

## INVESTIGATING THE EPIDEMIOLOGY OF COLORECTAL CANCER IN KERMANSHAH CITY DURING 2005-2014

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### ABSTRACT

**Objective:** Cancer is considered as one of the most serious threats against human health throughout of world, leaving great economic and mental burden on life of people. Colorectal cancer is one of the most common gastrointestinal malignancies around the world. Investigating the prevalence and incidence of cancers in Iran suggests that the incidence of this cancer follows increasing trend in Iran.

**Methods:** This is a descriptive cross-sectional type of study, in which all patients diagnosed as colorectal cancer were investigated in Kermanshah hospitals during the years of 2005-2014. Information related to age, gender, type of tumor, place of tumor, manifestations of disease, smoking, family history of cancer, and living place of the patient (city-village) were analyzed using SPSS software.

**Result:** it was found that 63.75% of the subjects were male and 36.25% of them were female. The mean age of them was 57 years. Most of the patients (about 79%) were living in cities, 16.25% of them were smokers, and 4% of them had familial history of this disease. In 32.7% of patients, the tumor was developed in the rectum, while it was developed in the cecum in 75.5% of them. The highest percentage of tumors (96.5%) was related to adenocarcinoma type and the lowest percentage of them (0.75%) was related to carcinoid.

**Conclusion:** Given high prevalence of colorectal cancer and its high susceptibility, it is essential to identify the effective factors and to prevent it. Educational programs related to preventing this cancer for people who are at high risk for this disease and screening tests for timely diagnosis of the disease in gastrointestinal tract are recommended for these people.

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### Introduction

Cancer is considered as one of the most serious threats against human health throughout of world, leaving great economic and mental burden on life of people [1,2]. One of the most common gastrointestinal malignancies around the world is colorectal cancer. It accounts for 9% of all cancers in the world [3]. Colorectal is the third leading cancer and the third cancer-related deaths in the world [4]. This cancer is the third leading cancer in men and the second leading cancer in women. Approximately 1.4 million cases of this cancer and 693.99 deaths related to this cancer were reported in 2012. The highest rate of it was found in Australia, New Zealand, Europe, and North America, while its rate was low in Africa, Central Asia, and South Africa. Its incidence is more in males compared to females in most parts of the world [5]. The incidence and death rate caused by colorectal cancer varies from one country to other country. It is the fourth leading cause of death and the third leading cancer after gastric and breast cancers in Iran [6,7] While its incidence is lower in Iran compared to European countries, the rate of death caused by it is more in American countries. In studies carried out in Iran, the 5-year survival rate of patients was reported to be 47, 41, and 61 %, while it has been reported to be 65.2% in American countries [8]. Investigating the prevalence and incidence of cancers in Iran suggests that the incidence of this cancer follows increasing trend in Iran. This disease usually affects people who are older than 55 years, while recent studies revealed that age of 7% of patients suffering from colorectal cancer in Iran is less than 40 years. In general, half of Iranians suffering from colorectal cancer are younger than 50 years [9]. Low physical activity, high BMI, fatty diet, alcohol consumption, smoking, low consumption of fruits and vegetables, family history, and using antidepressants, and anti-inflammatory drugs are considered among the risk factors for cancers, including colorectal cancer [10]. In addition, different clinical factors, such as the stage of disease and type of lesion affect survival rate in colorectal cancer [8]. Given the clinical and behavioral factors affecting the prevalence and death caused by colorectal

cancer and considering the importance of identifying effective factors in preventing and timely diagnosis of this disease, the objective of this research was to evaluate the frequency distribution of colorectal cancer in patients of this disease and to investigate the variables of age, gender, clinical symptoms, living place, and type of tumor in them.

## 2. Materials and methods

This research was a descriptive-cross-sectional type of study. The population of this research included all patients diagnosed as colorectal cancer in Kermanshah hospitals during the years 2005-2014. The diagnostic criterion of colorectal cancer was based on finding of pathologic report, imaging, paraclinical tests, and operation description. On the other hand, the exclusion criteria of research included defect in file of patient and/or non-responding to phone calls. Information about the age, gender, type of tumor, place of tumor, manifestations of disease, smoking, family history of cancer, and patient living place (city or village) were received from patients' files. After completing the questionnaires, the information was analyzed using SPSS software. Considering type of research and using the information contained in patients' file, there is no specific limitation in conducting this study.

## 3. Results:

Four hundred patients were diagnosed with colorectal cancer in Kermanshah hospitals during a ten-year period since 2005 to 2014, which 255 of them (63.75%) were male and 145 were female (25.26%) (Figure 1). The mean age of these people was 57 years and their SD was 14. The age group between 51 and 55 years accounted for the highest percentage of patients, so that 13.25% of the patients were placed in this age group (Figure 2). Evaluating the living place of patients revealed that most of the patients (about 79%) were living in cities (Figure 3). Sixty and five patients (16.25%) were smoker (Figure 4) and 16 patients (16%) (4%) had familial history of the disease (Figure 5). With regard to tumor place, it was found in the rectum of 131 patients (32.7%), and it was found in the cecum of 23 patients (75.5%) (Figure 6). In addition, 386 of the tumors, accounted for the 95.6% of cases, were adenocarcinoma type and the lowest of them (0.75%) was related to carcinoid (Figure 7). Clinical manifestations in patients were so that obstruction was found in 81 cases (20.25%), weight loss and loss of appetite were found in 139 cases (34.75%), rectorhalgia was found in 123 cases (30.75%) and anemia was observed in 79 cases (19.75%) (Figure 8).

## 4. Discussion:

The mean age of patients investigated in this study was 57 years, so that the relative frequency of colorectal cancers was higher in the age group of 55-51 and 65-61 years than that in other age groups, which the higher percentage of them were male. Nikbakht and Bahrapur examined people with colorectal cancer in Kerman during 2001-2010, which their mean age was obtained to be 59.4 years [11]. In a study carried out between 1996 and 2000 on patients with colorectal cancer in different cities of Iran, including Gilan, Mazandaran, Golestan, Ardabil, and Kerman, the mean age was obtained to be 57 years, which is in line with mean obtained in the present study [12]. In many other studies conducted in this regard, the highest frequency of colorectal cancers was reported more in the age group of higher than 60 years among males compared to females, which is consistent with findings of this research [13]. In a research carried out in Libya, the age range of 21-87 years accounted for the highest percentage of this disease, and 11.8% of patients were under the age of 40 [14]. Thus, it could be concluded that the risk of colorectal cancer increases as age goes up. In our study, the frequency of colorectal cancer in males was reported to be 63.75%. Based on the statistics reported by the IARC Globocan (2008), its frequency was 37.7% in males and 24.3% in females in developed countries, while it was reported to be 12.1% in males and 9.4% in females in developing countries [15]. Fateh and Amini (2008) and Pahlavan and Kanthan (2006) also reported that this disease is seen more in males [16,17]. The percentage of colorectal cancer incidence in Iran was reported to be 11.31 for males and 10.89 for females. These percentages were reported to be 12.47% and 12.61% for males and females, respectively, in Mazandran, which its frequency was very similar in both genders [15]. The ratio of urban patients to rural patients was obtained to be 3.76. As we know, a diet containing low vegetable and fiber, high refined carbohydrate, and high fat intake are among the most common causes of colon cancer and rectum [18]. The difference seen between urban and rural patients can justify it. In a research conducted in Yazd, the ratio of urban patients to rural people was reported to be 1.8 times [19], and this ratio was reported to be 3.3 times in the Markazi province [20]. Among 400 patients with colorectal cancers, 96.5% had adenocarcinoma, 1.5% had lymphoma, 1.25% had polyps, and 0.75% had carcinoids. In a research carried out in Yazd, out of 191 patients, 186 patients had adenocarcinoma and 5 of them had lymphoma [19]. The highest clinical manifestations of patients included abdominal ache (52%), obstruction symptoms (20.25%), bowel movements (37.5%) and rectorhalgia (30.75%), respectively. In other studies, rectorhalgia was 50.3%, abdominal ache was 38.7%, obstruction was 8.9%, and constipation was 6.1% [18, 19]. In a research conducted in Libya, the most common clinical manifestation included rectal bleeding and abdominal ache, and both of them were observed in 71% of patients [14]. In a research carried out by Myers et al (2013), 59% bleeding, 9% obstruction, and 35% abdominal ache or rectum were reported. Developed stage 3 or stage 4 tumor was found in 53% of the patients, and 77% of the tumors were placed after splenic flexure [21]. In this research, 32.7% of tumors were seen in the rectum, 26.5% of them were seen in the descending colon, and 20% of them were seen in the sigmoid rectum. In some other studies, 58% of the cases were seen in rectum and sigmoid, and 24% of the cases were seen in the cecum, ascending colon, and transverse colon [18, 19]. The percentages obtained in our study are highly in line with similar studies. In a population of Tehran patients, 41% of tumors were seen in rectum, 18% of them were seen in sigmoid colon, cecum and ascending colon and 10% of them were seen in transverse and descending colon [22]. In an investigation on population of patients in Libya, it was found that the origin of majority of tumors (67.8%) was rectum and sigmoid [14]. Nowadays, given the use of flexible tools such as sigmoidoscopy and colonoscopy, colorectal cancers can be diagnosed at early stages of MX, NX, and T 1, and most of colon and rectum cancers in their early stages can also be treated by removing the whole lesion such as removing polyps and tumors through anus. However, in risky factors such as undifferentiated cancers or the cancers invading the vessels and lymphocytes or cases that have not been already removed completely from anus, removing the whole tumor is an essential. In addition, in cancers of lower parts of rectum, other secondary treatments such as chemotherapy and radiography are necessary [23,24]. Along with molecular biology development, specific antigens have been identified that create immune response against only colorectal cells. As immunotherapy has been proposed as a potential treatment in this regard, several methods of immunotherapy are considered currently [25]. In this research, 22% of the studied patients reported the history of colorectal cancer in their relatives.

Fakheri et al (2007) reported a history of colorectal cancer in relatives of patients 24% in Sari [26]. This figure has been reported to be 25% in Western countries [27]. It could be stated that cultural and social factors, such as familial marriages, can be involved in development of this disease. Moreover, family history of cancer was questioned by the patients themselves in this study and most of other studies. Therefore, due to lack of knowledge of patients on type of cancer of their relatives might yield inaccurate information for us. In investigating the risk factors, smoking was also reported to be 16.5% in patients, which is in line with other studies. Different parts of cigarette smoke, including nicotine, can influence the cell cycle through various molecular mechanisms such as apoptosis and they might be involved in the process of formation and development of tumors in various types of cancer [28]. In a research carried out by Derakhshanfar et al. (2010), a history of smoking was reported in 30.5% of patients [29]. In a study carried out by Karimi Zarchi, it was reported in 22.4% of the patients [30]. As smoking is considered as a risk factor for colorectal cancer [31], non-using tobacco in society and encouraging patients to leave it should be considered in counseling. Given the prevalence of colorectal cancer and its high importance, it is recommended that patients who have uncertain abdominal ache or have bowel movements in abdomen examination, and older people who have anemia, fatigue, and change in stool color to be screened through sigmoidoscopy and colonoscopy. Annual blood experiments are also recommended after the age of 40 years. As it is very important to identify the effective factors and prevent this disease in people, educational programs related to prevention of this cancer for patients who are at high risk as well as screening tests for timely diagnosis of gastrointestinal cancer are suggested in these people. Research findings can be helpful in management of the disease and providing the medical facilities for the future. These findings also provide adequate knowledge to prevent delays in treatment of people who at high risk of the disease.

### 5. Conclusion

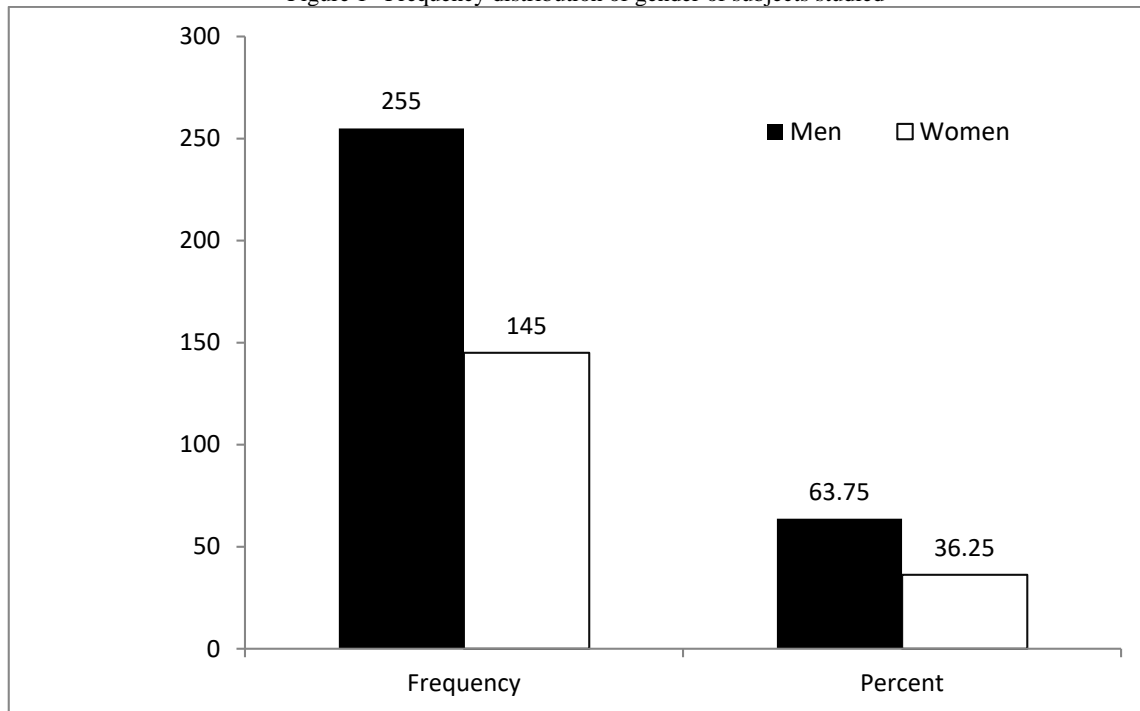
Given high prevalence of colorectal cancer and its high susceptibility, it is essential to identify the effective factors and to prevent it. Educational programs related to preventing this cancer for people who are at high risk for this disease and screening tests for timely diagnosis of the disease in gastrointestinal tract are recommended for these people.

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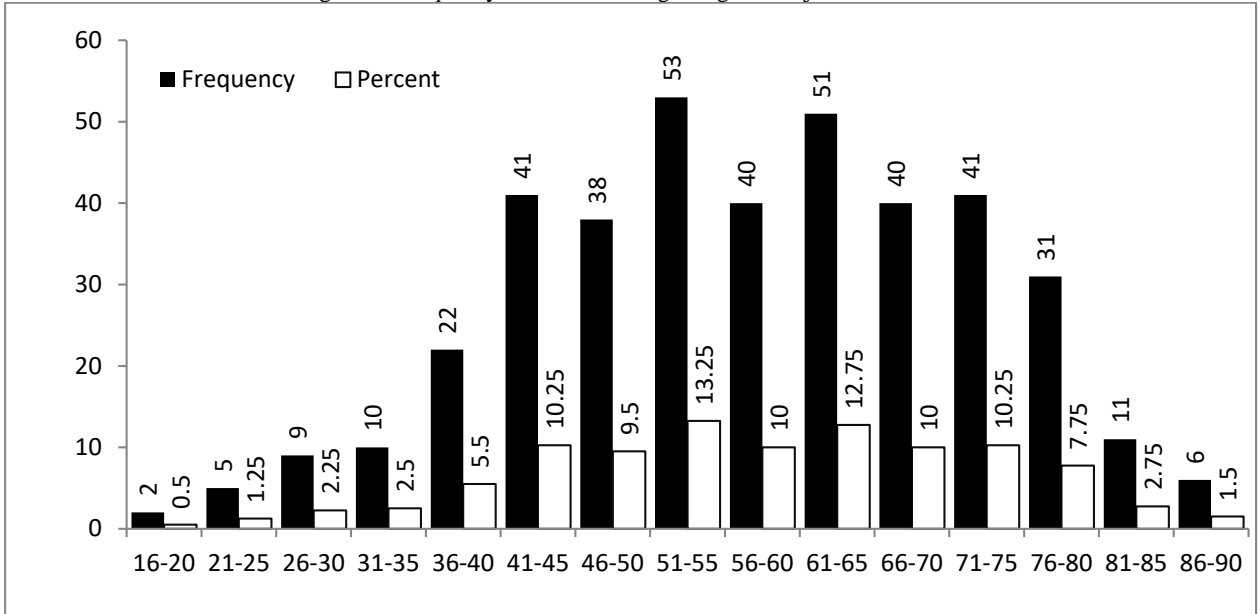
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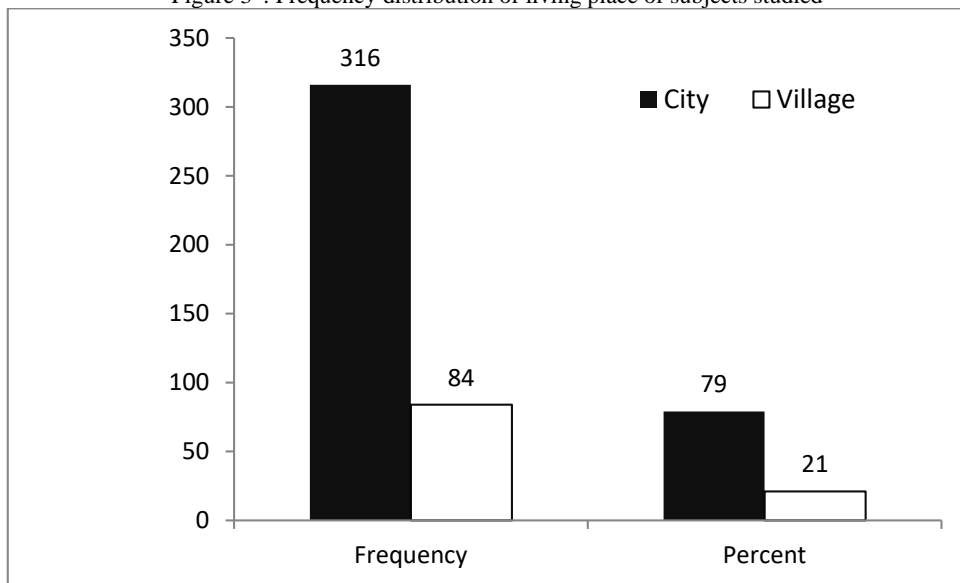
“Figure 1” Frequency distribution of gender of subjects studied



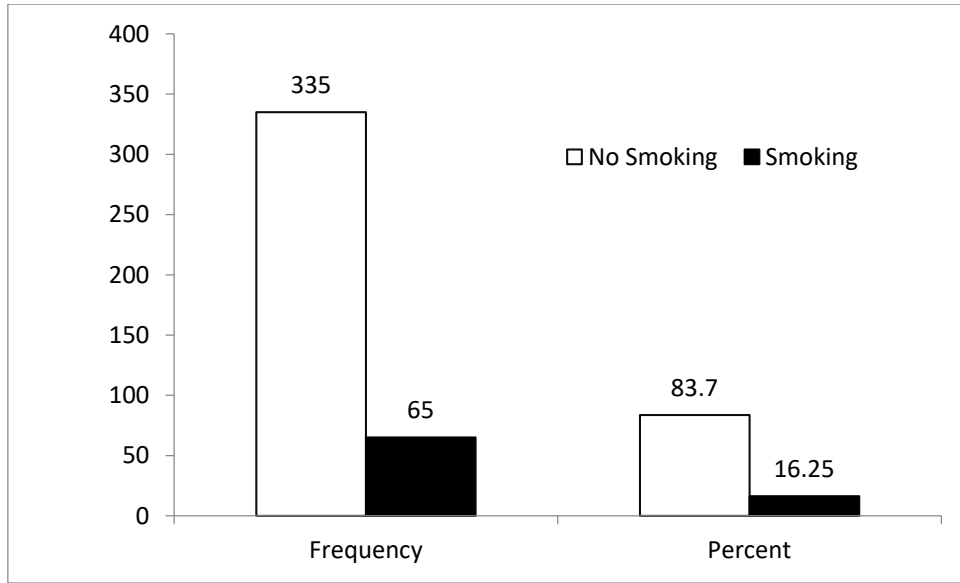
“Figure 2” Frequency distribution of age range of subjects studied



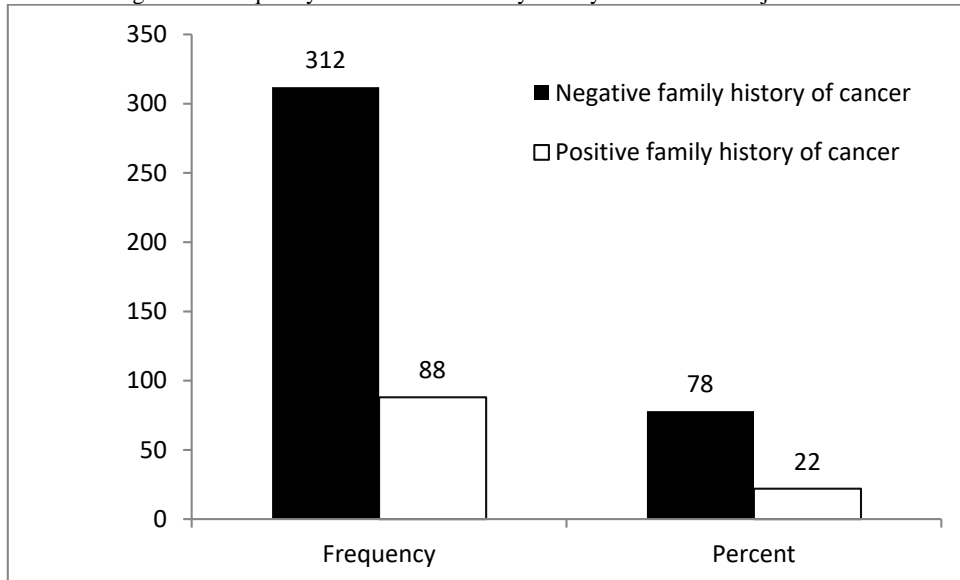
“Figure 3”: Frequency distribution of living place of subjects studied



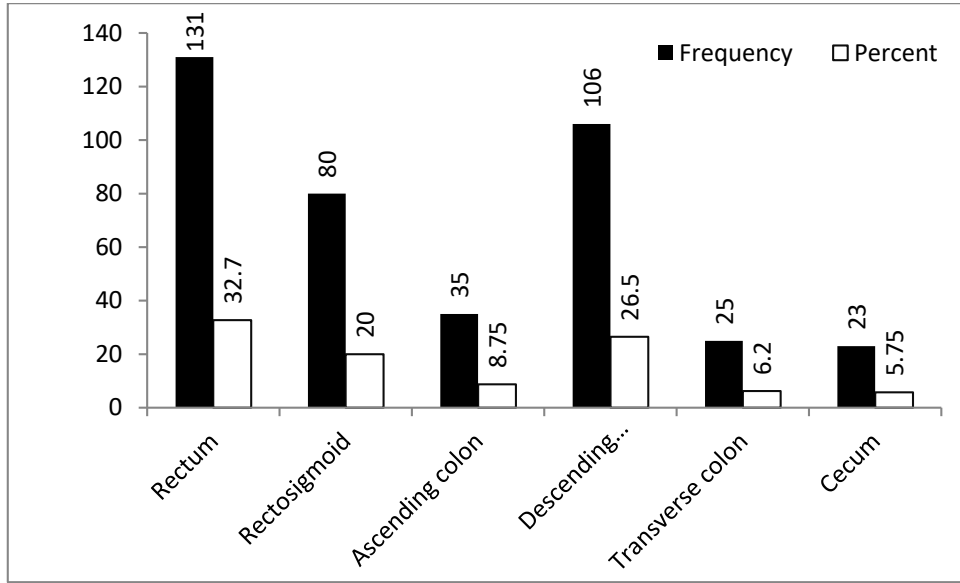
“Figure 4”: Frequency distribution of smoking state of subjects studied



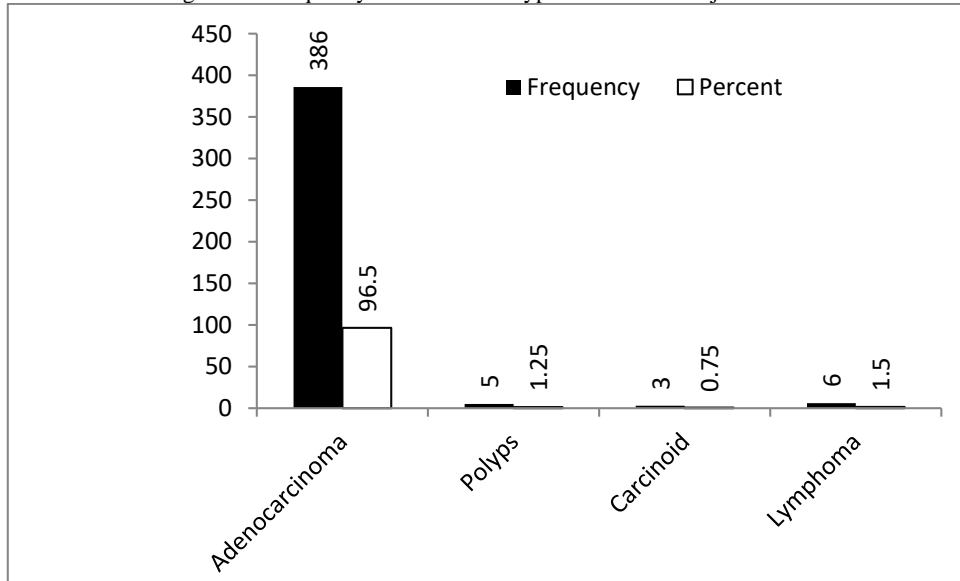
“Figure 5”: Frequency distribution of family history of cancer of subjects studied



“Figure 6”: Frequency distribution of tumor place in subjects studied



“Figure 7”: Frequency distribution of type of tumor in subjects studied



“Figure 8”: Frequency distribution of clinical manifestations of subjects studied

