

## A study on epidemiology of the cancer cases of Rajkot City, India

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### Abstract

The purpose of this research paper was to find the most common cancer type in male as well as female. The number of cancer patients for study was 315 (166 male and 149 female). The analysis showed that, the age group 51 to 60 contains maximum number of male cancer patients and age group 41 to 50 contains maximum number of female cancer patients. The result also showed that, in female breast cancer is major cancer type and in male mouth cancer is major cancer type. In hospital, the maximum number of patients comes with forth stage of the cancer.

**Keywords:** cancer, chemotherapy, radiotherapy, surgery

### 1. Introduction

In the 21<sup>st</sup> century the cancer has grown fastly. Cancer is a group of more than hundred different disease characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cells divide to produce more cells only when the body needs them. If cells divide when new ones are not needed, they form a mass of excess tissue, called a tumor. The spread of cancer is called metastasis. The most common cancers in men are prostate, lung, colon-rectum and skin. In women, the most common cancers are breast, colon-rectum, uterus and skin. The main goal of this study is to find most common cancer type in male and female in Rajkot.

Gomez S.L *et al.* (2013) <sup>[1]</sup> studied Cancer incidence trends among Asian American populations in the United States, 1990–2008. Their result shows that, the Prostate cancer is the most common malignancy among most groups, followed by lung, colorectal, liver, and stomach cancers and Breast cancer is generally the most common cancer in women, followed by colorectal and lung cancers; liver, cervix, thyroid, and stomach cancers also ranked highly.

Sankaranarayanan R *et al.* (2010) <sup>[2]</sup> studied the Cancer survival in Africa, Asia, and Central America. The result of this study shows that the cancer survival is highest in China, South Korea, Singapore, and Turkey. The survival is lowest in Uganda and Gambia.

Dikshit R. *et al.* (2012) <sup>[3]</sup> discussed the Cancer mortality in India. The findings of their study shows that, Prevention of tobacco-related and cervical cancers and earlier detection of treatable cancers would reduce cancer deaths in India, particularly in the rural areas that are underserved by cancer services.

In this study we want to find out the most common cancer type in male as well as female. We also interested in age group which contains maximum number of cancer patients.

### 2. Material and Methods

In this study, we have collected data of 315 cancer patients admitted in Aishwary Cancer Hospital, Rajkot. Out of 315 patients 166 are males and 149 are females. The types of cancers are Oesophagus, Ovary, Breast, Cervix, Mouth, Lung,

Phobia and other. The data were collected from register of cancer patients which is stored in hospital.

### 3. Result and Discussion

The frequency of cancer type of male and female is shown in table-1. The major cancer type in male is mouth cancer and the major cancer type in female is breast cancer. The cancer type Ovary, breast and cervix are female cancer type.

**Table 1:** Frequency distribution of gender and cancer type

Type of Cancer	Gender			
	Male		Female	
	Frequency	Percentage	Frequency	Percentage
Oesophagus	17	10.24	6	4.03
Ovary	0	0	14	9.40
Breast	0	0	64	42.95
Cervix	0	0	13	8.72
Mouth	36	21.69	6	4.03
Lung	23	13.86	2	1.34
Other	85	51.20	42	28.19
Phobia	5	3.01	2	1.34
Total	166	100	149	100

Table-2 showing the frequency of cancer stages. Out of 315 patients, we don't know the stages of 93 patients; because for those patients data was not available. So we have shown the stages of only 222 patients. Here, X showing the Undecided stage of 5 patients. The number of patients with Stage-I, Stage-II, Stage-III and Stage-IV Cancer is 3, 51, 49 and 114 respectively. So, here we can see that maximum number of the patients came with forth stage of the cancer.

**Table 2:** frequency of cancer stage

Stage of cancer	Frequency	Percentage
X	5	2.25
Stage-I	3	1.35
Stage-II	51	22.97
Stage-III	49	22.07
Stage-IV	114	51.36
Total	222	100

The table - 3 gives the classification of different age group of male and female. We can see that, the age group 51-60 contains maximum number of male cancer patients. Age group 41-50 contains maximum number of female cancer patients.

**Table 3:** Frequency distribution of gender and age

Age	Gender			
	Male		Female	
	Frequency	Percentage	Frequency	Percentage
11-20	0	0.00	2	1.34
21-30	13	07.83	13	8.72
31-40	22	13.25	30	20.13
41-50	45	27.11	50	33.56
51-60	47	28.31	29	19.47
61-70	27	16.27	18	12.08
71-80	11	6.63	6	4.03
81-90	1	0.60	1	0.67
Total	166	100	149	100

In the treatment of cancer there are mainly three treatments are advised, namely, Chemo Therapy, Radiotherapy and Surgery. In table -4, we can see that, there are 274 patients who were advised for Chemo Therapy, out of them 234 (85.40%) have followed the treatment. No one advised for radiotherapy and there are 203 patients who were advised for Surgery, out of them 189 (93.10%) have followed the treatment.

**Table 4:** Treatment taken

Treatment	Treatment advised	Treatment taken	Percentage
Chemo Therapy	274	234	85.40
Radiotherapy	0	0	0.00
Surgery	203	189	93.10

Table-5 shows the classification of cancer through occupation. Occupation of the patients is classified into different categories, namely, Agriculture, Business, Employee, Retired, House-wife, Labour and Student. Here we can see that there are 121 (38.41%) cancer patients whose occupation is house wife and this occupation contains maximum number of cancer patients.

**Table 5:** Classification of cancer through Occupation

Occupation	Frequency	Percentage
Agriculture	34	10.79
Business	44	13.97
Employee	48	15.24
Retired	50	15.87
House wife	121	38.41
Labour	12	3.81
Student	6	1.90
Total	315	100

**4. Conclusions**

The findings of this study show that, the maximum number of male cancer patients is of age between 51 to 60 and the maximum number of female cancer patients is of age between 41 to 50. The risk of the cancer increases with respect to increasing of the age. As for the stage concern the maximum number of patients comes with forth stage of the cancer. There are many reasons like carelessness, less awareness, money

problem etc.. In female the major cancer type is breast cancer. Mouth cancer is major cancer type in male. In the occupation, house wife category contains maximum number of cancer patients.

**5. References**

- Gomez SL, Noone AM, Lichtensztajn DY, *et al.* Cancer incidence trends among Asian American populations in the United States. 1990-2008. J Natl Cancer Inst. 2013; 105:1096-110.
- Sankaranarayanan R, Swaminathan R, Brenner H, *et al.* Cancer survival in Africa, Asia, and Central America: a population-based study. Lancet Oncol. 2010; 11:165-73.
- Dikshit R, Gupta PC, Ramasundarahettige C, *et al.* Cancer mortality in India: a nationally representative survey. Lancet. 2012; 379:1807-16.