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## Assessment of Diet and Age in the Prevalence of Primary Signs of Cancer in a Rural Area, Kerala



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### ABSTRACT

Cancer is one of the major threats to public health in developed countries and increasingly in developing countries. Cancer signs and symptoms depend on the specific type and grade of cancer although general symptoms are found. Many cancers can be prevented by avoiding smoking, maintaining healthy body weight and having a balanced diet. **OBJECTIVE:** Our objective was to identify the prevalence of primary signs of cancer in certain wards of Eraviperoor Gramapanchayat during a study period of 6 months. **METHODS:** Our study was a prospective observational study with a total study population of 300. The study population was selected by inclusion and exclusion criteria. Data was collected using the interview. **CONCLUSION:** The salient findings of our study were: gum bleeding, the common sign is seen in mouth cancer; in skin cancer, it was changed in skin color; breathlessness and chest pain were the frequent symptoms in lung cancer and weight loss and altered bowel habits in stomach cancer. The symptoms were found to be seen predominantly in males than in females due to sedentary lifestyles and food habits. Skin cancer was mainly seen in middle age which was due to increased occupational exposure to ultraviolet rays. Primary signs of lung cancer, stomach cancer, and mouth cancer were seen in old age adults (44.4%) when compared to other age groups. The high rate of non-vegetarian, unbalanced diet was also observed which could increase the incidence of cancer. Our study suggests a method to improve the knowledge and detection of primary signs of cancer among the general public to be devised to promote early diagnosis and treatment of various types of cancers.

## INTRODUCTION

Cancer is the second most common cause of death after heart disease. Cancer is more curable when detected early.<sup>[1]</sup> Although some cancers develop completely without symptoms, the disease can be particularly devastating if the symptoms are ignored, as these symptoms may represent cancer. Cancer often has no specific symptom, so people must limit their risk factors and undergo the appropriate screening.<sup>[2]</sup> The risk factors for cancer, are - smoking, heavy alcohol use, high sun exposure, diet, age, and genetics. The best way to fight cancers is by prevention and early detection. Some primary symptoms that may occur with cancer are as follows:

1. Persistent cough or blood-tinged saliva - these symptoms could be cancer of lung, head, and neck. Nagging cough that lasts more than a month or blood in the mucus that is coughed up must be subjected to consultation.
2. Change in bowel habits - Most changes in bowel habits are related to diet and fluid intake. The doctor sometimes detects pencil-thin stool with colon cancer. Occasionally, cancer exhibits continuous diarrhea. A significant change in bowel habits that cannot be easily explained by dietary changes needs to be evaluated.
3. Blood in the stool - Haemorrhoids frequently cause rectal bleeding. But because hemorrhoids are so common, they may exist with cancer. An entire intestinal examination must be done when hemorrhoids are experienced.
4. Change in urination - Urinary symptoms can include frequent urination, small amounts of urine, and slow urine flow or a general change in bladder function. Most men will suffer from harmless prostate enlargement as they age and will often have these urinary symptoms. These symptoms may also signal prostate cancer. Men experiencing urinary symptoms need further investigations.
5. Breast lump or breast discharge - Most breast lumps are non-cancerous tumors such as fibroadenomas or cysts. But all breast lumps need to be thoroughly investigated. Discharge from a breast is common, but some forms of discharge may be signs of cancer. If the discharge is bloody or from one nipple, further evaluation is recommended.<sup>[3,1]</sup>

## **ROLE OF DIETARY HABITS IN INDUCING CANCER**

There is an association between individual nutrients or foods and the risk of cancer. And certain types of cancer, such as esophageal, gastric, colorectal and breast.<sup>[4]</sup> In some studies, probable associations have suggested with a few nutritional factors, but have focused mostly on the potential increased risk linked with the consumption of eggs, meat, and dairy products and drop in a risk connected with high intake of fruit and vegetables. Dietary polyunsaturated vegetable oils promote tumorigenesis in animals whereas saturated fats and polyunsaturated oils either have little effect or are inhibitory.<sup>[5]</sup>

Deterioration of dietary habits occurs very often in the elderly and results from social, economic and health problems. Even with a high standard of living, the elderly often consume a characteristically monotonous diet and fall into malnutrition due to food intake difficulty. Thus age-related quality deterioration in the diet may accelerate the occurrence and progression of the illness.<sup>[6]</sup> The dietary trends adopted by high- income society follow 'the western dietary pattern' characterized by high-fat product (dairy, eggs butter, mayonnaise, meat, fries, fast foods) whereas prudent dietary pattern in low- income countries is related to high-fiber plant-based food and low intake of fat. In general 'the Western dietary pattern' promotes various chronic conditions, ie; obesity, diabetes, and other diseases. These can lead to the activation of several signaling pathways that favor carcinogenesis.<sup>[7]</sup>

## **ROLE OF AGE IN INDUCING CANCER**

Age defined by the complete unit of time used in almost all studies of cancer epidemiology and is one of the most studied risk factors for cancer.<sup>[8]</sup> Aging is a universal feature of biological organisms. Among multicellular organisms, aging is marked by a progressive decline in the function of multiple cells and tissues. It is also marked by an increase in hyperplasias, the most serious of which are cancers.<sup>[9]</sup>

Cancer can be considered an age-related disease because the incidence of most cancers increases with age, rising more rapidly in midlife. Age also can be considered a surrogate measure for the complex biological processes associated with aging. However, the process of getting older can be distinguished from age-associated diseases. Paradoxically adults with the longest of life are less likely to develop cancer. Thus aging can be reviewed as a natural process, not pathology and old age does not necessarily lead to cancer.<sup>[9]</sup>

Some of the same biological mechanisms that regulate aging may also be involved in the pathogenesis of age-related diseases such as cancer. Over the last decade, the incidence rate of gastric cancer in young patients have a trend towards a gradual increase. The first clinical signs of early gastric cancer are similar to that of gastritis and gastric ulcer, the tumor develops within 4-6 years indicating an extensive asymptomatic period. Basal cell carcinoma is the most malignant skin tumor. The incidence of skin cancer depends on the geographical area, people with outdoor occupations like miners, farmers, quarrymen, etc. Ultraviolet radiation also plays a major role in the development of basal cell carcinoma.<sup>[10]</sup>

Adolescence is a period of transition from childhood to early adulthood. The age of 15-30 years is taken as a teenage and young adult. The number of teenage and young adult cancer patients is 12,009 constituting about 10.2% of the total cancer patient populations. The teenage and young adult have been as abandoned population by far and thought the data in the western world have been increasing, studies in our country regarding this subset of patients have been scarce. This is thus an initial effort to bring light to the types of cancers in the teenage and youth-adult patients from a rural area.<sup>[11]</sup>

This study focuses on the association between age and cancer as well as potential opportunities during midlife to reduce the likelihood of developing cancer at older ages. It focuses on people aged 45-46 years while recognizing that this age range is an arbitrary and imprecise measure of midlife, midlife represents a "watershed" period for cancer prevention.<sup>[9]</sup>

In our study, we have evaluated the primary signs of cancer in rural areas of Eraviperoor grama panchayath. Our study population was about 300 of the total population and the study period was 6 months. Our study strongly suggests more effective methods for creating awareness regarding the importance of early detection of cancer signs which would aid in improving prognosis of the disease.

## **OBJECTIVES**

**AIM:** To evaluate the primary signs of cancer in certain rural areas of Eraviperoor panchayath. This study mainly focuses on the assessment of dietary habits and age groups in inducing cancer.

## OBJECTIVES:

1. Assessment of dietary habits in inducing cancer.
2. Assessment of age group in inducing cancer.

## BACKGROUND AND REVIEW OF LITERATURE

**Patel A. et al.**, in 2018 published a review on **the Role of Nutritional Factors in Pathogenesis of Cancer**. It concluded that nutritional intake and nutrient supplements are considered to be important environmental factors, thus dietary and nutrients might play a significant role in cancer development.<sup>[5]</sup>

**Tryggvadottir L. et al.**, in 2018 conducted a study on **Dietary Habits in Adolescence and Midlife and Risk of Breast Cancer in Older Women**. The study aimed to evaluate the association of high consumption of meat, milk, and whole-grain products in adolescence and midlife, on breast cancer risk. Collectively, these data suggest that dietary exposure during both adolescence and midlife period might be critical for breast cancer development in older women.<sup>[15]</sup>

**Pandey K A. et al.**, in 2018 conducted a case-control study on **Dietary Habits and Other Habits and Breast Cancer Risk**. The study targeted collecting 100 cases and an equal number of 100 controls using a questionnaire based on approximate quantities of the consumption of usual dietary habits. The result concluded: subjects who preferred a vegetarian diet had a protective effect over those subjects who consumed the non-vegetarian diet.<sup>[14]</sup>

**Pietrzyk L** in 2017 conducted a study on **Food Properties and Dietary Habits in Colorectal Cancer Prevention and Development**. The study concluded that diet high in energy, consumption of red meat or processed meat, rich in food with high glycemic index and rich in Omega-6 PUFA. The imbalance in Omega-6 PUFA's to Omega-3 PUFA's ratio was found to be linked to increased colorectal cancer risk. In contrast, the consumption of white meat, as well as plant and fish oil rich in Omega-3 PUFAs might even reduce the occurrence of colorectal cancer.<sup>[7]</sup>

**RositchA. et al.**, in 2017 conducted an analysis of **Increased Age and Race-specific Incidence of Cervical Cancer after Correction for Hysterectomy Prevalence in the**

**United States from 2000-2009.** They concluded that correction for hysterectomy resulted in higher age-specific cervical cancer incidence rates, (after age 35-39) but at a slower rate than in 20-34 years correction for hysterectomy had the largest impact on older, black women gave their high prevalence of hysterectomy.<sup>[17]</sup>

**Gupta N. et al.,** in 2017 conducted a study on **Epidemiology of Cancer in Young in Central India: An Analysis of Rural Cancer Hospital Data.** The study aimed to study the type of cancers in teenagers and young adults. The age-wise distribution was analyzed using descriptive analysis. Results concluded that carcinoma was the most common malignancy (54.74%) with an increase from 19.56% in the 15-19 years age group to 64.82% in the 25-30 years old patients.<sup>[18]</sup>

**Arora S R. et al.,** in 2016 conducted a study on **Acute Leukemia in Children: A Review of the Current Indian Data.** This review summarized the published literature on reported current outcomes of childhood acute lymphoblastic leukemia (ALL) and acute myeloid Leukemia (AML) from India.<sup>[11]</sup>

**Mohanty S. et al.,** in 2016 conducted a study on **Gastric Cancer in Young Patients Under the Age of 35 years: A Hospital-based Study.** The aim was to examine the characteristics of clinical development as well as morphologic characteristics of the tumor and to evaluate the results of multimodal treatment of gastric cancer in young patients. In the observed group of 28 young gastric cancer patients under the age of 35, with an age range of 20-35 years male to female ratio was 1.3:1. A close association was observed between diffuse gastric cancer and family history in a younger generation of young patients.<sup>[19]</sup>

**Lasithiotakis K. et al.,** in 2015 conducted a study- **Age and Gender are Significant Predictors of Survival in Primary Cutaneous Melanoma.** The study aimed to identify age-related and gender-related differences in the clinical presentation and outcome of patients with primary cutaneous melanoma (CM). The results were that increasing age and male gender were independently associated with thicker tumors and histological ulceration. Patients older than 65 years had lower 10 year DSS than younger patients. Male has a lower 10 year DSS than females. The study concluded that old age and male gender are associated with prognostically unfavorable primary CM.<sup>[12]</sup>

**Ferrini K. et al.,** in 2015 conducted a review on **Lifestyle, Nutrition and Breast Cancer: Facts and Presumptions for Consideration.** It was a comprehensive review regarding the

role of lifestyle on breast cancer outcomes and a thorough study of the dissemination field including mass media, clinical institutions, and academic figures.<sup>[13]</sup>

**Bailey C. et al.**, in 2015 conducted a retrospective cohort study on **Increasing Disparities in Age-Related Incidence of Colon and Rectal Cancer in the United States**. All patients diagnosed with colon or rectal cancer from January 1, 1975, through December 31, 2010, were selected. The result was that there has been a significant increase in the incidence of colon-rectal cancer diagnosed in young adults (20-49 years), with a decline (0.92%) in older patients (50 years or older).<sup>[9]</sup>

**Grosso G. et al.**, in 2014 conducted a study on **Possible Role of Diet in Cancer: A Systematic Review and Multiple Meta-analysis on Dietary Patterns, Lifestyle Factors, and Cancer Risk**. This review aimed to investigate the relation between posterior-derived dietary patterns, grouped as healthy or unhealthy and cancer risk. A total of 93 studies including over 85000cases, 100000 controls, and 2000000 exposed individuals were selected. The result suggested a potential role of diet in certain cancers and may be driven or mediated by lifestyle factors.<sup>[4]</sup>

**Slowinska Z. et al.**, in 2014 conducted a case-control study on **Dietary Habits of Lung Cancer Patients from the Lower Silesia Region of Poland**. The study aimed to evaluate the dietary habits of lung cancer risk of lung cancer patients. The study was based on a questionnaire related to lung cancer risk (Dietary patterns: high and low glycemic index products, vegetables and fruits, meat and fried products, etc.). The result shows that the majority of patients had inappropriate dietary habits and the need for dietary education among people at lung cancer risk.<sup>[6]</sup>

**White C M. et al .**, in 2014 conducted a study on- **A Study Age and Cancer Risk**. The study concluded the idea that cancer cannot be prevented among older adults by examining different aspects of the relationship between age and cancer.<sup>[8]</sup>

**Colorectal Cancer Incidence Rising in Young Adults: An interview with Drs.PhilipRosenbery and William Aderson**. The aim of the study was the comprehensive analysis of an increase in colorectal cancers among a younger generation in the United States. They used contemporary cancer registry data from NCI's Surveillance, Epidemiology and End Results (SEER) program. They found increases in cancer of the colon and rectum among young and middle-aged adults in the United States.<sup>[16]</sup>

## METHODOLOGY

**Design of study:** Prospective observational study

**Location Of The Study:** The study was carried out in a few wards of Eraviperoor grama panchayat, Pathanamthitta, Kerala, after obtaining approval from the Institutional Review Board at the college.

**Duration of study:** 6 months (November 2018-May 2019)

**Sample size:** A sample size of 300 people was selected.

**Study eligibility:**

### **Inclusion criteria**

- Population willing to participate.

### **Exclusion criteria**

- Patients who are not willing to participate.

### **Study variables**

- Patient demographic data such as age, sex, occupation, height, and weight
- Social habits
- Family history
- Dietary habits
- Physical activity
- Coughing up blood
- Lumps in the body
- Changes in skin viz color, itchy patches or lesions
- Ulcer



- Unexplained weight loss
- Altered bowel habits

**Data collection tool:**

A pre-designed data collection form was used.

**Data collection procedure:**

This prospective observational study was conducted in certain wards of Eraviperoor grama panchayat, Pathanamthitta, Kerala. It was a 6 months study in which patients were recruited based on the inclusion and exclusion criteria. 300 eligible study subjects were taken prospectively and the data was collected according to the approved pre-designed data collection form. All people were provided with a brief introduction regarding the study and confidentiality of the data.

Data required as per the data collection proforma was collected prospectively using the interview.

**Data Analysis:**

The data collected were entered in Microsoft excel -2010 version and results were analyzed and presented in tabular form as frequency and percentages.

**RESULTS**

In the six months study, 300 eligible populations were enrolled as per the inclusion-exclusion criteria. The results are as follows.

## 1. DISTRIBUTION OF AGE GROUP

Table No. 1: Distribution of age group

Si.no:	Classification	Age group ( in years)	Frequency	Percentage (%)
1	Young Adults	20-30	23	7.6
		31-40	31	10.4
2	Middle-aged adults	41-50	50	16.6
		51-60	63	21
3	Old adults	61-70	71	23.6
		71-80	46	15.4
		81-90	16	5.4
	TOTAL		300	100

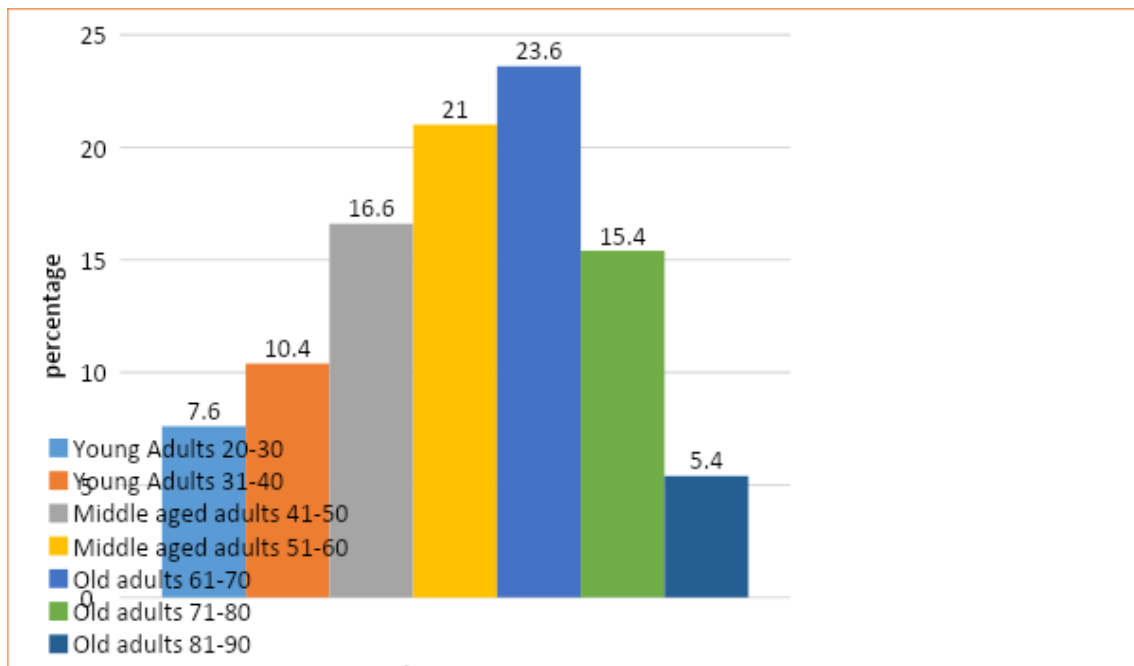


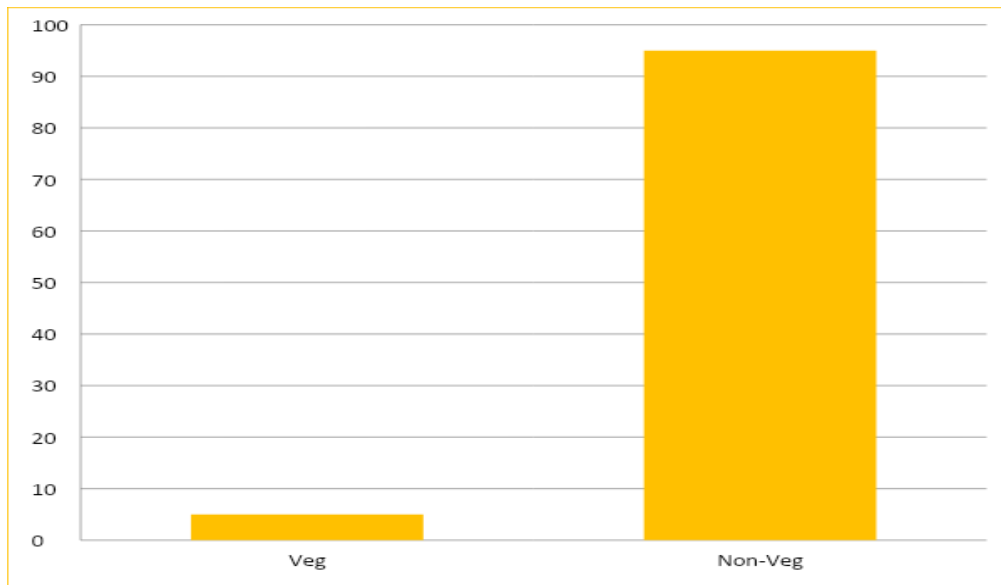
Figure No. 1: Distribution of Age Group

The total population was mainly classified into three age categories according to shared qualities or characteristics as young adults, middle-aged adults and old adults.

## 2. DISTRIBUTION OF DIETARY HABITS

**Table No. 2: Distribution of Dietary Habits**

SL.NO:	DIETARY HABITS	FREQUENCY	PERCENTAGE (%)
1	Vegetarian	15	5
2	Non-Vegetarian	285	95
	TOTAL	300	100



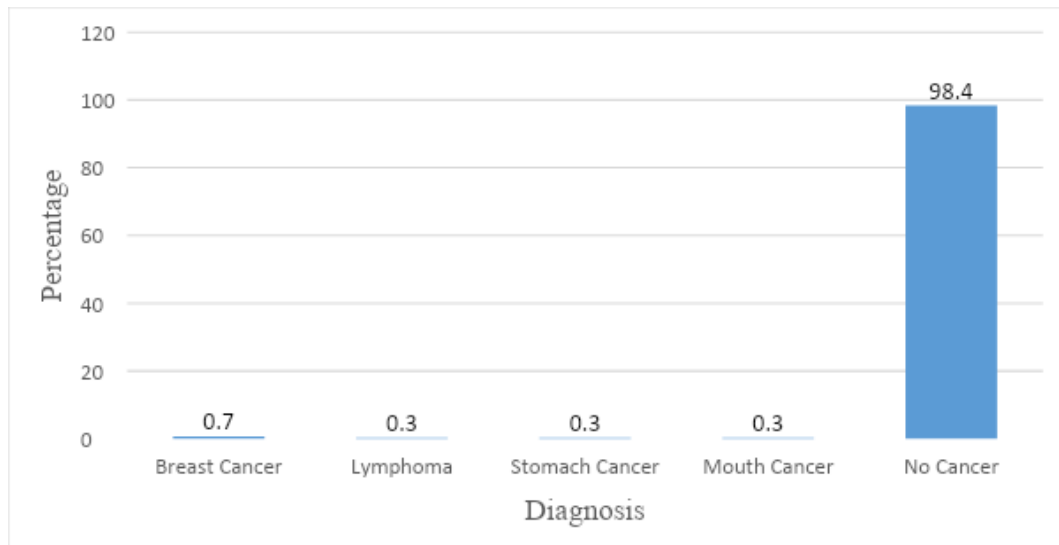
**Figure No. 2: Distribution of Dietary Habits**

In the study, 5% of the total population was found to follow a vegetarian diet and 95% followed a non-vegetarian diet.

## 3. DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR DIAGNOSIS

**Table No. 3: Distribution According To Diagnosis**

SL.NO:	DIAGNOSIS	FREQUENCY	PERCENTAGE (%)
1	Breast Cancer	2	0.7
2	Lymphoma	1	0.3
3	Stomach Cancer	1	0.3
4	Mouth Cancer	1	0.3
5	No Cancer	295	98.4
	TOTAL	300	100



**Figure No. 3: Distribution According To Diagnosis**

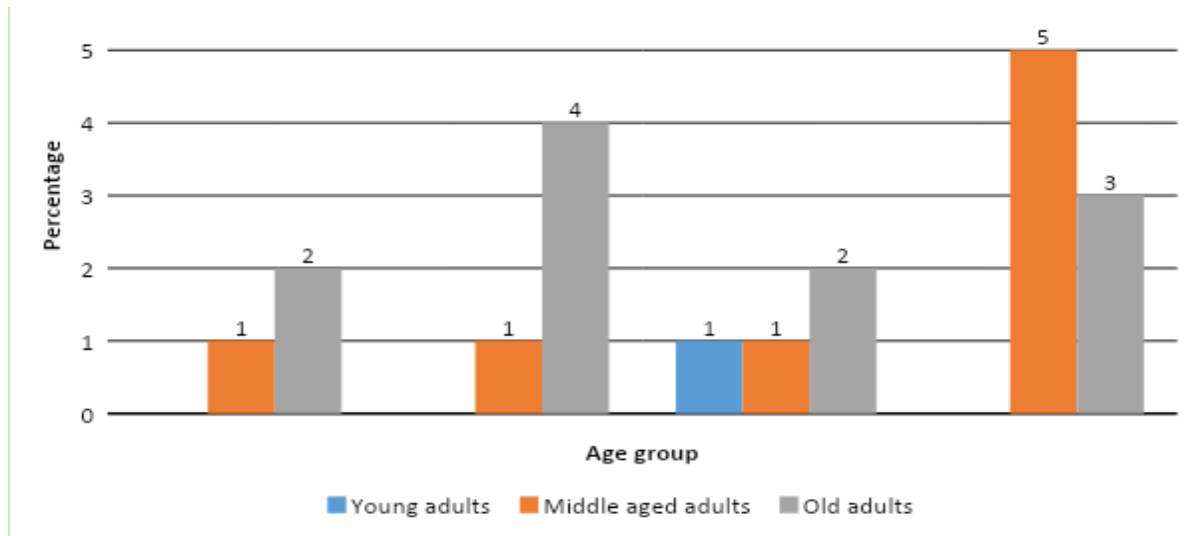
In this study, 0.7% had breast cancer; 0.3% each had lymphoma, stomach cancer, and mouth cancer. 98.4% reported not having suffered from any type of cancer.

**DETAILS OF SUBJECTS EXPERIENCING PRIMARY SIGNS OF CANCER**

**4. DISTRIBUTION OF SUBJECTS ACCORDING TO AGE CLASSIFICATION**

**Table No. 4: Distribution of Subjects According To Age Group**

SI.NO:	Age Group (n=300)	Lung Cancer (n=3)	Stomach Cancer (n=5)	Mouth Cancer (n=4)	Skin Cancer (n=8)
1	Young adults	0	0	1	0
2	Middle-aged adults	1	1	1	5
3	Old adults	2	4	2	3
	<b>TOTAL</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>8</b>



**Figure No. 4: Distribution of Subjects According To Age Classification**

In this study, one person with primary signs of mouth cancer was a young adult. One person each, experiencing primary signs of lung cancer, stomach cancer, and mouth cancer was a middle-aged adult and five persons suffering from signs of skin cancer were middle-aged adults. Two persons each, having primary signs of lung cancer and mouth cancer were old adults. 4 persons experiencing primary signs of stomach cancer were old adults and 3 experiencing signs of skin cancer were also old adult.

**5. DISTRIBUTION OF SUBJECTS ACCORDING TO OCCUPATIONAL STATUS**

**Table No. 5: Distribution According To Occupational Status**

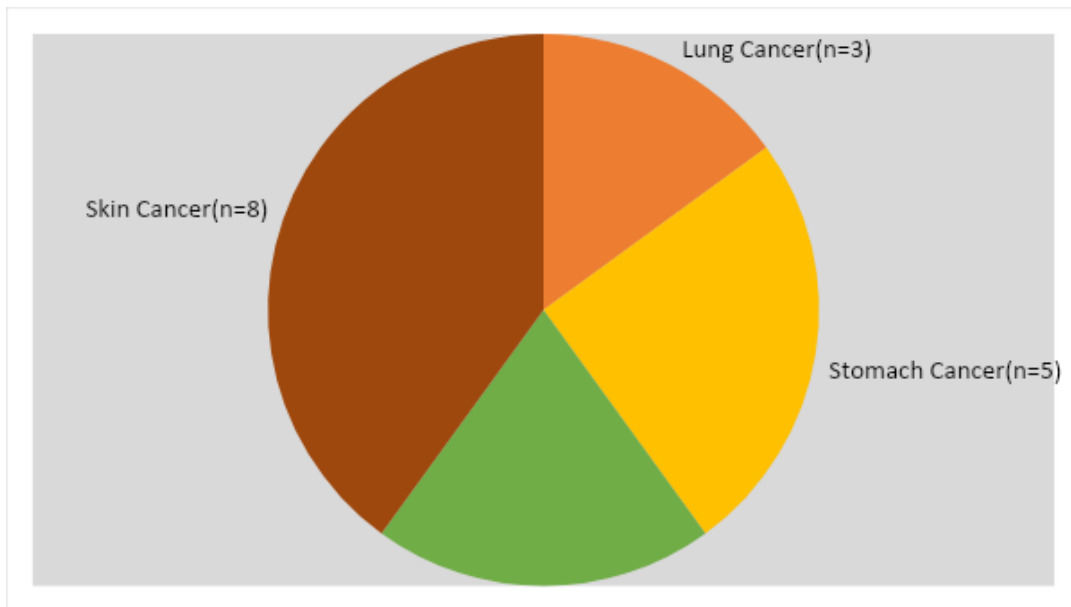
Sl.NO:	Cancer	Employment Status	Frequency	Percentage (%)
1	Lung Cancer	Employed	0	0
		Unemployed	0	0
		Business	1	0.33
		Farmer	1	0.33
		Retired	1	0.33
2	Stomach Cancer	Employed	1	0.33
		Unemployed	1	0.33
		Business	1	0.33
		Farmer	0	0
		Retired	2	0.66
3	Mouth Cancer	Employed	1	0.33
		Unemployed	1	0.33
		Business	1	0.33
		Farmer	1	0.33
		Retired	0	0
4	Skin Cancer	Employed	0	0
		Unemployed	1	0.33
		Business	0	0
		Farmer	7	2.33
		Retired	0	0

According to the study, one person each experiencing primary signs of lung cancer were found to be farmers, retired and business persons. Two persons having primary signs of stomach cancer were found to be in the retired population. One person each experiencing primary signs of mouth cancer were found to be business persons, employed as well as unemployed. Seven persons having primary signs of skin cancer were farmers while one person was unemployed.

## 6. DISTRIBUTION OF SUBJECTS ACCORDING TO DIETARY HABITS

**Table No. 6: Distribution of Subjects According To Dietary Habits**

Sl.No:	Cancer	Non-Veg	Veg
1	Lung Cancer(n=3)	3	0
2	Stomach Cancer(n=5)	5	0
3	Mouth Cancer(n=4)	4	0
4	Skin Cancer(n=8)	8	0



**Figure No. 5: Distribution of Subjects According To Dietary Habits**

All persons experiencing the primary signs of cancer were found to follow a non- vegetarian diet.

**PRIMARY SYMPTOMS**

**Table No. 7: Table of Primary Symptoms**

Sl.No:	Symptoms	Lung Cancer(n=3)	Stomach Cancer(n=5)	Mouth Cancer(n=4)	Skin Cancer(n=8)
1	Coughing up blood	0	0	0	0
2	Coughing or worsening cough less than 3 weeks	3	0	0	0
3	Breathlessness	3	0	0	0
4	Chest pain	3	0	0	0
5	Decreased appetite	0	5	0	0
6	Unexplained weight loss	0	5	3	0
7	Fatigue	3	5	4	0
8	Back Pain	0	4	0	0
9	Altered bowel habits	0	5	0	0
10	Ulcer	0	3	4	0
11	Unexplained intermittent fever	0	1	0	0
12	Lumps in the body	0	1	2	0
13	Difficulty in swallowing	0	0	4	0
14	Gum bleeding	0	0	4	0
15	Pain or tenderness anywhere in your mouth, including your tongue	0	0	4	0
16	Change in skin color	0	0	0	8
17	A pain lesion that itches or burns	0	0	0	8
18	Bleeding lesson	0	0	0	4
19	Overuse of cosmetics	0	0	0	1

The following results can be deduced from the analysis of primary signs: three persons experiencing primary signs of lung cancer were found to have coughing or worsening cough less than 3 weeks, breathlessness, chest pain and fatigue each. Five persons experiencing primary signs of stomach cancer were found to have decreased appetite, unexplained weight



loss, fatigue and altered bowel habits each. Four of them experienced back pain while one person experienced unexplained intermittent fever and lumps in the body. Out of the total four persons experiencing primary signs of mouth cancer, three of them had unexplained weight loss, two of them had lumps in the body and four of them experienced fatigue, ulcer, difficulty in swallowing, gum bleeding and pain or tenderness in the mouth each. From a total of eight persons experiencing primary signs of skin cancer, all of them had changes in skin color and pain lesion each. Four of them experienced bleeding lesion and one person overused cosmetics.

## **DISCUSSION**

### **EVALUATION OF PRIMARY SIGNS OF CANCER**

From our study, we deduced that fatigue, breathlessness, coughing up blood and chest pain was equally experienced by all showing the primary signs of lung cancer. Unexplained weight loss decreased appetite, and altered bowel habits are commonly experienced by all who show primary signs of stomach cancer. Those population showing primary signs of mouth cancer, equally experienced gum bleeding, ulcer and pain/tenderness in mouth. Changes in skin color and pain lesion were the most commonly occurring signs in skin cancer. These primary signs were observed primarily due to increased use of tobacco and alcohol, high levels of non-vegetarian diet and increased exposure to sunlight. A similar study conducted by Rikke P. et al., (2015) concluded that the common alarm symptoms in cancer were a lump in the body, blood in bowel movements, blood in urine and coughing.

### **ASSESSMENT OF DIETARY HABITS IN INDUCING CANCER**

From our study, it was found that 5% had a vegetarian diet and 95% had a non-vegetarian diet. Dietary patterns such as high and low glycemic index products, vegetables and fruits, meat and fried products influence the acquirement of primary signs of cancer. All persons experiencing the primary signs of cancer were found to follow a non- vegetarian diet. Giuseppe G. et al.,(2015) conducted a study on the role of diet in cancer. The result suggested a potential role of diet in certain cancers and may be driven or mediated by lifestyle factors. A similar study was conducted by Amita P.et al.,(2018) which concluded that nutritional intake and nutrient supplements are considered to be important environmental factors, thus dietary and nutrients might play a significant role in cancer development.

## ASSESSMENT OF AGE IN INDUCING CANCER

Our study concluded that the primary signs of cancer were most evident in old age adults (lung and mouth cancer- 2 each, stomach cancer -4). However, the primary signs of skin cancer were most commonly seen in middle-aged adults (n= 5), which can be attributed to high occupational exposure to sunlight. A similar study was conducted by Mary C. et al., (2014) which concluded the idea that cancer cannot be prevented among older adults by examining different aspects of the relationship between age and cancer.

## CONCLUSION

Cancer is a major disease of concern in the present scenario. Early detection helps in the early cure of the disease. This study was aimed at evaluating the primary signs of various cancers as well as the etiological factors associated with it. A total of 300 population was interviewed to analyze these factors.

The study has shown that the most commonly occurring signs of cancers are coughing up blood, breathlessness, decreased appetite, and unexplained weight loss. A sedentary lifestyle would increase the levels of adipocytes which elevates the body mass index and can cause cancers and cardiac dysfunctions. The signs and symptoms occur in old age adults and primarily in males that is due to a combined effect of lack of physical activity and use of alcohol and tobacco. The results of this study reveal that most of the population with primary signs of cancer have shown a clear association with family history. Occupational exposure plays a significant role in skin cancer. The early signs of skin cancer such as grey discoloration, itchy patches occur predominantly in farmers due to increased ultraviolet exposure. The overuse of cosmetics also is attributed to this.

Thus, our study strongly suggests more effective methods for creating awareness regarding the importance of early detection of cancer signs which would aid in improving the prognosis of the disease. As well as programs to increase the public awareness of harmful consequences.

There are also some limitations to this study by its sample size. Time constraints of six months do not allow us to perform a follow up of those who showed the signs to determine if they occur due to any other reasons. There was no control group in our study to compare the

results. There is limited owing to response bias to the questionnaires. Also, no laboratory tests were performed to confirm the diagnosis.

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