

# Pattern of Comorbidities and its Risk Factors among Patients with Cancer

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## ABSTRACT

Comorbidities and risk factors have been indicated to influence cancer care and outcome, with strong associations between the presence of comorbidities and patient survival. The objective of this study was to determine the pattern of comorbidities and risk factors among cancer patients. The study also intends to note any unrelated causes that people commonly associate with cancer that deviate their attention from true ones. Retrospective study design was used; data were collected from the patients who were diagnosed to have cancer and receiving chemotherapy in oncology ward. A total of 150 samples were selected for the study by convenient sampling technique. Among them, 88 patients were (58.7%) females and 62 (41.3%), males. Gastrointestinal tract cancer (19.3%), breast cancer (18.6%), and head and neck cancer (14.6%) are the cancers occurred most frequently. Comorbidities were present in all patients, with the most common being hypertension (37.3%), tuberculosis (22.6%), and diabetes mellitus (14.7%). Comorbidities occur significantly in cancer patients and influence the prognosis, treatment outcome, and survival rates of these patients. There is a need to routinely evaluate cancer patients for comorbidities and risk factors with the aim of instituting appropriate multidisciplinary management measures where necessary.

**Keywords:** Cancer, Comorbidities, Risk factors

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## INTRODUCTION

Cancer is one of the most commonly diagnosed conditions globally and is also a leading cause of death worldwide. The increasing cancer burden in developing countries, such as India, is a significant public health problem that governments are grappling with. Cancer mortality in India has doubled from 1990 to 2016. India's cancer incidence is estimated at 1.15 million new patients in 2018 and is predicted to almost double as a result of demographic changes alone by 2040.<sup>1</sup> It is necessary to monitor cancer thoroughly considering the rapid rate at which the disease burden is increasing in the country.

Comorbidities are medical conditions that coexist with the disease of interest, but are not related in causality or causes to the primary diagnosis. They may occur prior to or at the same time as the primary disease. For several years, the influence of these coexisting medical conditions on the outcome of care for the cancer patient has often been ignored. The importance of comorbidities in cancer patients draws from an increasing awareness of their impacts on cancer care and outcome. In addition, comorbidity and risk factors have been associated with individuals who have low social support and high levels of socioeconomic deprivation. This explains in part why patients in developing countries with higher levels of socioeconomic deprivation are at greater risk of multiple comorbidities. Therefore, the general focus of this research is to determine the risk factors and pattern of comorbidities among cancer population.

## STATEMENT OF THE PROBLEM

A study to assess the pattern of comorbidities and risk factors among patients with cancer at selected hospitals.

### Objective

- To determine the pattern of comorbidities and risk factors among cancer patients.

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## Methodology

This retrospective study focused on all patients with various types of cancers who presented at the outpatient departments of oncology and in oncology ward. Eligible patients were selected based on selection criteria. All patients who have diagnosed to have cancer (any stage of cancer at the time of diagnosis), patients who are willing to participate, and patients who know English and Tamil were included in the study. The patients who are not willing to participate in this study and ICU patients were excluded from the study.

Data were collected from the patients who fit into the inclusion criteria. Emphasis was given to demographic variables of patients (age, hospital number, gender, occupation, religion, marital status, and contact information), clinical variables (type of cancer, histology, grade, stage, and presence of comorbidities). Ethical clearance was obtained to conduct this study. Informed consent was taken from each patient before proceeding with the questionnaire. Researcher constructed the tool and it was validated by experts and was pilot-tested on ten patients at the outpatient department of the oncology.

## RESULTS

### Section A: Demographic Profile

Table 1 shows that 76.7% of the patients were married, 42% of the patients underwent secondary level of education, and 47.3% belong to the low socioeconomic status.

**Table 1:** Frequency and percentage distribution of demographic profile,  $n = 150$

Demographic profile	Frequency ( $n = 150$ )	Percentage
<b>Gender</b>		
Male	62	41.3
Female	88	58.7
<b>Marital status</b>		
Married	115	76.7
Single	25	16.7
Divorced	5	3.3
Separated	3	2.0
Widowed	2	1.3
<b>Socioeconomic status</b>		
Upper class	1	0.6
Middle class	44	29.3
Lower class	71	47.3
Unemployed	25	16.6
<b>Education level</b>		
Illiterate	30	20.0
Primary	24	16.0
Secondary	63	42.0
Graduate	30	20.0
Postgraduate	3	2.0

### Section B: Cancer Statistics

Table 2 depicts that 19.3% of the patients were presented with gastrointestinal tract cancer, and also, it was the most common primary site of tumors and 31.8% of the patients have suffered from breast cancer. Breast cancer was the most common cancer among females. About 10.6% of the males had lung cancer, followed by 19.4% of the patients who had gastrointestinal tract cancer.

### Section C: Comorbidity

Table 3 shows that 37.3% of the patients had hypertension and 22.6% of the patients had tuberculosis, and it was the second most prevalent comorbid illness. Comorbidities were present in all patients.

### Section D: Exposed Known Risk Factors

Table 4 shows that 24.7% of the patients are current smokers, 28% of the patients were using tobacco, 25.3% of the patients consume alcohol, and 12.7% of the patients had industrial exposure (garments and metal industry).

### Section E: Cancer Treatment Modalities

Table 5 shows that 56.6% of the patients were on chemotherapy treatment, followed by 26.6% of the patients who underwent surgery.

## DISCUSSION

In this study, breast cancer is most common in females and lung cancer among males primarily due to high consumption of cancerous substances among males like betel nut and cigarettes. Here we encountered more females that can be explained by the high prevalence of breast cancer in India, where breast cancer makes up one-third of all the female cancers and its incidence is the highest overall in Asia.

Majority of the patients interviewed had secondary level of education and belonged to a poor socioeconomic class. Despite advancements, low socioeconomic status remains a risk factor for various cancer types. Low socioeconomic status and less education contribute to financial problems in disease treatment and late presentations or cessation of treatment in between due to monetary constraints.<sup>2</sup>

**Table 2:** Frequency and percentage distribution of types of cancer,  $n = 150$

Type	Primary site of tumor		Male		Female	
	Frequency ( $n = 150$ )	Percentage	Frequency ( $n = 62$ )	Percentage	Frequency ( $n = 88$ )	Percentage
Breast	28	18.6	0	0	28	31.8
Head and neck	22	14.6	8	12.9	14	15.9
Blood	16	10.6	6	9.7	10	11.3
Gastrointestinal tract	29	19.3	12	19.4	17	19.3
Bone	11	7.3	9	14.5	2	2.2
Lung	16	10.6	16	25.8	0	0
Bladder	8	5.3	6	9.7	2	2.2
Prostate	5	3.3	5	8.1	0	0
Ovary	15	10.0	0	0	15	17

**Table 3:** Frequency and percentage distribution of comorbidity, *n* = 150

<i>Comorbidity</i>	<i>Frequency (n = 150)</i>	<i>Percentage</i>
Diabetes mellitus	22	14.7
Hypertension	56	37.3
Ischemic heart disease	13	8.7
Chronic obstructive pulmonary disease	7	4.7
Tuberculosis	34	22.6
Hepatitis	18	12

**Table 4:** Frequency and percentage distribution of exposed known risk factors, *n* = 150

<i>Risk factors</i>	<i>Frequency (n = 150)</i>	<i>Percentage</i>
Smoking	37	24.7
Tobacco use	42	28
Alcohol	38	25.3
Use of oral contraceptives	14	9.3
Industrial exposure	19	12.7

**Table 5:** Frequency and percentage distribution of cancer treatment modalities, *n* = 150

<i>Treatment modalities</i>	<i>Frequency (n = 150)</i>	<i>Percentage</i>
Chemotherapy	85	56.6
Radiation therapy	25	16.6
Surgery	40	26.6

Hypertension has been seen as the most frequent comorbid among cancer patients followed by tuberculosis that has been known to contribute to lung cancers although the number of smokers encountered in our study was less compared with the use of tobacco and consumption of alcohol. After gastrointestinal tract cancer, the most commonly reported cancer was breast cancer and head and neck that are strongly linked to the use of tobacco.

This study can be used as a baseline for further investigation of common cancers in the country and the risk factors contributing to them.<sup>3</sup> Patient education is also important, and importantly, tobacco cessation facilities should be established by the government to prevent tobacco-related morbidity and mortality.

## CONCLUSION

Gastrointestinal tract cancer is the most prevalent type of cancer present in our population followed by breast and head and neck cancers. It was also found that the local population in our region is mostly aware of the common risk factors that contribute to cancer but fails to avoid them in their daily lives. It is essential to practice cancer screening so that diseases are detected and treated at a much earlier stage. Hence, there is a need to evaluate cancer patients for comorbidities with the aim of instituting appropriate multidisciplinary management measures where necessary.

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