

# Awareness Level of Cancer Warning Signs and its Determinants among University Students in UAE

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## Abstract:

Cancer is considered as a threatening disease affecting individuals all over the world and it is among the top three causes of death in UAE as recorded by the Ministry of Health. Young generations including university students are not immune to cancer particularly nowadays where the risk factors of cancer are common in our daily life. The purpose of this research is to display an insight into the awareness of non-medically educated U.A.E undergraduates about cancer warning signs and prevention factors. This cross-section survey-based study researched 356 undergraduate students (40.8% Male and 58.8% Female) as a representative sample of the university population of UAE, who were questioned about their awareness towards cancer. Because anyone may be susceptible to have cancer, sufficient cancer awareness regarding prevention by lifestyle modification should be strongly acknowledged.

**Keywords:** cancer, knowledge, risk factors, warning sign, university students

## INTRODUCTION:

Globally, cancer is a major burden and the second leading cause of mortality after cardiovascular diseases<sup>[1-4]</sup>. The incidence of cancer increased world wide with an estimate of more than 11 million people are annually diagnosed with cancer. Moreover, by the year 2030, it is expected that cancer will count 26 million new cases and 17 million cancer deaths<sup>[1]</sup>.

Cancer can be defined as irregular and uncontrollable growth and spread of cells<sup>[5]</sup>. More than 50% of all cancer cases are believed to be attributable to numerous unhealthy risk factors<sup>[2]</sup>. Indeed, the majorities of cancer cases are potentially preventable because most cancer risk factors are modifiable and avoidable<sup>[3, 5, 6]</sup>. These include nutritional deficiencies, sedentary lifestyles, obesity, smoking, excessive alcohol consumption and sexually transmitted infections<sup>[2, 3, 5, 6]</sup>.

The incidence rate of cancer successful treatment and survival greatly associated with the early detection of the disease<sup>[7]</sup>. Detection of cancer symptoms and warning signs can be classified into passive detection and active detection<sup>[7]</sup>. Cancer detection by awareness of suspicious symptoms is considered passive detection<sup>[7]</sup>. On the other hand, actions taken by the patient like participation in medical checks or screening program are the active detection<sup>[7]</sup>.

The European Code Against Cancer publicizes a list of seven warning signs of cancer, with the recommendation to seek medical advice if any of these signs are noticed<sup>[8, 9]</sup>. The signs include a thickening or lump, unexplained weight loss, change in a wart or mole, change in bladder or bowel habits, unusual bleeding or discharge, nagging cough/hoarseness, and a sore that does not heal<sup>[8, 9]</sup>.

Early detection of cancer is highly critical because of its impact on the stage of diagnosis and survival<sup>[9, 10]</sup>. cancer diagnosis delay can be a result from providers inappropriate referring (provider delay) or patients not seeking medical help from providers (patient delay)<sup>[9, 11]</sup>. It is generally agreed that patient delay play the major role in cancer diagnostic delay<sup>[9, 11]</sup>. Early detection is possible when people have adequate knowledge and awareness of cancer symptoms and its warning signs<sup>[1-3, 5, 8, 9, 12-15]</sup>. Awareness and knowledge of cancer warning signs and risk factors will promote a healthy lifestyle and adequate cancer prevention<sup>[1-3, 5, 8, 9, 12-15]</sup>.

In 2016, UAE had announced that the new aim is to decrease cancer cases in the country by 18%<sup>[16]</sup>. The UAE National Health Agenda 2021 has included cancer as one of the Key Performance Indicators (KPIs) to assess the nation's health-care goals being on

track<sup>[16]</sup>. The target is to reduce cancer deaths to about 64.2 per 100,000 of the population by 2021<sup>[16]</sup>.

The present study was designed to assess cancer awareness among university students and to evaluate the factors associated with this awareness. The results of the study will be helpful as prerequisite data for developing effective future health interventions.

## MATERIALS AND METHODS:

A cross-sectional study was conducted using convenience-sampling method. The targeted population was non-medical university students. Raosoft sample size calculator was used and the minimum sample size required to be enrolled in the current study was 356 undergraduate students<sup>[17]</sup>.

The questionnaire was designed based on the parameters to be evaluated as part of the study and by referring to previous literature<sup>[1, 6, 18]</sup>. Modifications were done to make it convenient for UAE non-medical students. Participants who were willing to be enrolled in this study were asked to sign informed consent forms. Students who were not willing to participate and medical students were excluded from the study. The interviewer intervened only to clarify a question if required. No attempt was made to prompt the respondents by suggesting answers directly.

The developed questionnaire was designed to be interview-administrated. The questionnaire comprised of three parts: social - demographic, awareness toward cancer risk factors and warning signs awareness.

For the awareness items, the coding was established by giving 1 mark for the correct answer and zero for both the wrong answer and don't know choice. High awareness level considered for score value above the mean/median score and low awareness level considered for score value below the mean/median score.

Feedback obtained from pilot study population were considered accordingly. Face to face validity was assessed by experts and questions adjustments were made to the questionnaire to improve its validity. SPSS version 24 was used in the analysis. Descriptive analysis was used to analyze the socio-demographic data. A correlation analysis was performed to test association. A *p* value of less than 0.05 was considered significant.

## RESULTS:

The response rate was 76.12%. The M (SD) of participants age is 21.14 (4.82) years. The socio-demographic characteristics of the enrolled non-medical university students are listed in Table (1). Ninety two percent of the respondents had a good awareness score while 8% had poor awareness score (Figure1). The M (SD) is 9.93(2.57). Twenty seven percent of the participants were not able

to define correctly cancer as uncontrolled growth of cells of the body. More than 50% of the participants stated that early detection of cancer is difficult because there are no specific symptoms (Table 2). Eighty nine percent of the respondents were aware about the cancerogenic effect of smoking. The details of the responses of the students are listed in Table (3).

Ninety percent of the participants had high awareness of cancer risk factors while 10% had low awareness level (Figure2). The M (SD) is 15.28 (4.00). Participants agreed that the main three risk factors for cancer are (smoking 88.6%, exposure to sunlight 74.6%, alcohol 66.2%).

On the other hand, 68% had moderate awareness of cancer warning signs and 32% with low awareness (Figure3). The M (SD) is 1.68(0.47). The majority of the students correctly answered awareness questions about thickening or lump in the breast and other organs (90%) and unexplained weight loss (78%) as warning signs of cancer. The details of the responses of the students are listed in Table (4).

The relationship between awareness toward cancer causes and awareness toward cancer warning signs was investigated using Pearson product-moment correlation coefficient (r). Preliminary analysis was performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a positive correlation between the two variables,  $r=0.221$ ,  $p=0.00$ .

A correlation test was conducted to compare the total awareness scores with age, gender, family history and smoking status. There was a positive association between the awareness score and gender ( $p=0.038$ ) and smoking status ( $p=0.000$ ). A negative association was revealed with age ( $p=0.0436$ ) and family history ( $p=0.068$ ).

**Table 1:** Social Demographic Data. The socio-demographic characteristics of the enrolled non-medical university students.

Variables	Sub variables	Frequency	Percentage %
Gender	Male	111	40.8 %
	Female	160	58.8 %
Nationality	Local	60	22.1 %
	South Eastern	10	3.7 %
	Arab	184	67.6 %
Attended any Health campaign/workshop on cancer	Yes	73	26.9 %
	No	199	73.1 %
Smoker	Yes	58	21.3 %
	No	205	75.4 %
	Ex-smoker	8	2.9 %
Family history of cancer	Yes	95	34.9 %
	No	177	65.1 %

**Table 2:** Cancer definition and characteristics awareness. Participants correct response to awareness questions of cancer definition and characteristics.

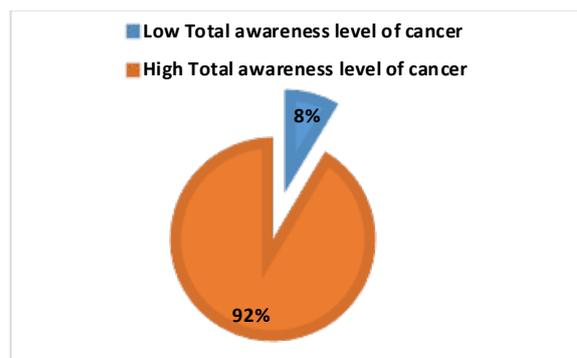
Questions	Frequency	Percentage
Cancer is uncontrolled growth of cells of the body.	197	72.4 %
Anybody is susceptible to cancer	213	78.3 %
Cancer is not a life threatening disease.	212	77.9 %
Early detection of cancer is difficult because there are no specific symptoms	125	46.0 %

**Table 3:** Cancer risk factors awareness. Participants correct response to awareness questions of cancer risk factors.

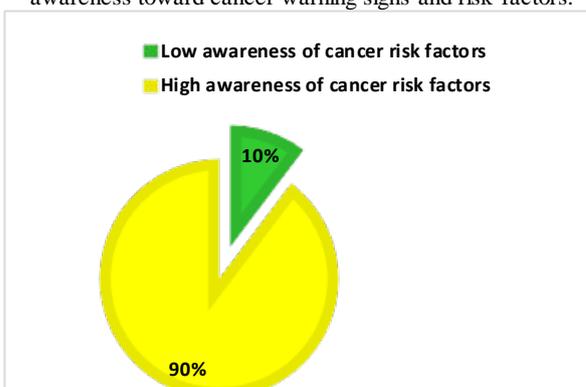
Questions	Frequency	Percentage
Cancer can be caused by a virus	164	60.3 %
The cause of cancer is unknown	133	48.9 %
Cancer is an infectious disease	217	79.8 %
Smoking can cause cancer	241	88.6 %
Any sun-exposure on ultra violet rays can cause cancer.	203	74.6 %
Alcohol Addiction can cause cancer	180	66.2 %
A balanced diet reduces the possibility of getting cancer	191	70.2 %
Regular health checkup helps detect cancer early	235	86.4 %
Self-breast examination is the best way to detect cancer early	178	65.4 %
Regular exercise reduces the chances of getting cancer.	202	74.3 %

**Table 4:** Cancer warning Signs awareness. Participants correct response to awareness questions of cancer warning signs.

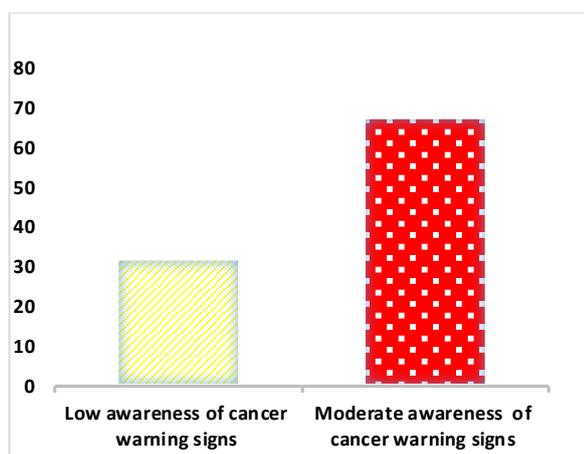
Questions	Frequency	Percentage
Change in bowel or bladder habits	114	41.9 %
A sore that does not heal	123	45.2 %
Unusual bleeding or discharge	188	69.1 %
Thickening or lump in breast and other organs.	244	89.7 %
Difficulty in swallowing	130	47.8 %
Indigestion	132	48.5 %
Change in a wart or mole	182	66.9 %
Nagging cough or hoarseness	123	45.2 %
Unexplained loss in weight.	212	77.9 %



**Figure 1:** Non-medical student's Total awareness score about cancer warning signs and risk factors. Percentage of participants' awareness toward cancer warning signs and risk factors.



**Figure 2:** Non-medical student's awareness about cancer risk factors. Percentage of participants' awareness toward cancer risk factors.



**Figure 3:** Non-medical student's awareness about cancer warning signs. Percentage of participants' awareness toward cancer warning signs.

#### DISCUSSION:

Identifying undergraduate university student's awareness of cancer causes and risk factors will significantly benefit the prosperity of cancer control program in UAE. The findings of this study were in agreement with various studies that have been carried out in Australia, Canada, Denmark, Norway, Sweden and the UK, that have found high levels of awareness of cancer risk factors<sup>[2, 13]</sup>. On the other hand, studies conducted in Malaysia and Saudi Arabia revealed that participants had low awareness and knowledge levels.

More than 50% of the participants stated that early detection of cancer is difficult. The result of the current study was in disagreement with a study in Saudi Arabia that found 58.3% of the respondent believes most of the cancers are curable in early stages<sup>[19]</sup>. Another study assessing the knowledge indicated that 76% of the enrolled participants believed early detection of certain cancers could positively save the life<sup>[15]</sup>. More educational programs aiming to correct the previous misconception needed to be started as soon as possible.

In this study, it was noted that men had lower awareness compared to women. Previous studies have consistently reported higher levels of awareness of cancer risks among women than men<sup>[1, 5, 8, 20-23]</sup>. The gender effect on the knowledge and awareness scores can be explained by the fact that cancer prevention campaigns have focused mainly on breast and cervical cancers which involve only females<sup>[5]</sup>. Moreover, Women more frequently seek medical help than men. More contact with healthcare facilities increases health awareness and offers positive protective behaviors toward cancer prevention<sup>[1]</sup>.

Our findings were consistent with a study conducted in Oman for the main risk factors (smoking 88.6%, exposure to sunlight 74.6%, alcohol 66.2%)<sup>[5]</sup>. Eighty eight percent (88.6%) of the respondents indicated that smoking is a risk factor for cancer, which in turn reflect the positive outcome and the success of the smoking awareness campaigns in UAE.

Respondents in this study showed high awareness about balanced diet (70%) as a protective factor for cancer. In contrast, low awareness level was discovered in a study regarding the fact, eating less fruits and vegetables contribute to increase the risk of cancer<sup>[6]</sup>. It is of utmost importance to maintain the high knowledge and awareness level by continuing implementation of public health campaigns. Increasing public health awareness and knowledge will stimulate healthy lifestyle practices, which in turn will project lower incidence of cancer in the country.

The results of this study indicate that participants' awareness of warning signs of cancer is moderate, as 68% had high awareness

of cancer warning signs and 32% had low awareness. The previous studies conducted in developed and developing countries showed poor public awareness of cancer symptoms<sup>[1, 15, 24, 25]</sup>. Warning signs that interfere with daily activities are considered easily recognized and are the reasons for early medical checkups<sup>[1, 26]</sup>.

The most frequently recognized warning signs for cancer in our study were thickening or lump (89.7%) followed by unexplained weight loss (77.9%). These results support the findings from previous studies that also showed that "unexplained lump or swelling" was the most recognized cancer risk factor<sup>[1, 25]</sup>. Other risk factors of cancer that less recognized were cough (45.2%), and change of bowel habit (41.9%). These findings advocate the need to increase the awareness on the unrecognized warning sign of cancer. Awareness of early warning sign leads to early detection of cancer, as it encourages individuals to seek medical help, and avoid the delay in help seeking.

#### CONCLUSIONS:

In conclusion, the results of this study indicate that non-medical undergraduate university students are more aware of cancer risk factors than cancer warning signs. There is a critical need to maintain the high awareness level of cancer risk factors, as having more public awareness will lead to less exposure to risk factors and better protection against the disease. Decision makers in the UAE strongly recommended including cancer literacy program in the country strategic plans. This study has demonstrated moderate awareness about cancer warning signs, thus future research is required to determine the best source for cancer information. Establishing partnerships with numerous media channels will enhance the spread of cancer information. The educational activities should focus on university undergraduates. Moreover, The Ministry of Higher Education should emphasis on integrating cancer prevention in the university curriculum for non-medical colleges.

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