimated to go up from 190,244 in the year 2010 to 225,241 in the year 2020. Similarly, the female cases will go up from 75,289 in year 2010 to 93,563 in the year 2020. For the year 2010, the number of cancer cases related to digestive system, for both males and females, are estimated to be 107,030 and 86,606 respectively. For, head and neck cancers, the estimates are 122,643 and 53,148 cases, respectively. And for the lymphoid and hematopoietic system (LHS), for the year 2010, are 62,648 for males and 41,591 for females. Gynecological-related cancers are estimated to go up from 153,850 in 2010 to 182,602 in 2020. Among males and females, cancer of breast alone is expected to cross the figure of 100,000 by the year 2020.

## 5. Discussion

The studies conducted in India's Bread Basket of Punjab reveals the increasing number of cancer cases in the area. Studies conducted in this region have highlighted a sharp increase in the cancer cases and many other pesticide related diseases, such as mental retardation and reproductive disorders. The Malwa region, comprising Bathinda, Mansa, Muktsar, Patiala, Sangrur among other districts, has recorded cancer incidence of 107.4 per lakh as against the national figure of 80 per lakh. Majha, comprising Amritsar, Gurdaspur and Taran Taran, has clocked the lowest incidence of 64.7 cases of cancer per lakh population. The rich Doaba region, including, Jalandhar, Hoshiarpur, Phagwara, Kapurthala, has confirmed 88.1 cancer patients per lakh of population. The number of cancer patients has grown manifold in the recent years in the Malwa area. The existing treatment facilities for cancer control in-terms of radiotherapy and financial allocation are woefully inadequate to take care of even the present load.

## 6. Conclusion

The Malwa region is at the top list in cancer cases with 14,682 of the 33,318 deaths. This review article is a modest step to highlight the negative impact faced by the people of Malwa Region and an urgency to take immediate measures to put an end to the spread of this dreadful disease. The consequences being faced by people in the Malwa region could serve as a warning signal to the rest. Awareness campaign is needed to educate farmers of the deleterious affects of excessive pesticide usage. Environment saving organizations should formulate a best practice for use and application of pesticides. The subject needs a state wide more intensive and detailed study.

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