Exploring Cancer Awareness Among University Students: A Survey of Risk Factors, Symptoms, And Treatment Options

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ABSTRACT

Uncontrolled division and proliferation of abnormal cells is called cancer. It is the second most common disorder after cardiovascular diseases. Common symptoms of cancer include extreme tiredness, weight loss, fever, pain, headache, eating problems and lumps or swelling on the body. Age, obesity, alcohol consumptions, smoking and radiations are one of the major risk factors for cancer. A survey was conducted to check the awareness level about cancer among the students of different departments of Baha ud Din Zakariya University, Multan. A questionnaire consisting of 15 basic questions about cancer was designed. A total of 500 students participated in completing the questionnaire. The results of the survey show the awareness among university students. 69.2% students were aware of the risk factors of cancer, 63.25% students were aware about the most prevalent type of cancer in males and females, 87.66% students were aware of the different modes of treatment and 79.25% students were hopeful that cancer can be treated successfully. In our study, only 1% students have remained cancer patients, 3% students have relatives with cancer and 5% students' neighbors were affected by this lethal disease. Awareness about cancer in students is not too good, therefore, there is a need to spread awareness among students by conducting seminars and diagnostic camps.

Keywords: Cancer, Awareness, Benign, Malignant, Metastasis, Chemotherapy, Radiotherapy

INTRODUCTION

Cancer is the uncontrolled division of abnormal cells(Sherr, 1996). It is a lethal disease, if untreated leads to death (Siegel, Miller and Jemal, 2016). Cancer occurs in two forms; either benign or malignant. Benign is a noncancerous localized mass of abnormal cells, which do not spread to other place in the body. Malignancy is a true cancerous condition in which cancerous cells spreads to other parts of the body from its place of origin. This process is called metastasis(Mantovani *et al.*, 2008). Major types of cancer are; Carcinoma (cancer of epithelial cells or of the lining of internal organs), Sarcoma (cancer of soft tissues and bones), Lymphoma (cancer of lymph nodes or lymphocytes) and Leukemia (cancer of blood)(Arnold *et al.*, 2020). Cancer can be treated through chemotherapy (by using anti-cancerous drugs), radiotherapy (usage of high doses of radiations to kill cancerous cells) and surgery (removal of cancerous cells or affected organ part)(Ahles and Root, 2018). Cancer is also considered as hereditary disorder because it can be passed down to next generations through defected genes from parents(Ponder, 2001).

Cancer has the second-highest death rate globally, following cardiovascular diseases (Siegel, Miller and Jemal,

2015). The International Agency for Research on Cancer (IARC) GLOBOCAN cancer estimated the incidence and mortality of cancer in 2020. In 2020, there were an estimated 19.3 million new cancer cases (18.1 million excluding non-melanoma skin cancer) and 10.0 million cancer-related deaths (9.9 million excluding NMSC) worldwide (Ferlay *et al.*, 2021). There is about a 20% risk of getting a cancer in a lifetime (before the age of 75) and a 10% risk of dying from it. This means one in five people will be diagnosed with cancer during their lifetime, and one in ten will die from the disease (Ferlay *et al.*, 2021). Most common types of cancer among males and females are prostate and breast cancer respectively (Armstrong *et al.*, 2011). Lungs cancer is the most common type of cancer in males and females (Travis, 2011). Cancer if diagnosed in a timely manner can be treated successfully (Siegel et al., 2015).

Like other parts of the world, cancer is also a major health issue in Pakistan. It is often undiagnosed due to a lack of awareness among the people. Most of the people are unaware about this lethal disease and do not even know about the basics of cancer. Therefore, to check out the awareness about cancer in people, especially among the students of Bahauddin Zakariya University Multan, a survey was conducted about the basics of cancer. The purpose of this survey was to check out the awareness level about cancer among university students.

METHODOLOGY

A cross-sectional approach was used in the current study. A questionnaire about the basics of cancer was designed. It was consisted of 15 basic questions (Table 3). The questions mainly consisted of the basics of cancer, its risk factors, prevalence, victims, and hope for treatment. A decision was made to cover the Biological (including Zoology, Botany, Biotechnology, Biochemistry, Microbiology and D-Pharm), Arts, Business, Agricultural, Engineering and Information Technology departments. Selection of these departments was made on the basis that level of awareness about cancer among the students of different departments could be obtained. Fifty students were selected from each department, with 25 males and 25 females. The inclusion criteria were to select only the students from Baha ud Din Zakariya University and exclusion criteria were to exclude any students from other universities. A total of 500 students participated in this survey from the departments listed. The survey was conducted with an equal ratio of males and females obtain a clear understanding of the knowledge of cancer between the two genders. The questions included in the questionnaire, are as follows:

RESULTS

Results were taken from the students and calculated in the form of percentage. Fig 1 consists of the response and understanding of students about the risk factors of cancer.

Risk to progress cancer increase with age? 19% of the males stated that age is a risk factor for cancer, while 81% said there is no association between age and cancer. On the females, side 27% answered "Yes" and 73% answered "No."

Smoking is a known risk factor for cancer. Among males, 84% answered "Yes" and 16% answered "No." In contrast, the responses from females were slightly different, with 87% answering "Yes" and 13% answering "No."

Regarding alcohol consumption as a cause of cancer, a larger proportion of males, who are generally more inclined towards alcohol consumption, believed it was a risk factor. Specifically, 91% of males answered "Yes," while 9% said alcohol consumption does not cause cancer. In comparison, 70% of females answered "Yes" and 30% answered "No.

"When asked whether long-term radiation exposure leads to cancer, both males and females showed high awareness of the dangers of radiation. 88% of males and 90% of females responded "Yes," while 12% of males and 10% of females answered "No."

Finally, when asked if obesity is a risk factor for cancer, 65% of males agreed, while 35% disagreed. Among females, 71% answered "Yes" and 29% answered "No."
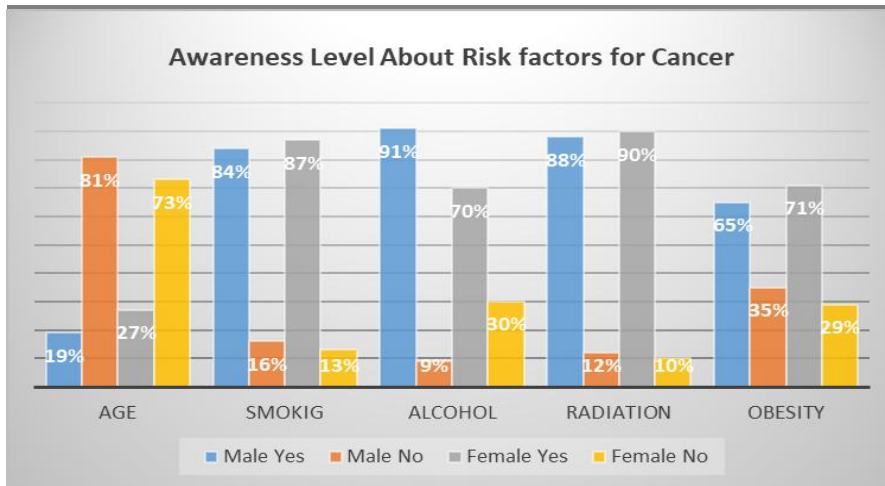
Fig. 1 the response and understanding of students about the risk factors of cancer.

The most prevalent type of cancer in males is prostate cancer. However, the results for this question were disappointing. Only 33% of males answered "Yes," while 67% answered "No." Among females, 25% answered "Yes" and 75% answered "No." Both groups showed a lack of awareness regarding this issue. Students from biological sciences were familiar with prostate cancer, while those from other fields were largely unaware of it.

The results for the next question were the complete opposite. When asked if breast cancer is the most common type of cancer in females, 95% of males answered "Yes," while 5% answered "No." All females who completed the questionnaire answered "Yes," with no one selecting "No."

The results regarding the most prevalent types of cancer in males and females are shown in Figure 2.
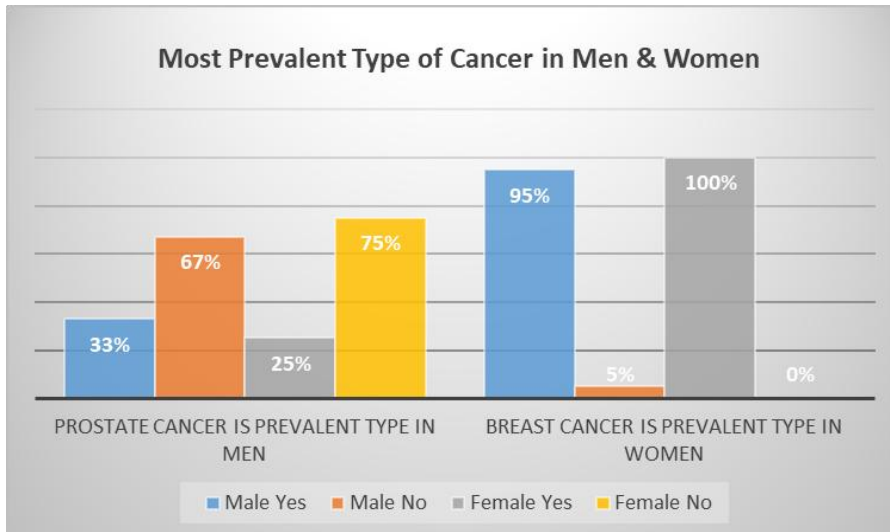
Fig. 2 the prevalent type of cancer in males and females

Next questions were about the possible treatments for cancer.

The first question asked whether cancer can be treated with medication. In the male category, 94% answered "Yes," while 6% answered "No." Among females, 97% answered "Yes," and 3% answered "No."

The second question asked whether cancer can be treated with surgery. All participants in the survey answered "Yes" to this question.

The final question in this section asked whether radiation is a method to treat cancer. The results were mixed, indicating that students were not fully aware of radiation as a treatment option. 61% of males and 74% of females answered "Yes," while 39% of males and 26% of females answered "No."

Overall, 87.66% of the students were aware of the different treatment options for cancer. The results for these questions are shown in Table 1.

Possible treatments for cancer	Male		Female		Total awareness of M&F
	Yes	No	Yes	No	
Medication only	94%	6%	97%	3%	87.66%
Surgical Treatment	100%	0	100%	0	
Radiations	61%	39%	74%	26%	

**Table 1: Awareness level about the possible treatments for cancer**

The awareness and response of the students about the victims of cancer.

The survey results showed that 100% of males reported not having cancer, while 1% of females indicated they had suffered from cancer, and 99% said they had not. Regarding family history, 100% of males reported no family members with cancer, while 3% of females reported having a family member affected by cancer, and 97% said no. Both males and females stated that they did not have any relatives suffering from cancer. When asked about neighbors, 5% of males and 6% of females reported having a neighbor with cancer, while 95% of males and 94% of females reported no neighbors affected by cancer. These findings are summarized in Table 2.

Participants	Male		Female	
	Yes	No	Yes	No
Cancer among Participants	0%	100%	1%	99%
Among Participants family member	0%	100%	3%	97%
Among Participants Relative	0%	100%	0%	100%
In neighbor	5%	95%	6%	94%

Table 2. Prevalence of Cancer among Participants

The survey results revealed that 78% of males believe cancer can be successfully treated if diagnosed in time, while 22% disagreed. Among females, 81% were optimistic about the success of timely cancer treatment, while 19% were unsure. Overall, 79.5% of all students expressed hope that cancer can be successfully treated with early diagnosis. The results are shown in Figure 3.
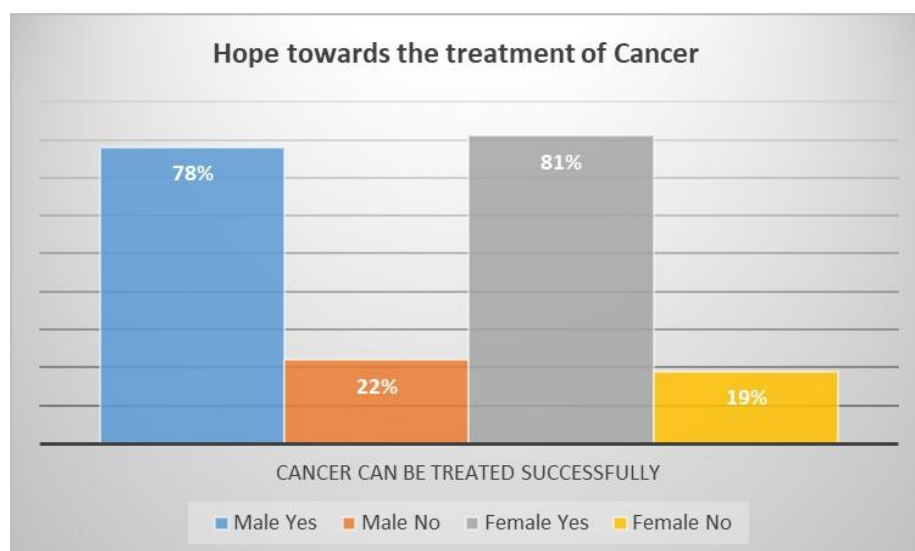
Fig. 3 Hope of cancer treatment among males and females

DISCUSSION

The findings of the present study clearly shows that students are only aware about the definition of cancer but majority of them are not aware about the basics of cancer. After the two introductory questions, the following questions focused on the risk factors of cancer.

According to the results, 23% of students identified age, 85% mentioned smoking, 81% highlighted alcohol consumption, 84% pointed to radiation exposure, and 63% cited obesity as risk factors for cancer. In a similar study conducted in Lahore by Zeeshan et al., to evaluate baseline knowledge about cancer, a survey was carried out among students from different age groups at educational institutions. The results survey showed that only 27% of students had "good" knowledge, 14% had "poor" knowledge, and 59% had "fair" knowledge about cancer (Zeeshan *et al.*, 2009). Similarly, another study in by Riaz et al., in 2016 clearly established a link between the use of Paan (a chewable mixture of betel leaf, areca nut, and sometimes tobacco), Chaalia (another term for the areca nut, often used in paan), Niswar (a form of smokeless tobacco, often powdered, that is sniffed or placed under the lip), Gutka (a mixture of crushed tobacco, areca nut, and other flavorings, commonly chewed), and Tumbaku (a general term for tobacco, often used in smokeless forms like snuff or chewing tobacco) and head and neck cancer. A significant proportion of people believe that the use of these items offers benefits, but also recognize their health hazards, immediate side effects, and their role in causing oral cancer. According to the study, 58% of head and neck cancer cases were caused by the use of these items (Riaz *et al.*, 2016).

In your study the next two questions were focused on the most common types of cancer in males and females. 24% of students identified prostate cancer as the most common type of cancer in males, while 95% of students correctly identified breast cancer as the most prevalent type of cancer in females.

Between 2010 and 2015, the Karachi Cancer Registry was established to track the common types of cancer in Pakistan. The database reveals that during this period, 51.8% of females and 48.1% of males were affected by cancer. According to the database, the most widespread types of cancer in men were: prostate cancer (34%), head and neck cancer (32.6%), lung cancer (15%), gastrointestinal tract cancer (6.9%), lymphoma (6.1%), and cancer of the bone and soft tissues (4.9%). Similarly, the most common types of cancer in females were: breast cancer (38.2%), head and neck cancer (15.1%), cervical cancer (5.5%), ovarian cancer (4.9%), and gastrointestinal tract cancer (4.9%). The database also indicates that both urban and rural populations rarely undergo consistent health examinations (International et al., 2016).

In this study next portion of the questionnaire were focused on the possible ways to treat cancer. 95% of students identified medication as a method for treating cancer, while 100% of students agreed that surgery is one of the most effective treatment options. However, students were less aware that radiation is also a treatment option, with only 33% of students answering "Yes" to this question.

A similar study conducted by Gulzar et al. in 2019 aimed to explore cancer treatment methods among Pakistani cancer patients. The study interviewed 191 cancer patients using a questionnaire. The results showed that 54.5% of the patients were using unconventional treatments. Unconventional treatments refer to medical practices that are used as alternatives to traditional medications for diagnosing and treating various medical conditions. Specifically, 70.2% of patients were using herbal medicines, and 64.4% were under the care of homeopathic doctors. Most of these patients were influenced by family members and relatives to adopt these alternative treatments (Gulzar *et al.*, 2019).

The second last portion of the questionnaire was about the victims of cancer. Students were asked either they are there any family member, relative or neighbor is suffering from cancer. No male student was suffering from cancer while 1% of the females have suffered from breast cancer in their lives. 3% of the students have family members who were suffering from cancer while there was not a single case of cancer among the relatives of students. 5% of the total students have neighbors who were suffering from cancer.

In the final portion of our study questionnaire, students were asked about their hope for the successful treatment of cancer. 80% of students expressed hope that cancer could be successfully cured if diagnosed in a timely manner.

A similar study conducted in 2014 examined the emotions and expectations of females following a breast cancer diagnosis. The study included 21 female participants, 17 of whom were married and 4 who were single. The results were surprising, as the women showed high motivation to undergo treatment after their diagnosis. Among the married women, the most common motivating factor was the desire to care for and raise their children. Due to the uncertainty of the disease, many were concerned about who would take care of their children if they passed away before their children reached adulthood. This sense of responsibility and fear for their children's future drove their strong motivation toward treatment (Article, 2015).

CONCLUSION

This important study emphasized on the awareness about the lethal disease. Throughout the world, cancer is considered as one of the most widely spread disease which is also the second most leading cause of death. Although, new and better ways of treatment have developed to treat this lethal disease, but still the expectations of the victims towards the treatment are low. University students have an average awareness and knowledge about this disease.

The results of our study clearly show that there is a need to arrange awareness programs like seminars about the risk factors of cancer, it's major types, prevalence rate, mortality rate and possible ways of treatment so that, not only students but also people from surroundings could be benefited. The need of the time is to take action on these measures as early as possible so that we may able to diagnose and treat cancer timely.

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Questionnaire about awareness of cancer among university students

No.	Introduction	Yes	No
1.	Cancer is the uncontrolled growth of abnormal cells		
2.	There are four stages of cancer		
	Risk factors		
3.	Risk to progress cancer increase with age		
4.	Smoking is a risk factor for cancer		
5.	Alcohol consumption can cause cancer		
6.	Radiation exposure for long time leads to cancer		
7.	Obesity is one of the aspects of cancer		
	Prevalence		
8.	Prevalent type of cancer in men is prostate cancer		
9.	Most common type of cancer in females in breast cancer		
	Treatment		
10.	Cancer can be treated with medications only?		
11.	Cancer can be treated with surgery?		
12.	Do you think radiations are one of the ways to treat cancer?		
	Victims of cancer		
13.	Do you have or had cancer?		
14.	Any family member, relative, in your neighbor have cancer?		
	Hope towards treatment		
15.	Do you think, cancer, if timely diagnosed, can be treated successfully		